Inception Report

GCRF Evaluation – Foundation Stage

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Submitted by Itad

technopolis |group|

Results in development

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Disclaimer

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.

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1. Introduction

This Report

This is an Inception Report for the Foundation Stage evaluation of the Global Challenges Research Fund (GCRF). It comes less than one month after the formal kick-off of this Foundation Stage. In most evaluations, the Inception Report primarily describes the evaluation approach and methods for an evaluation to be conducted in an immediately proceeding phase. And if the evaluation is to be theory-based, a theory of change is often produced by this point. This is only partly the case here – the methodology for the Process Evaluation of GCRF calls to date is described below. However, a major deliverable of this contract is the design of an evaluation strategy and framework for GCRF. This will be delivered in mid-2018 as a final output, together with a detailed GCRF theory of change.

This report therefore combines aspects of a traditional inception report, with being in part an expanded progress report and in areas, the basis for on-going conversations with the Steering Panel. The audience for this report is very specifically the GCRF evaluation Steering Panel.

Why this evaluation

GCRF is a £1.5 billion fund that will harness the expertise of the UK's research base to pioneer new ways of tackling global challenges. It will ensure that UK research takes a leading role in addressing the problems faced by developing countries[1].

GCRF was announced as part of the Spending Review 2015[2]. The UK Aid Strategy[3] 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*'. 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 is an important part of this non-DFID ODA budget.

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

> "*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 requirements, as well as meeting BEIS' and the GCRF delivery partners' desire to learn about what works in the Fund, and how to improve its implementation and impact.

[1] BIS (2016). *The Allocation of Science and Research Funding 2016/17 TO 2019/20*. Department for Business, Innovation and Skills, London.

[2] 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.

[3] HMT & DFID (2015). *UK aid: tackling global challenges in the national interest*. HM Treasury, London.

2. 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 do this GCRF evaluation in two stages. Initially a Foundation Stage that combines a modest Process Evaluation with detailed design work for the main evaluation.

The Foundation Stage was procured through DFID's Global Evaluation Framework Agreement (GEFA) in mid-2017. The tender was awarded to the Oxford Policy Management (OPM) – Itad consortium, and the work is being undertaken by a small team led by Itad, in association with the Technopolis Group and the Policy Studies Institute at King's College London.

It is intended that the Main Evaluation will be commissioned in 2018, through a procurement route selected by BEIS. BEIS is working closely with DFID on this evaluation, to benefit from DFID's experience with evaluation of ODA and development impact.

Foundation Stage modules

The Foundation Stage consists of three modules:

1. **Theory of Change**

GCRF has already developed a theory of change in table form, which provides some of the main steps in the Fund's intervention logic. The nature of research impact evaluation is such that it is likely that the main evaluation will take a theory-based approach. For this, a detailed theory of change is necessary, and this module entails working closely with major GCRF stakeholders to develop a theory of change, through an iterative process.

2. **Process Evaluation**

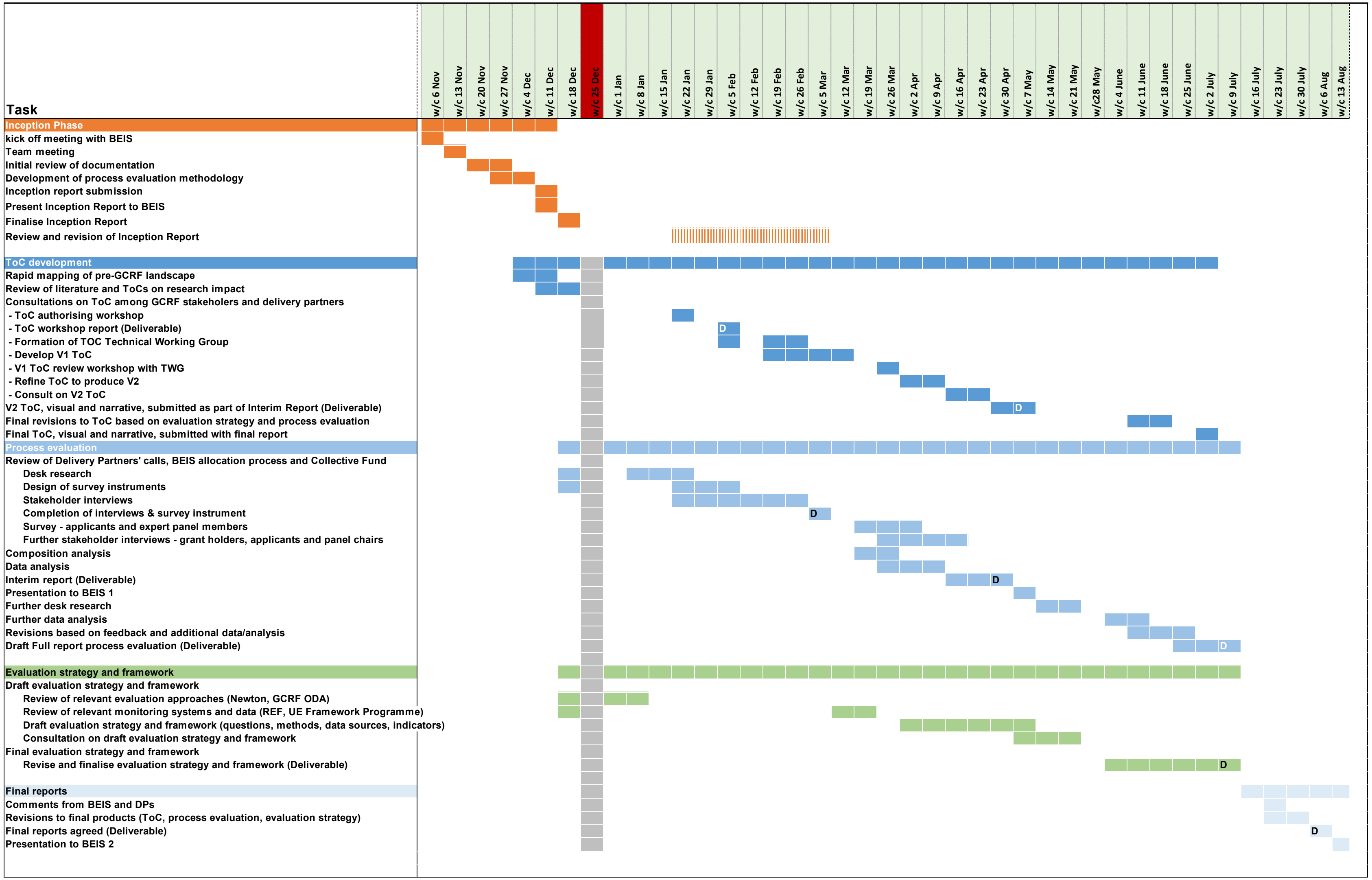
This module is a substantive and stand-alone piece of work. It is undertaking a process review of the GCRF calls to date. It will examine how these map to dimensions including: GCRF priorities/challenge areas, disciplinary spread, geographies, delivery partners, research institutions, and research partners.

3. **Main Evaluation Strategy and Framework**

This module will provide the major elements for the Main Evaluation. It will develop an evaluation strategy for GCRF, outlining a proposed approach that will provide both learning and accountability for the Fund. This will be combined with an evaluation framework that will show the evaluation questions (EQs), measures of success, and sources of data that will be used for assessment.

These modules are elaborated in sections below.

Workplan



* dates are dependent on agreeing Data Sharing Agreements with Delivery Partners, so that surveys can proceed as planned

Deliverables

Over the course of the contract, the following milestone reports will be delivered:

Milestone	Due date
1: Inception Report	8th March 2018
2: Initial Theory of Change	8th February 2018
3a: Completion of interviews & survey instrument	12th March 2018
3b: Interim Report with final ToC and initial Process Evaluation findings	12th May 2018
4: Draft Final Reports (Process Evaluation, Evaluation Strategy & Framework	14th July 2018
5: Final Reports Approved	11th August 2018

Work to date

Since the inception period has been compressed and has also occurred in a busy period pre-Christmas, it has not been possible to meet or speak to as many GCRF stakeholders as had been intended. The first substantive round of discussion will occur in January. Nonetheless, a limited number of scoping interviews have taken place for the Process Evaluation and Evaluation Strategy modules. The Process Evaluation team have been busy collating and organising all the GCRF call documents that are still available online, and compiling a list of interviewees. The ToC and Evaluations Strategy team have focused on document collection and review, and some initial interviews.

3. GCRF

Aims and objectives

The GCRF aims *"to ensure UK science takes the lead in addressing the problems faced by developing countries, whilst developing our ability to deliver cutting-edge research"*[4]. The fund will *"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."*[5] It will run for five years between 2016/17 and 2020/21, and operates alongside the Newton Fund, also owned by BEIS[6].

The UK Aid Strategy, under which GCRF is located, is underpinned by a very clear guiding principle: "*that the UK's development spending will meet our moral obligation to the world's poorest and also support our national interest*". GCRF therefore has a two-part purpose: development of the world's poorest and supporting the UK's national interest. The evaluation will recognise this.

The 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 UN Sustainable Development Goals (SDGs)[7], and, reflecting the BEIS ODA statement of intent, maximise the practical impact of research and innovation to improve the lives and opportunities of the global poor.

[4] BIS (2016) *The Allocation of Science and Research Funding 2016/17 To 2019/20*. Department for Business, Innovation and Skills, London. https://www.gov.uk/government/publications/science-and-research-funding-allocation-2016-to-2020
[5] BIS (2016). *Ibid*.
[6] www.newtonfund.ac.uk
[7] http://www.un.org/sustainabledevelopment/sustainable-development-goals/

Priorities

GCRF aims to address global challenges in three main themes: i) equitable access to sustainable development, ii) sustainable economies and societies, and iii) human rights, good governance and social justice. Across these themes, 12 challenge areas have been identified. GCRF is also creating initially six strategic GCRF Challenge portfolios, aligned with the SDGs. These will be developed by Delivery Partners across the whole GCRF programme: Global Health; Food Systems; Security Protracted Conflict, Refugee Crises and Forced Displacement; Education; Resilience to Environmental Shocks and Change; and Cities and Sustainable Infrastructure.

The GCRF will support those activities that can demonstrate that they have the strongest potential for impact, recognising that research outcomes can be difficult to predict and pathways to impact can be complicated.[8]

Delivery Partners

GCRF is administered through Delivery Partners (DPs) including RCUK/UKRI and the seven Research Councils, the four higher education academies, the UK Space Agency, and the four national higher education funding councils.

The planned allocation of funds between delivery partners over the five years is as follows (Table 1):

Table 1. GCRF original annual allocation across delivery partners by percentage of the total

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%.

** There are seven Research Councils: Arts and Humanities Research Council (AHRC); Biotechnology and Biological Sciences 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)

*** The unallocated amount will be largely used for the Collective Fund, managed by RCUK.

(Source: ICAI, 2017)

The role of the UK research base

GCRF will mobilise the UK's world-leading research base, bringing together academic research, working across all disciplines, with non-academic partners such as industry associates, to address key challenges facing developing countries. Supporting interdisciplinary and ground breaking challenge-led research 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. The fund both harnesses and strengthens the UK's globally-recognised research base, and

[8] BEIS (2017). *UK Strategy for the Global Challenges Research Fund (GCRF)*. Department for Business, Energy, and Industrial Strategy, London.

drawing on recommendations from the Nurse Review[9], aims to foster interdisciplinarity and international working.

UK-based research organisations (universities and research institutes) are the principle recipients of BEIS ODA funding, and have been strongly encouraged to collaborate with research partners overseas. Funding is allocated on an open, competitive basis to excellent research with the primary purpose of generating outcomes and impacts that will contribute to the economic development and welfare of developing countries.

Calls to date

The calls for proposals issued to date for funding under GCRF are listed in Appendix B.

4. Theory of Change

In this section, we outline the importance and purpose of the Theory of Change (ToC), how ToCs are developed and the key stages our ToC development process. We present a rubric for assessing ToC quality and conclude with an agenda for the forthcoming high-level ToC development workshop in January.

The complex nature of the 'academic research → development impact' system is such that it does not lend itself to the types of evaluation that depend on counterfactual approaches to causal inference. For this reason, BEIS has indicated that it expects the evaluation strategy and thence the Main Evaluation to have a core component that is a theory-based evaluation.

A *theory of change* is a 'programme theory' that explains how an intervention (or fund) is expected to produce its results[10]. Theory-based approaches to evaluation use an explicit theory of change to draw conclusions about whether and how an intervention contributed to observed results. Theory-based approaches are thus a 'logic of enquiry', they use a theory of change - with evidence - to test the assumed causal chain of results with what is observed to have happened.

The ToC is therefore a corner-stone for the GCRF evaluation. A theory-based evaluation is contingent on having a plausible and testable theory of change which makes explicit assumptions and causal relationship in the research-to-impact pathways.

Importance and purpose of ToC

Programmes are designed and implemented by teams of people - as such they are shaped by personal and professional beliefs, mental models and hypotheses about how change happens, e.g. the way humans work, organisations, political systems, or natural ecosystems. These 'theories' can be conscious or unconscious and draw on a mix of academic theories and disciplinary insights, personal values and culture, practical experience, i.e. people's incomplete interpretation of a complex reality. These 'theories' provide the rationale, or logic, that explains how the intervention is expected to produce its results, but this logic is often implicit, and is typically insufficiently informed by the realities of the contexts where the results are expected to emerge.

Programme theory approaches propose that the underlying 'theories' need to be made explicit to enable closer analysis of the logic that is driving design and implementation - to critically review assumptions, identify 'blind spots' in the causal logic, and check the fit of the proposed intervention

[9] Sir Paul Nurse (2015). *Ensuring a successful UK research endeavour - A Review of the UK Research Councils*. BIS, London.

[10] Funnell, S.C. and Rogers, P. J. (2011) *Purposeful program theory: effective use of theories of change and logic models*. San Francisco: Jossey-Bass/Wiley

to the realities of context.[11] This enables us to build a more complete and 'testable' model to help improve design and implementation, and facilitate evaluation.

ToC as a process works best if used as an integral part of programme management, and regularly updated with evidence about results and causal factors, especially where the links between interventions and results are complex and emergent over time, as in the 'academic research → development impact' system. Evidence that supports or challenges the ToC can be fed back at each evaluation stage to help adjust the programme to meet its aims more effectively.

Commonly a ToC is expected to serve more than one function. Often it is used as a summary of an intervention or initiative, or a way to communicate a programme in a concise way. GCRF has already developed an initial version of its ToC which summarises the high-level change process and expresses the broad intervention logic. However, it is frequently difficult for a single ToC to serve both communication and evaluation purposes – a communications oriented ToC is necessarily simple; an evaluation oriented one needs to be a more complicated construct. We recognise that GCRF stakeholders probably need both levels of ToC, and we will aim to produce both, starting with the evaluation oriented one.

Given these insights, in our experience, it is helpful to think of 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.
- **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.

We propose to cover all three aspects in this module.

ToC Development

ToC development is not easy, it requires critical questioning of received wisdoms, unpicking established ways of doing things, and being led by the changes we'd like to support rather than by activities we'd like to do. To achieve a productive process, ToC development benefits from a facilitated, systematic group approach, but it is important that the theory of change is developed and 'owned' by the major GCRF stakeholders as *their* theory of how GCRF will have impact. The evaluation team will facilitate the development of a GCRF theory of change. The end product will be a documented ToC model that has been agreed by stakeholders, which, while still a simplification of the complex GCRF impact pathways, provides a conceptual model that is sufficiently detailed to form the basis of the evaluation framework.

Key steps in ToC development

In the workplan, we have proposed a two-three stage ToC development process to ensure that we consult GCRF stakeholders and delivery partners appropriately and efficiently while building ownership, as well as drawing on literature to provide a solid foundation to the ToC, as follows:

- Rapid mapping of the pre-GCRF landscape
- Review of literature and ToCs on research impact
- ToC authorising workshop with high-level stakeholders [Jan 2017]

[11] Funnell and Rogers 2011; Van der Knapp 2004; Weiss 1995; Chen 1990

- Formation of Technical Working Group (TWG) to co-create ToC
- Report on high-level stakeholder ToC workshop, including ToC zero draft [v0] [Jan/Feb]
- Engage with TWG to build out the ToC detail [Feb/Mar]
- Produce ToC v1 with accompanying narrative [Mar]
- Consultation with TWG on ToC v1 at functional workshop [Mar]
- Revisions to final ToC (v2) based on evaluation framework and process evaluation
- Agreement and sign-off of ToC v2 as part of the final deliverables. [Jul]

It should be noted that we wish to have an initial ToC engagement with senior GCRF stakeholders to frame the TOC and collect high-level ideas. We would get authority from this group to work with a sub-set of the group – a Technical Working Group (TWG), with whom we will work closely to develop the detailed ToC that can form the basis for a theory-based evaluation.

ToC components

The ToC analysis takes stakeholders systematically through articulating the key aspects of their ToC. For GCRF, the process will aim to elaborate the existing ToC further, drawing on evidence and learning about research impact. The key steps in a ToC process are:

1. Expressing the longer-term desired change in specific terms – what will have changed, for whom and where?

2. Analysis of the system(s) where change needs to happen, and the current situation, e.g.:
    - context analysis: social, political, economic, ecological and other dimensions
    - stakeholder and actor analysis
    - power and gender dynamics, drivers of change, opportunities for change.

3. Mapping change pathways (also called impact pathways):
    - Who, what and where needs to change and how, over which time frames to realise the desired change? How do these changes link up in a logical sequence?

4. The assumptions underlying our theory of change and a critical assessment of these, e.g:
    - What are cause-effect relations in the logic of the change pathways? How realistic and plausible are they?
    - What are we assuming about the needs, interests, incentives and behaviour of stakeholders and other key actors?
    - What are we assuming about the context and other factors – enablers, barriers, dependencies and risks?

5. Strategic options:
    - Have we identified all the roles that GCRF and partners can play, considering position, capacity, added value?
    - Are we targeting the right systems, institutions, agencies and communities to influence change?

- Are there additional needs and entry points for multi-actor collaboration?

6. Monitoring, evaluation and learning framework and process:
   - What are the priorities for monitoring and evaluating the GCRF change process?
   - When and how to revisit the ToC and reflect on what works?

Ensuring a good quality theory of change for GCRF

GCRF's ToC process and products need to be of good quality to meet the purpose. The evaluation team will be guided by the ToC principles and quality rubric developed by Hivos in its guidelines[12] to ensure this (Figure 1).

Figure 1. ToC Quality rubric

ToC Principles	Weak	Has potential	Reasonable	Robust
Comprehensive analysis	Superficial, uncritical, business-as-usual	Some new thinking, with big gaps in critical thinking	Critical thought on most areas, unclear in some areas, mainly based on known strategies	Critical, clear, focused, considers wide range of perspectives, information and strategies
Power, gender aware	No thought on power or gender dynamics	Weak and/or partial power or gender analysis	Power and gender lens used but some areas or implications still underdeveloped	Power and gender lenses clearly inform analysis and strategies
Articulated assumptions	None except most basic/obvious	Some but not systematic, clear or critical	Fairly complete but not all well formulated	Clear, comprehensive, critical assumptions identified
Participation	Very few people involved, ad hoc in formulation or review	Intentional inclusion of some players in formulation or review	Clear process for diverse input planned with wide participation in some aspects, but not fully realised	Clear process implemented with critical input from diverse relevant players
Active use	Collecting dust	Used infrequently, on request	Some proactive use but not updated	Frequent use and updating

[12] Hivos. *Theory of Change Thinking in Practice: A Stepwise Approach*, Van Es, M. I. Guijt, I. Vogel, (2015) http://www.theoryofchange.nl/sites/default/files/resource/hivos_toc_guidelines_final_nov_2015.pdf

Outline of high-level Theory of Change workshop

Purpose: This is the first workshop in the GCRF ToC process, the authorising workshop with senior stakeholders. Its purpose is to ensure that there is a shared understanding at the high-level of the importance and function of the GCRF ToC , also that senior stakeholders agree and authorise an appropriate and efficient ToC development process, which delegates detailed work to mandated technical staff but ensures the right level of consultation with senior stakeholders at the right points.

Outputs: - Shared understanding of the importance of ToC and how the GCRF ToC will be developed and used.

- Agreement on an appropriate ToC development process, with mandated technical staff to participate in the detailed development, and the right level of consultation with senior stakeholders.

Process: Interactive session, using cards to explore the GCRF ToC

Agenda:

11:15	Arrive
11.30 – 11.45	Introductions
11.45 – 12.00	Overview ToC principles and the GCRF ToC
12:00 – 12:20	Feedback on scene setting questions. Record on to cards, and summarise: ▪ What do you like about the current ToC? ▪ What do you not like? ▪ What are the priority areas to unpack in more detail and/or add to?
12:20-12:40	Facilitated discussion of GCRF ToC architecture: e.g.: one ToC or several; fund-level and challenge ToCs; parallel, hierarchy; simple or complicated diagram?
12.40 – 13.00	Lunch / break
13.00 – 13:45	Group work & plenary, using cards ▪ Focusing on the middle ground of 'transformational change' ▪ Including what GCRF does, the results it aims to achieve, and the transformations is expects ▪ Considering the actors and systems GCRF is targeting ▪ Explain the current best thinking on how transformation will happen ➔ Groups create simple ToC trees using cards
13:45 – 14:00	Wrap-up & next steps

5. Process Evaluation

This section presents our proposal for carrying out the Process Evaluation module. It sets out the Evaluation Questions (EQs), the methodology for collecting data against the EQs, and then a workplan for this module.

The Process Evaluation will examine how the calls, applications and awards map on to the GCRF priorities, SDG challenge areas, GCRF challenge portfolios, discipline spread, types of research activity, partnerships and global (DAC) geographies. This composition analysis will also review the material from the perspectives of the individual delivery partners and researchers. It will also explore how the calls have operated in practice and detail any lessons to be learned for policy development and design of future calls. This will include consideration of how calls have been framed, the selection processes and outcomes, and the types of partnerships created. The work will also review the BEIS allocation process, the operation of the collective fund, and the monitoring and evaluation arrangements of the Delivery Partners (DPs).

In preparing this section, Technopolis has compiled and read the background material and reports prepared for the ICAI report, which included amongst other things, listings of submitted applications by delivery partner. We have also downloaded all of the GCRF call documents that are available online, in order to characterise those calls and call processes. This desk research has been complemented by a series of scoping discussions with delivery partners (RCUK, UKSA, the RAEng and HEFCE). Those conversations were initiated in order to better understand the documents and data being collected routinely by Delivery Partners, and how and when we might be able to gain access to those data. The initial conversations have all been very positive and the partners have agreed to help us access relevant data. For example, the RCUK team is preparing two Data Sharing Agreements (DSA): one between RCUK and research councils, and the other between RCUK and Technopolis to transfer the data. This will include appraisal data and stakeholder contact details for all research councils. RCUK has also set up a meeting for Monday 22 January in Swindon, where we will brief the individual Research Councils (a delivery person and evaluation specialist for each of the seven) on the Foundation Stage evaluation.

We have also identified key contacts from all Delivery Partners, as well as within BEIS and the various oversight structures, which will be the focus for our evaluative discussions (stakeholder interviews), which will begin in the New Year after we have approval of our approach.

For the rest of this section, we begin by recapping the Evaluation Questions (EQs) and methodology, specifically, how our approach addresses the EQs outlined in the ToR. We then present our initial desk research findings and finish by detailing the purposes and plans for the interview and survey data collection.

Evaluation questions, methodology and approach

The process evaluation is centred around answering the six main Evaluation Questions (EQs) from the ToR (Table 2), which are recapped in the table below.

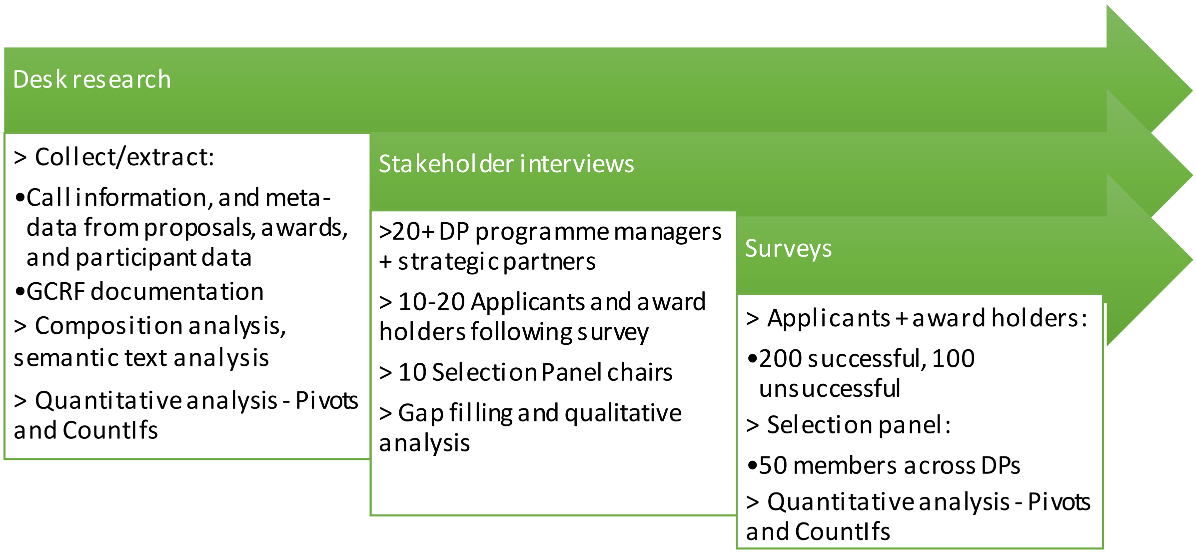
Table 2. The evaluation topics and respective evaluation questions

Evaluation Topics	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?

Our methodology will draw on three data collection methods / sources to provide some level of triangulation, to better address the process evaluation questions. These are: desk research (document analysis), stakeholder interviews, and surveys. Figure 2 below shows the three data sources sequentially with details about collection activities and analyses. It also shows the relative contribution of each source to our understanding and evaluation of the GCRF's processes.

Figure 2. Work-streams for the process evaluation.



In most cases, these data will inform each other to provide a richer picture of GCRF processes from different perspectives e.g. selection panel feedback giving context to survey responses. Additionally, this module will inform the other Foundation Evaluation modules at key milestones and through regular virtual knowledge sharing through a secure Dropbox.

Accessing GCRF data

To be able to fully address the EQs we have devoted much of our inception phase to identifying what information we need, where we will source it from, and how we will use it.

In the first instance, to ensure we can access the data from all calls, proposals (unsuccessful and successful), projects and participants, we have sent our data requirements to RCUK as the basis for a data sharing agreement (DSA) that will cover RCUK and all research councils (the data requested can be found in the Appendices). Our requirements are intentionally broad as to avoid future amendments to the data sharing agreement which would risk slowing down the data collection process. We have sent our own view of the full list of calls for proposals to be verified, and modified if needed, by RCUK. We have done the same with UKSA and with the RAEng, and will do the same with the other national academies in early January. We have also requested the remainder of the call documents that are currently missing from our list.

Metadata on both proposals and awards has been collected from various different sources, including the GCRF website[13], Gateway to Research (GtR), and from the ICAI request for information. However, we are still compiling a 'master list' of records as each of these sources are organised differently (e.g. GtR does not hold data on projects funded by academies) and are not sufficiently up to date.

EQ1 Delivery partner call processes

The first evaluation question concerns the Delivery Partners' call processes, which we will research through a combination of desk research (analysis of call documents; composition analysis) and interviews. We have identified 46 individual calls for proposals and have now collected around 80%

[13] http://www.rcuk.ac.uk/funding/gcrf/gcrfawardedprojects/

of the available call documents, amounting to over 100 files. We have developed a call appraisal framework for extracting information from each call that will allow us to profile how they have been framed and what global challenges have been identified (see the Appendices). Using the resulting data, we will analyse the composition of calls across challenges, overall and by delivery partner (in terms of calls and call budgets). We will look at how long calls were open and how these were advertised to applicant organisations. Qualitative information will continue to be collected on how calls have been developed, which is sometimes included in call documentation in a section about lessons learned (from earlier calls). The delivery partner interviews will explore how the GCRF calls have operated in practice as well as how they have developed over time.

We are aware from the ICAI report and from our conversations with BEIS that interdisciplinarity and pathways to impact are of particular importance.

The framework has been shared with RCUK for comment, and will ultimately be sent to each DP to check we have properly understood their respective call processes. This may also be picked up in our delivery partner interviews, correcting any misunderstandings and filling gaps important gaps. The resulting database will allow us to understand how call processes have been organised in the round as well as identifying any important differences in approach across partners or types of calls.

The Delivery Partner interviews will also explore the reasons behind the design choices, as well as discussing how lessons learned have informed the arrangements for subsequent calls.

Our surveys will not be a major source of evidence for this EQ. However, we will ask in the applicant and award holder survey about how appropriate applicants thought the call documents were and how they perceived the marketing of the calls – addressing the framing of the call. Panel members will also be asked to appraise the general fit of responses to the calls they assessed applications for.

EQ2 Selection process by delivery partners

We will use desk research, delivery partner interviews and panel feedback as the principal source of evidence on the effectiveness of the GCRF selection processes.

Our review of call documents has provided a basic understanding of the selection processes, and suggest different partners' processes typically follow the same generic steps: ODA compliance and eligibility review, peer review, portfolio review, announcement of decisions, contract negotiations / due diligence, etc. However, there are many aspects that are not explained fully in the published documents, including for example: the composition of selection panels, the exact evaluation criteria or scoring systems (partnership, alignment with programme goals, technical quality, project management, VfM etc.), how delivery partners reach decisions on their final portfolio, the influence of non-technical factors, or the scrutiny applied to projects ensuring VfM and appropriate costing.

All of these topics will be addressed in our interviews with the Delivery Partners, where we will be able to go a little deeper into the process descriptions as well as exploring the 'why' and 'who'.

We will also include a question in our participant survey about the appropriateness of the selection processes, from their perspective. We will not push too hard on this subject, as individual PIs will inevitably have a rather narrow view of selection process and their co-investigators and international partners may have no view at all.

Lastly, we will include a question about selection processes in our survey of panel members, as these individuals will have been briefed fully on the arrangements as well as participating in some or all of the individual steps along the way. We would expect a much more informed view of matters from this group of stakeholders.

EQ3 Characteristics of grantees

We are characterising the applicants and grantees primarily using desk research, aiming to understand what distinguishing factors exist between applications that are awarded and those that are not. We hope to be able to present analyses of grantees – across calls and delivery partners – on each of the following dimensions, subject to our being able to obtain relevant data:

- Type of successful organisation/bid - type of bid, type of organisation, PI, CO-I, project partner.
- What research in which locations (GCRF challenge area, discipline, geography, partner geography)
- Approaches to partnerships and capability building (number of partners – international and UK, co-funding, approach to knowledge sharing and project sustainability)
- Key features of pathways to impact of successful applications (impact on target country, benefits to international partner, pathways to impact statement)
- Inclusivity of successful applications (demographics of project partners and participants)

For one or two fields where data is not categorical or nominal (e.g. pathways to impact) we will experiment with data science techniques, using semantic analyses to search for key words and phrases that we hope will allow us characterise some or all of the applications.

We will include these questions in our interviews with delivery partners, in the hope they may be able to provide some higher-level characterisation of the types of organisations, partnerships or impact pathways that they see coming through in the calls. This more synthetic view will complement the more granular view from our desk research and composition analysis.

EQ4 Types of GCRF research

We will use delivery partners meta data on applications and awards in order to characterise the type of research that is being proposed and funded. We appreciate that the data tagging may be partial (not all calls or all applications are tagged against SDGs, GCRF challenges and GCRF portfolios), and we will explore the potential for us to use data science techniques to mine the abstracts of proposals to correct for any important gaps. Abstracts may also show whether research has built upon previous work. We remain unclear at this time as to what kind of data if any are held in the delivery partners' management information systems that describe the international collaboration or impact statements. Working with the full proposals would be beyond the scope of the current exercise, albeit this is kind of data mining is technically feasible.

We will also discuss the issue in our interviews with delivery partners.

Lastly, we will cover this issue in full in our survey of participants and would hope to be able to gather feedback from PIs, Co-investigators and international partners.

EQ5 BEIS allocation processes

We will address this evaluation question through our desk research (e.g. relevant papers and minutes of the BEIS Research and Innovation Board) and interviews with selected members of the governing structures (e.g. the GCRF delivery forum) and individual delivery partners.

The interviewees will be asked to give their opinion on whether the process by which GCRF funds are allocated to individual Delivery Partners, groups of Delivery Partners and the Collective Fund (incl. unallocated funds more generally) is transparent and appropriate to the aims of the Fund. They will be asked to recount the process of applying for funds, as well as offering a view on the extent to which the rationale for any final decisions was clear to them, and whether they have a good view of wider allocation decisions and forward plans. We will also invite interviewees to offer any thoughts they may have as to how the process could be refined practicably to improve matters going forward.

EQ6 Delivery of the collective fund

We will review this question through our desk research and interviews with RCUK and delivery partners; this evaluation question will not be part of our surveys.

From our initial desk research, it seems the GCRF Collective Fund has two or three key differences when compared with the other GCRF calls, and most notably the level of cross-partner collaboration and the scale of funds available. By way of illustration, the November 2017 RCUK Collective Fund call for Interdisciplinary Research Hubs anticipates funding up to 15 centres, with 5-year grants of up to £20M each; this single call will invest up to £300M or around 20% of the total GCRF budget. The great majority of other GCRF calls are two orders of magnitude smaller and have very much simpler / faster call and selection processes as a result. The significance of the call is borne out by the fact almost 340 outline proposals were submitted, requesting around £5bn in total.

RCUK has developed comprehensive procedures and guidance, which we have downloaded and skim read and will cross-reference in our interviews with the RCUK team responsible. This topic will also be addressed in our interviews with other delivery partners, given the commitment to cross-disciplinary work. We will also look to analyse the views of the peer reviewers.

We don't have a view as to whether any grants have been awarded through the Collective Fund, and if this is still a work in progress we may need to be content with a small number of targeted telephone interviews to ask grantees about the Collective Fund process, rather than including them within the larger participant survey, at least within the foundation stage evaluation. The same would be true for unsuccessful applicants, where there will have been no time for their ideas or partnerships to have been refined and resubmitted to other calls or otherwise progressed, removing any opportunity for a counterfactual discussion.

EQ7 Monitoring and evaluation

We will review call documents to identify published information about monitoring arrangements, sufficient to present an overview of basic approaches. Separately, we have received a summary of each DPs' evaluation plans through RCUK who convene a regular meeting and network for evaluation for DPs. Using this as a foundation, we will continue to collect any existing internal evaluations through our initial conversations with DPs. We have anticipated that we will have follow-up questions on these documents which we have built into the draft interview guide.

During interviews, we will invite delivery partners to characterise their monitoring and evaluation processes, such that we can compare the approach of each partner using a simple general model. Including questions on what costs are associated with delivering the GCRF and how those compare to similar funds they deliver(ed). We will also reflect on the interplay between the partners' own M&E processes and the overarching BEIS GCRF evaluation.

Initial data collection

Calls, projects and participants

We have compiled what we believe to be a full list of calls for proposals (see Appendices). The corresponding call documents have been collected so that we can compile relevant meta data about the individual calls and call processes. Of the 46 calls for proposals identified, most are 'joint calls' where DPs have collaborated to issue a call that addresses challenges and themes that are in the remit of each DP. These calls specifically ask for projects of a multi-disciplinary nature.

Not all call documents were available from websites, and we will need to obtain some additional materials from delivery partners. Our ambition at this stage, however, is to base our basic analyses on these 46 calls. We do have a relatively small resource at our disposal however and there may need to be some degree of prioritisation or sampling; notwithstanding this possibility, the analytical framework, and extracted data, will be re-useable, so that BEIS and or the Delivery Partners can add new calls into the data set and thereby maintain a more accessible and up-to-date view of all calls for proposals. The meta-data headings used to quantitatively characterise calls, applications and participants are included in Appendix D. These will be in an excel file with sheets that link calls to projects to participants with unique identifiers.

Scoping interviews

Our scoping interviews are largely complete, and have included preliminary discussions with RCUK, delivery partners and funding councils (the list of contributors is shown in Appendices). Our conversations focused mainly on high-level processes relating to how each delivery partner handled GCRF funding and what data they held on calls, proposals, and grantees. We also enquired as to their current evaluation practices and requested any helpful documentation. We sought further contact information of other colleagues in their organisation if any of these topics were not answerable in the first instance. We will conclude our scoping interviews with the research council briefing in Swindon on 22 January and possibly with delegates at the Theory of Change workshop at the British Academy on 23 January.

Stakeholder interviews

Delivery partners and high-level GCRF stakeholders

We have prepared a topic guide for the second round of interviews with delivery partners, and at this stage would expect to interview a representative from each of the 13 delivery partners and RCUK. We had budgeted to carry out 10 interviews, but will speak to at least one respondent at each delivery partner organisation, using telephone interviews to help make this more economical. The discussions will cover each of the seven evaluation questions, most in some depth, and might easily last 60-90 minutes. Evaluation Questions 3 (characteristics of grantees) and 4 (Types of Research) will be dealt with only briefly; we will rely more heavily on our desk research here. We will also interview selected people (3) from the main GCRF governance and coordination structures, including the Board (perhaps the BEIS observer or secretary rather than a member), the Advisory Group and the Delivery Forum. These discussions are likely to be shorter and more narrowly focused on for example allocation processes. The 15-20 semi-structured interviews will be analysed using the seven headline evaluation questions as a guiding framework.

Table 3. Delivery Partner interview questions

Interview question	EQ
Please explain the basis on which the particular challenge areas/SDGs were identified and chosen.	1.1
Please explain the basis on which your calls were designed, developed and marketed.	1.2
Please explain the basis on which you ensure ODA compliance.	2.1
Please explain in greater detail how the selection process works, and why you chose a particular approach.	2.2

Please explain how panel members are selected, convened, and organised.	2.3
Please explain what assessment criteria were used other than research excellence and why.	2.4
Please explain what measures you have in place for assessing costing and VfM.	2.5
Please explain, from your view, which types of bids/organisations are more successful than others and why.	3.1
How is your portfolio spread geographically and are specific countries/regions targeted? and why?	3.2
Please explain if any project partnership approaches are preferred and why.	3.3
What are the key features of the pathways to impact that typify successful applications?	3.4
Please explain how you assess inclusivity and if you have specific targets.	3.5
What types of international collaboration are most successful and why?	4.3
Please explain to what extent your GCRF funded portfolio builds upon previous research?	4.4
To what extent are GCRF funds distributed efficiently and transparently to DPs?	5.1
Please recount the process of applying for unallocated funds, including enablers and challenges to the process.	5.1
Please explain why you have, or have not, worked with other DPs on joint calls and how these were organised and delivered.	6.1
Please explain how you have operated the collective fund and why/how that approach was chosen.	6.2
To what extent were you satisfied by how the funds have been distributed under the collective fund?	6.3
Please explain to what extent the process was fair and accessible through from notification of funds to distribution and their satisfaction with those processes. How do other funds compare?	6.4
Please explain your M&E process for GCRF? What internal evaluations have you conducted? What were the key findings?	7.1

Interviews with applicants, award holders and panel chairs

In the first instance, we will outline our desired sample of applicants, award holders and selection panel members. This sample will aim to proportionately cover applicants (successful and unsuccessful) from different types of grants (pump-priming, large grants, hubs), geographies, and GCRF challenge area. For selection panel members, sampling will likely be based upon type of grants and DPs. Both of these will of course include consideration to the collective fund. We aim to interview up to 20 applicants and award holders and 10 panel chairs.

We plan to carry out a small programme of targeted interviews with three distinct groups of people: grantees, unsuccessful applicants and panel chairs. The award holders will have a view on most if not all aspects of the process. The unsuccessful applicants will also have a view on the call and selection processes, however, we are most interested to talk with people that have gone on to develop their projects or international partnerships despite failing to secure a GCRF grant. The panel chairs will have a particularly good view of the selection processes.

In the case of the first two groups, we had intended to use our surveys to identify individuals with interesting experiences that had also signalled they were willing to give a follow-on interview. This is still the plan for the award holders, however, our preliminary discussions with delivery partners suggests we may have some difficulties in implementing a survey of unsuccessful applicants; we will continue to push for this, but there may need to be some compromise or work around. In the third case, we will look to delivery partners to make introductions to a selection of panel chairs.

In terms of numbers, we aim to carry out interviews with up to 10 individuals in each group, subject to people being willing to give an interview. The interviews will be conducted by telephone or skype and will be semi-structured in nature, reflecting our views as to what a particular contributor is likely to be well placed to comment on and indeed what they may have already observed in any given survey. The conversations are likely to be shorter than for our other interviews and may typically last 20-30 minutes.

Table 4. Applicants and award holders interview questions

Interview question	EQ(s)
How did you find out about the call? What made you apply for it over other calls? Did you have all the information you needed, how helpful was it?	1.2
Walk me through the application process you had to go through. What worked well and not so well? How could it be improved?	2.2
How transparent are the decision-making processes for applications? And do you know how you can raise disputes or get feedback?	2.3
(Award holders) What scrutiny processes has the funder made you go through since winning your bid? What were the advantages and disadvantages of these?	2.5
(Award holders) What was your approach towards partnership with your international partners? How did it come about? What has worked well and not so well?	3.3, 4.3
(Award holders) Can you give me a brief overview of your project's pathways to impact? How/why did you choose those features? How/why has this changed from your application, if applicable?	3.4
To what extent did the SDGs and challenges factor into your work in practice or was the link more conceptual?	4.1
What role does your international partner play? How and why was that arrangement chosen? OR why/how did you decide not to include an international partner?	4.3

Did your research build upon previous ODA related work? Why and how did you make the decision to make an application that built upon previous research? Did you receive co-funding? How did this come about?	4.4
Please explain your experience of applying for collective fund calls and your satisfaction with the processes.	6.2

Table 5. Selection panel chair interview questions

Interview question	EQ(s)
To what extent did the responses match the requirements regarding general fit to the assessment criteria and how do you assess this, perhaps compared to other calls?	1.4
To what extent was ODA compliance a factor in decision making?	2.1
To what extent was the method by which you were allocated to assess proposals efficient for this purpose? How could this be improved for next time? Were these processes transparent and fair?	2.2
How do you come to decisions on successful, unsuccessful and borderline proposals? How are disputes are handled? What challenges do you face? What guidance do you receive? Is it appropriate? How do you score candidates? Suggestions for improvement?	2.3
Please explain how factors other than research excellence influenced decisions in practice and how you interpreted the guidance on them.	2.4
To what extent did VfM and costing factor into decision making?	2.5
What types of bids/organisations in general are stronger than others and why. Are there any types that are immediately stronger than others just based upon type of organisation?	3.1
What key common features did successful applications have on pathways to impact?	3.4
To what extent did inclusivity feature in your decision making?	3.5
Does the type of research factor into your decision or is the excellence aspect more important?	4.2
Explain if and why scores vary if research builds on previous and if/how costing criteria change with co-funding amounts/sources. To what extent do these criteria influence decisions?	4.4

Survey of award holders and unsuccessful applicants

We will implement a short online questionnaire survey directed to GCRF award holders, with a view to obtaining their feedback on all seven Process Evaluation questions. The questions will be predominantly closed questions – using Likert scales –to allow a degree of quantification, and to help response rates. The survey will include a small number of open questions, to allow respondents to expand on some of the key issues (e.g. the extent to which the new project builds on previous UK-funded research; or the one change they would recommend making to future calls that would broaden engagement with the global south). The ambition is to direct the survey to Principal Investigators (PIs) and Co-Investigators (CIs). We would also like to be able to include project partners in our target population, as many of these organisations are from the global south. While they may have little experience of the GCRF call or selection processes, they ought to have a view on the nature of their engagement, motivations and impact potential.

The delivery partners do hold contact details for the PIs, and usually the Co-Is. However, we understand the contact details for international partners may not have been transcribed into the relevant information systems. RCUK is preparing DSAs in order to facilitate access to these contact details. We will continue to work with research councils to understand and work through any issues around data sharing to reach mutually agreed solutions. The typical application terms and conditions, letter of offer and grant agreement do usually include a requirement to support evaluation, so we expect to gain access to sufficient contact information to complete the work in this evaluation, at least for award holders. We are aware that unsuccessful applicant information will be more difficult to access, but we are working with RCUK and DPs to come to a solution on this using separate DSAs per DP for that data. We have briefly discussed these issues with the National Academies, however, their calls have been fewer in number and we understand their records of UK and international participants do typically contain contact details, although the same issue with unsuccessful applicants exists.

We hope to be able to publish the survey in March, instead of December as was originally planned. This change is due to the delay in starting the contract and the time taken to negotiate access to contact details. It does put the timetable under a little pressure and means the survey cannot be analysed definitively much before mid-April. Easter is quite early this year, which means the interim report would probably need to be submitted towards the end of April and possibly early May.

Following the discussion with the Steering Committee, we had thought to run a sample survey, to minimise the burden on award holders and other participants. However, the current total number of project awards is likely to be fewer than 800 and may not be sufficient to support a sample-based approach. We do not have a final view on applications and project numbers, however, we have compiled a table from the submission to the ICAI review (summer 2017) and used this along with some additional information on more recent calls to arrive at an estimate of the current state of play. It remains an approximation at this stage, however, it is clear that the individual delivery partners are likely to have made more awards since that data was collected, particularly since many closing dates for calls were in Autumn 2017. Even assuming a high response rate (30%), we will likely struggle to secure large numbers of responses for each DP and will need to be cautious about any conclusions we place on a small number of total responses that are further diluted when analysed per DP. A full survey rather than a sample will help to reduce this risk and should allow a more robust analysis. Based on past experience, we expect the response rates for PIs will be higher than for CIs and project partners, albeit there should be a proportionately larger population of the latter and we understand there is a strong interest in the GCRF overseas.

Table 6. Estimation of total applications based on ICAI data

DP	AHRC	BA	BBSRC	EPSRC	ESRC	MRC	NERC	RAEng	RCUK	RS	STFC	UKSA	Grand Total
Not clear						151	5						**156**
Rejected	54	124	101	137	227	260	166	62	151	107		36	**1425**
Awarded	75	51	87	60	122	47	43	57	37	52	7	23	**661**
Total	**129**	**175**	**188**	**197**	**349**	**458**	**214**	**119**	**188**	**159**	**7**	**59**	**2242**

Note: 339 outline applications were received for the most recent RCUK Collective Fund call (interdisciplinary hubs); the second UKSA call (2017) for the international partnership programme attracted 53 applications. The UKSA has not yet published the decisions on which applications have been successful

We aim to engage those with different levels of participation (PI/partner), from different types of organisations (research/non-research), and from different geographies (global south/UK).

We have made certain assumptions about response rates from these groups, as illustrated below using an example from GtR records (Figure 3), where we identified 506 projects (and 1,332 participations) tagged as GCRF. The participations relate to UK-based PIs and CIs predominantly, with a small number of other partner types. We understand the GtR records will tend to undercount international partners, many of which will be part of a wider user group rather than the core research team. The GtR records are also typically 6 months out of date, so the analysis from December 2017 will be missing many of the grant agreements signed in the late summer and autumn. GtR also misses the national academies. Notwithstanding these limitations, the GtR database is a useful tool for modelling sample sizes, and suggests we might be able to achieve up to 300 responses from 1,500+ people and organisations participating in the 700 or so GCRF grants (150 PIs, 100 CIs, 50 other partners; 275:75 UK: International). This is assuming we can get to an agreement on accessing the contact details for all participants.

Figure 3. Sample size calculator with an example population from Gateway to Research.

(from GtR) Total RC awarded participations: 1332

Structure successful appl.	International	UK	Grand Total
Non-research	55%	20%	46%
PI	3%	3%	2%
Non-PI	52%	17%	26%
Research	45%	80%	54%
PI	4%	72%	36%
Non-PI	41%	8%	17%
Total	100%	100%	100%

Expected response rates

- International respondents=10-15%
- PIs=40%, partners=20%
- Non-research=5-10%

Groups	International	UK
Non-research		
PI	8%	15%
Non-PI	5%	10%
Research		
PI	10%	30%
Non-PI	5%	20%

As mentioned, it is unclear as to whether contact details for unsuccessful applicants can be made available and we are pursuing a solution that involves the use of a third DSA for each DP. There is also the risk that unsuccessful applicant response rates could be low as they arguably have less investment in the improvement of the GCRF. The questionnaire could be kept short, with perhaps just two question modules, one exploring what if anything has happened with their project proposal and international partnership following the unsuccessful outcome and one inviting respondents to offer one practicable suggestion to improve the effectiveness of the GCRF process going forward.

Table 7. Award holder survey questions

Survey question	EQ(s)
Indicate the extent to which you believe the right challenge areas have been selected; and that the process of identification and selection is appropriate.	1.1

Indicate the extent to which you were satisfied with how the call was marketed and whether you believed you were provided with a satisfactory amount of information to then apply.	1.2
How did you decide to work with other researchers in other disciplines and why? How did those collaborations come about and (if applicable) how have they benefited the research?	1.6, 3.3, 4.3, 4.5
To what extent you thought the selection processes were appropriate and transparent - scaled questions with optional free text.	2.2
To what extent you thought the costing monitoring processes were appropriate - scaled question with optional free text.	2.5
Were you already working in/with the country your GCRF grant is now funding you to work in?	3.2
Short list of partnership approach types to select from (if applicable) with optional free text for applicants and award holders. This would be two questions: partnerships and capacity building.	3.3
Applicants and award holders to select from a list or multiple choice what features their pathway to impact plan/statement had.	3.4
Select from a list of international collaboration typologies and then to rate its success with an optional free text box to explain why.	4.3
A yes/no question to applicants and award holders as to whether their work builds upon previous research and the percentage of their bid that was co-funded.	4.4
Rate their satisfaction with the collective fund application/selection process (if applicable)	6.2
What other sources of funding were you considering when choosing to apply to the GCRF?	1.2

Survey – Expert panel members

We will run a short online survey for GCRF panel members, focusing on the selection processes. At this stage, we do not have definitive information on how many panellists have been involved overall but have assumed it is likely to more 100-200. We are working together with RCUK and the research councils to gain access to panel members using the same approach as for the unsuccessful applicants: through a third DSA to each council. We are having this conversation with the other DPs too. The ambition would be to secure perhaps 50 survey responses to maybe 10 closed questions (Likert style). The table presents an indicative list of questions for selection panel members:

Table 8. Selection panel members survey questions

Survey question	**EQ(s)**
To what extent were proposals of a good general fit to the assessment criteria on the whole?	1.4

To what extent were the assessment criteria appropriate for judging the quality of proposals? How useful was the guidance you received, if any, for your role in assessing applications?	2.2
To what extent was the decision-making process efficient and appropriate and efficient?	2.3
If assessment criteria are similar enough across calls, selection panel members could be asked to what extent the decision-making process was influenced by these other factors with scales then free text options	2.4
To what extent they thought the VfM and costing assessment measures were appropriate for their work in making decisions	2.5

Timetable and next steps

Our proposed timetable for the remainder of this project is set out below. Our immediate concerns are in designing and launching our data collection tools, and collecting documentation and contact details.

Table 9 Project timetable including key reporting milestones.

Task	Sub-task	December '17	January '18	February '18	March '18	April '18	May '18	June '18	July '18
Preparatory work	Collect contact information								
	Negotiating access								
	Develop standard research management framework								
	Process evaluation methodology								
	Recruitment materials								
	Surveys x2 – design and testing								
	Interview guides								
Desk research	Collect completed process reviews								
	Collect calls for proposals and								
	Characterise processes (data mining, semantic text analyses)								
Stakeholder interviews	Initial exploratory DP interviews								
	Interviews with DPs								
	Panel members								
	Applicants								
Surveys	1. Selection panellists – delivery								
	2. Applicants – delivery								
Composition analysis	of applicant, appraiser and grantees								
	of monitoring data; progress and								
Data analysis	Code, compare, and synthesise data								
	Test first version of the ToC								
Reporting	**Inception report + presentation**	**D+P**							
	Draft full report						**D**		
	Final report and presentation								**D+P**

* since this report was drafted, there has been some slippage finalising DSAs, and thus in undertaking the surveys, which has affected later timings.

6. Evaluation strategy and framework

This section frames the objectives of this module, then outlines the interactive process by which the strategy and framework will be developed. It then covers the audience and Evaluation Questions for the main evaluation; it then provides some area for consideration in developing the evaluation strategy, including approach, purposes and timing.

This module has two objectives:

- To design an overarching **GCRF Evaluation Strategy** for the full five-year funding period. It will set out an approach for a robust, feasible and proportionate Main Evaluation stage that will provide both accountability for the sizeable public expenditure on GCRF and learning on what worked well, what did not and why.
- To develop an associated **Evaluation Framework**, which will set out overarching questions, methods and data sources for the main evaluation. It will include evaluation criteria and indicators that are most relevant to research and research excellence in the context of ODA objectives, and how these will guide assessment and any aggregation of results across delivery partners.

The overall objective of the main evaluation will be to establish the extent to which the objectives of the GCRF have been 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 and framework will be designed to meet these two requirements.

BEIS envisages that the main evaluation will be used in a number of ways by a range of users. This includes **accountability** uses, **evidence-based decision making** for future funding and programmes – this would particularly include **impact evidence**, and **learning** to improve delivery:

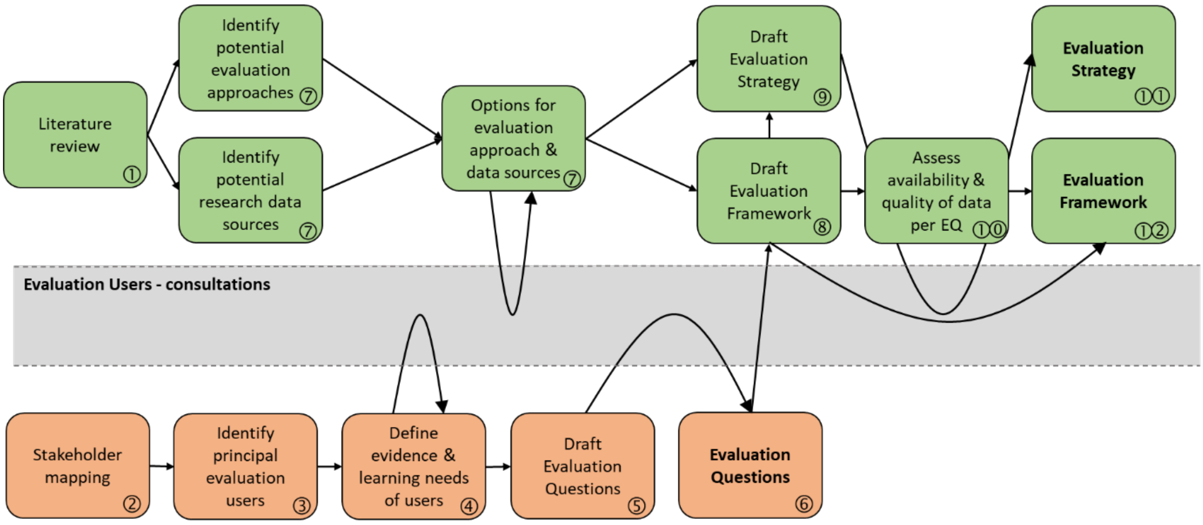
- to ensure that BEIS is able to demonstrate whether the Fund has been delivered effectively and represented value for money.
- BEIS will use evidence on what has worked in this first phase to support any bid to the Treasury for its future funding and continuation.
- to inform future decisions on the 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[14].

Developing the strategy, framework and recommended timelines

The development of the GCRF evaluation strategy and framework is currently in its first steps. The figure below (Figure 4) shows the planned process by which we will develop these two outputs. The aim is to iterate the development of each output through a loop of draft output - consultation with evaluation stakeholders - final output.

[14] UK SBS (2017). *Terms of Reference for Evaluation of GCRF – Foundation Stage*. Mini-competition booklet on behalf of BEIS. FWCR17050BEIS. UK Shared Business Services, Swindon.

Figure 4. Development process for Evaluation Strategy and Framework



In more detail, the process steps are:

- Literature collation and **literature review** ①, with coverage including theories of change and frameworks for research impact, particularly in international development; research evaluation approaches and techniques; research impact assessment; and research data systems. [Dec-Jan]
- Simultaneously, we are undertaking **stakeholder mapping** ② (Figure 4). This aims to identify the multiple bodies and organisations involved in direction, management and implementation of GCRF, and select key stakeholders for interview. This work is building on information from BEIS and RCUK, as well as the GCRF organogram presented in ICAI's rapid review of GCRF[15]. We have started to identify the principal stakeholders for the evaluation, and thence its main audiences ③. [Dec-Jan]
- Hold **interviews** with primary and secondary evaluation users / stakeholders to define the **evidence and learning needs of different users** ④. Central to ensuring uptake and use of any evaluation is having a clear understanding of who is going to use the findings, when and how. We are developing check-lists of question for these interviews. The theory of change, which some of the stakeholders will have been involved in developing, will be used to engage interviewees in thinking about what questions should be asked at different stages of the impact pathway to assess performance of the GCRF and inform ongoing learning and course correction. But we will also spend time on big picture questions, typically 'what does good look like?' [Mar-Apr]
- From these interviews we will collate and organise the different users' expressed evidence and learning needs into **a structured set of Evaluation Questions (EQs)** ⑤ and sub-questions. These are likely to be structured around the evaluation criteria widely used in international development: Relevance, Efficiency, Effectiveness, Impact and Sustainability[16] (REEIS). Often, EQs under Efficiency and Sustainability consider the processes by which results (outcomes and impacts are achieved) and those under Effectiveness and Impact consider the results themselves. In addition we may include the 3Cs criteria: Coordination, Complementarity and Coherence, but recognise that the

[15] ICAI (2017). *Global Challenges Research Fund - A rapid review*. Independent Commission on Aid Impact, London.
[16] DAC Criteria for Evaluating Development Assistance: http://www.oecd.org/dac/evaluation/daccriteriaforevaluatingdevelopmentassistance.htm

fitness of purpose of evaluation criteria in international development are being currently reconsidered[17]. However, these criteria may be used as a structure, but phrased in a less evaluation jargon manner. Experience from other evaluations, shows that a structure such as "did we do the right thing?", "do we do it well?", "did we have an impact?" is better received by many audiences. [Apr]

- We will **consult on these EQs** with the major stakeholders, in particular BEIS, RCUK, other delivery partners, and DFID, and refine as appropriate. [May]
- Once a draft set of EQs has been developed ⑥, the next step in the process will be to develop an **draft Evaluation Framework** ⑧ and **draft Evaluation Strategy** ⑨. These will draw on discussions to date and the reviews of approaches for evaluating research funds and research impact and data systems for these ⑦. The development of the Framework will interact with the on-going process evaluation, drawing on emerging lessons on data type and availability and thoughts on what would be desirable and feasible questions, methods and judgement criteria. For example, depending on the approach we take to value for money (VfM) and addressing gender and social inclusion, the Process Evaluation team can provide information on availability of costing data amongst the delivery partners and the level of disaggregation in their monitoring data. [May]
- The Process Evaluation will be used to locate and collate as much of delivery partners' M&E data as possible, but we anticipate an **additional data mapping step** ①⓪ to ground truth the types and availability of data, their robustness and reliability, and the systems in which they are held. This will involve discussions with delivery partners' data personnel and with ResearchFish. Part of this step will include reviewing the extent to which the General Data Protection Regulation[18] (GDPR) will constrain the sharing of, and access to, data on research and researchers. [June]
- Finally, we will consult again with the major evaluation stakeholders on the Evaluation Framework and Evaluation Strategy; this is likely to include a final workshop. We will explore the robustness of the overall evaluation strategy, consider the coherence of the whole (which is likely to be comprised of a set of modules), the approach and proposed mixed of methods, the risks and mitigations in delivering the strategy, whether it responds to evaluation users' needs, and its general fitness for purpose. We will similarly consult on the Framework, considering the structured set of EQs, measures of success / indicators, technical issues around data sources, data types, data systems, and analytical methods. Following the final workshops, **the completed Framework** ①① **and Evaluation Strategy** ①② will be produced, in July 2018. [Jun-Jul]

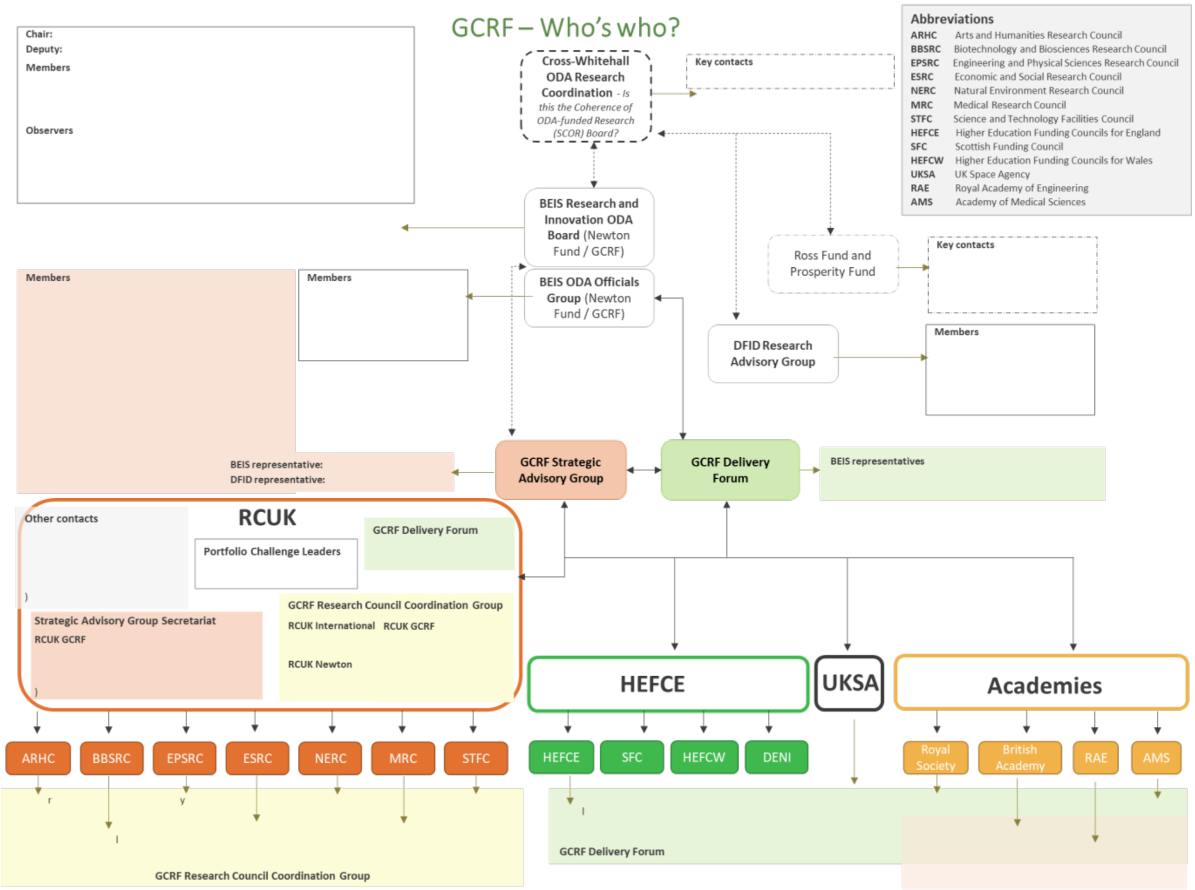
Evaluation audience

As noted above, we are undertaking stakeholder mapping (Figure 5) to identify those involved in direction, management and implementation of GCRF. We see these largely as making up the primary audience for the evaluation, spanning from the new HMG Strategic Coherence of ODA-funded Research (SCOR) Board, chaired by Professor Baron Peter Piot, through BEIS groupings, GCRF specific groups, to staff leading on policy, international development and evaluation in the delivery partners. We recognise that across the various organisations involved in GCRF, staff and thus key contacts change quickly and fairly often. We will therefore liaise particularly with RCUK and BEIS as we need

[17] 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. Zenda Ofir (2017). *Updating the DAC Evaluation Criteria, Part 3. What should determine our criteria?* http://zendaofir.com/updating-dac-evaluation-criteria-part-3/
[18] https://ico.org.uk/for-organisations/guide-to-the-general-data-protection-regulation-gdpr/

to set up meetings. We will work with RCUK to further develop mapping, to also consider a diagram to map GCRF governance.

Figure 5. GCRF Organogram to identify evaluation stakeholders*



* Authors' own work, drawing on ICAI (2017) and information from RCUK. This is an anonymised version of the working draft, which is populated with named individuals.

Evaluation Questions

BEIS has stated that the success of the GCRF will be measured in terms of [19]:

- Maximising impact on the wellbeing of people in developing countries, in line with the UK aid strategy objectives
- Maximising impact on UK research
- Operating in the most cost-effective way possible
- Drawing on the UK's research base to maximise international development research impact

At a more detailed level, the Terms of Reference for the Foundation Stage evaluation included a set of indicative EQs. We have provisionally structured these EQs, and they include:

High level impacts:

[19] BEIS (2017). *UK Strategy for the Global Challenges Research Fund (GCRF)*. Department for Business, Energy, and Industrial Strategy, London.

- Are there any broader actual or potential impacts of the Fund, including unanticipated ones?
- Has the GCRF contributed to economic development and social welfare in DAC countries? How have these varied across regions?
- How well were gender and issues of diversity addressed?

The 'UK national interest' aspect of the UK Aid Strategy:

- What benefits to UK academics were created by GCRF?

Outputs and Outcomes:

- Where has GCRF contributed to increased international or local knowledge of the key issues identified and of the nature of constraints to action?
- What strong potential solutions to development problems were generated by projects funded under GCRF?
- How many new international partnerships has the GCRF created?
- How much did activities in GCRF contribute to building research capacity in partner countries?
- What is / will be the legacy of GCRF and the sustainability of its impacts?
- To what extent have the achievements of GCRF been attributable to the key characteristics of the UK's research base, including interdisciplinarity, capacity strengthening, international networks, partnership approach, and collaborations between relevant sectors?

Fund Processes:

- Are the processes utilised by the GCRF fit for purpose?
- What challenges were addressed and how were these conveyed and understood in the call processes in calls?

Value for Money

- Were the GCRF financing mechanisms were effective in administering funds?

As indicated in the module activities section above, in the next phase we will consult with a range of stakeholder to obtain a long list of EQs, which will be refined and reduced to a core set of EQs, each with associated sub-questions.

Considerations for the evaluation strategy

Assessing research impact is difficult, but not impossible[20]. Many organisations in Europe, Australia, the UK, Canada and the USA have studied the problem, and there is an active academic community in this area. The recognised challenges in the assessment of research impact include[21, 22]:

[20] 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.

[21] Jones et al (2013). *Ibid*

[22] 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.

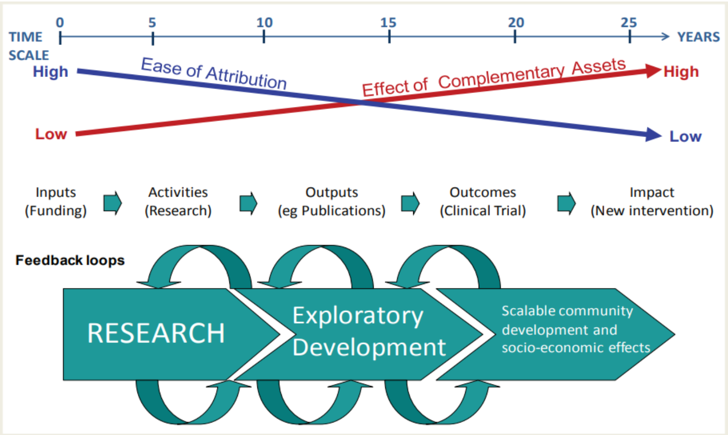
Time lags

The time lag between conducting research and consequent impacts is a highly variable. It is estimated that in the field of medical research, the lag between research publication and uptake in healthcare practice is approximately 17 years[23]. This creates difficulties related to window within which research is conducted and over what period to assess it. For example, REF2014 used these reference periods: "to be considered for inclusion within the REF, impact must be underpinned by research that took place between 1 January 1993 and 31 December 2013, with impact occurring during an assessment window from 1 January 2008 to 31 July 2013"[24].

Attribution / contribution

It is exceptional that impact has a linear, binary relationship to a single piece of research. Research is usually incremental, building on the researcher's and others' prior work. The translation and exploitation of research occurs through a complex of people, organisations, and processes. Impact is always temporally separated from activity, and it is normal that impact is the result of a number of complementary projects, programmes, studies, or other forms of intervention. This creates an attribution problem (Figure 6). From those well versed in the area and from the literature, this problem is considered to present particular challenges in the field of research evaluation.

Figure 6. Time, Attribution and Impact in Research



Hughes & Martin (2012)[25]

Knowledge creep

Knowledge accumulates over time, and it is often the resultant body of knowledge that shifts policy. 'Knowledge creep' is where new knowledge generated by research becomes accepted and gets absorbed over time. This is particularly so in development of government policy, where research that has influenced policy formulation debate and policy change does not receive recognition. This is a problematic for the social sciences where informing policy is a likely impact of research[26]. Likewise, research for international development also relies heavily on a policy-uptake pathway.

[23] 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.
[24] Penfield *et al* (2014). *Ibid.*
[25] 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.
[26] Penfield *et al* (2014). *Ibid.*

The nature of impacts

Once impacts are achieved, they are not necessarily permanent or static. Impacts can be dynamic, they change over time – upwards or downwards. They can be temporary or long-lasting. "The point at which assessment takes place will therefore influence the degree and significance of that impact."[27] An impact assessment at one point in time may capture a large and seemingly enduring impact, but at different point may find a smaller or declining impact. This is particularly important where an overarching aim is tackling issues relating to sustainable development, i.e. an aim that anticipates large and sustained impacts. Selection of assessment points, and spreading them over time is important.

Transaction costs

Collecting data and evidence on research is expensive. This is multiplied when a large element of impact assessment requires evaluation activity to occur in developing countries. This may not be unique to research impact, but it is important to bear in mind the financial burden of measurement. It is estimated that the total cost to the UK of running REF 2014 was £246m[28]; £55m was in relation to impact statements and case studies.

Evaluation purposes

The Evaluation Strategy and Framework module will interact with GCRF stakeholders to determine what they understand as the purpose of the Main Evaluation. Four rationales of research evaluation are commonly identified – the 'Four As' (Table 10):

Table 10. Four rationales for research evaluation

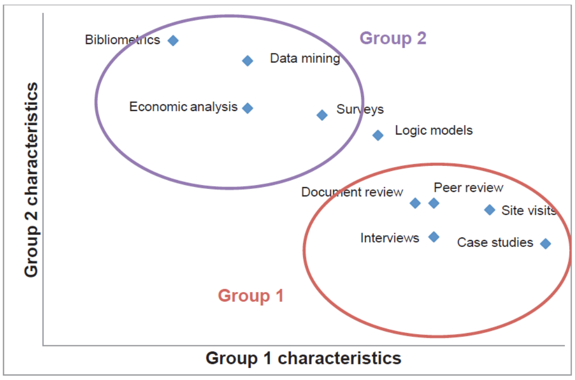
Advocacy	to demonstrate the benefits of supporting research, enhance understanding of research and its processes among policymakers and the public; to make the case for policy and practice change and for further funding
Accountability	to show that money has been used efficiently and effectively, and hold researchers to account
Analysis	to understand how and why research is effective and how it can be better supported, feeding into research strategy and decision-making by providing a stronger evidence base
Allocation	to determine where best to allocate funds in the future, making the best use possible of a limited funding pot

(Guthrie *et al*, 2013)[29]

Impact evidence is important particularly for Advocacy – demonstrating that outcomes and impacts have been achieved, and Accountability – showing that the funding has been used effectively to produce higher-level results. Each of these four rationales lends itself to a particular set of evaluation tools (which need to sit within an overall evaluation framework). Guthrie et al (2013) have classified the main set of tools used in research evaluation (Figure 7).

[27] Penfield *et al* (2014). *Ibid.*
[28] Lord Nicholas Stern (2016). *Building on Success and Learning from Experience - An Independent Review of the Research Excellence Framework*. BEIS, London
[29] Susan Guthrie, Watu Wamae, Stephanie Diepeveen, Steven Wooding and Jonathan Grant (2013). *Measuring research - A guide to research evaluation frameworks and tools*. Report MG-1217-AAMC, Prepared for the Association of American Medical Colleges. RAND Europe, Cambridge.

Figure 7. Categorisation of research evaluation tools



(Guthrie et al, 2013)

They suggest that for Advocacy purposes, Group 1 tools are best suited; for Accountability purposes, any tools can be used; for Analysis purposes, tools are needed from both groups; and for Allocation purposes, Group 2 tools should be used.

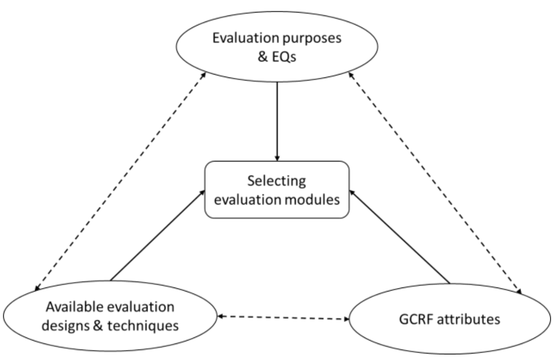
Thus, being clear about the GCRF evaluation purpose aids the development of the strategy and framework. It is evident that the GCRF evaluation is likely to align with at least three of these rationales, and will therefore require a range of tools in its overall approach.

Evaluation approach

It is too early in the Foundation Stage to say anything very definitive about the evaluation approach that will be proposed in the Evaluation Strategy. Nonetheless, there are some common features of research evaluations that are well recognised. These are ideas that we wish to elaborate further, based on additional research, but in the main, they are ideas that we aim to explore with the evaluation Steering Panel and experts in the research impact assessment field.

We expect the Main Evaluation to be **modular**, with a set of interrelated modules, and to employ **mixed-methods**. As noted above, the evaluation will have a number of purposes or rationales, and these will be achieved through different tools and approaches. Particular evaluation modules will be tailored to different purposes, for example a Process Evaluation module and a Value for Money module designed to address major aspects of the accountability purpose. These modules will be selected to solve the trilemma of EQs/evaluation purposes, GCRF attributes, and available evaluation designs and techniques (Figure 8.):

Figure 8. Selecting evaluation modules



(Stern et al, 2012)[30]

[30] 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.

The evaluation will have a focus on assessing whether GCRF has created impacts. Classically, evaluation assesses impact through experimental methods that measure effect using difference-in-difference designs: before-and-after a treatment and with-and-without a treatment. This family of designs uses counterfactuals to assess effect. For a range of reasons, it is not feasible across the range of possible units of analysis (grant, call, researcher, delivery partner, research partner, country, Challenge Portfolio) to identify valid counterfactuals for GCRF. This will be further elaborated in the Evaluation Strategy, but in essence the 'without GCRF' cases would not be sufficiently comparable to be valid counterfactuals.

In the absence of counterfactuals, the impact evaluation (IE) module(s) will need to determine causal inference through other frameworks. Two alternative theories of causation offer potential in this situation[31]:

- "Multiple causation that depends on combinations of causes that lead to an effect – the inference basis for '**configurational**' approaches to IE.
- **Generative** causation that depends on identifying the 'mechanisms' that explain effects - the inference basis for 'theory based' and 'realist' approaches to IE."

We will develop this theme further in the Evaluation Strategy, but we expect to use an evaluation design that involves modules using a combination of both these two approaches to assessing causality. Generative causation is the basis for theory-based evaluation approaches that employ a theory of change and use methods such as **Contribution Analysis** and **Process Tracing** to identify /confirm causal processes or 'chains'. Configurational approaches are applicable where there are multiple cases, as there are likely to be in the GCRF evaluation, and methods such as **Qualitative Comparative Analysis** can be used to compare across and within cases of combinations of causal factors.

Theory-based approaches are common where evaluation counterfactuals are not available. This is particularly true in research evaluation, and the core concept of testing and assessing against a theory of change resonates with the 'Pathways to Impact' terminology current in UK research[32]. A theory of change / intervention logic is the spine of probably the most widely used and adapted model for research impact assessment – the **Payback Framework**[33]. It was developed to assess outcomes of health sciences research, but can be used as a generic model for assessing and linking academic research, its outputs and wider societal benefits, as well as for tracing the processes through which impact occurs[34]. We will explore the potential use of the Payback Framework for the GCRF evaluation in the next phase of the work.

To further complicate the picture, three main approaches to research impact assessment can be identified[35]:

- **Forward tracking** – these approaches trace up a results chain, starting from the research, up to policy or practice impacts. They rely heavily on researchers' and research users' recollections of research uptake. The risks with depending on this approach include that researchers may have a mental model of their impact pathway that is an overly simplified theory of change, that can lead to over-attributing impact to their work (self-importance bias), or that when recalling outcomes and impacts they fall prey to a post-hoc fallacy.

[31] Stern *et al* (2012). *Ibid.*
[32] Sarah Morton (2015). Progressing research impact assessment: A 'contributions' approach. *Research Evaluation*, Volume 24, Issue 4, pp 405–419.
[33] Penfield *et al* (2014). *Ibid.*
[34] Donovan, C. and Hanney, S. (2011). The "Payback Framework" explained. *Research Evaluation*, vol. 20, pp 181-3.
[35] Morton (2015). *Ibid.*

- **Backward tracking** – these approaches analyse a policy or practice setting to explore the use and impact of research. They start with an impact and trace back to the contributory research. If done well, they can explore the range of contributory factors and try to assess importance and proportionate levels of attribution.
- **Evaluation of mechanisms to increase research use** – these approaches consider the processes entailed in research uptake and translation – how and how well they function. They focus on the middle of the 'black box.'

In developing the Evaluation Strategy, we would like to investigate ways in which more powerful impact evaluation can be achieved by combining a bottom-up and top-down approach. This could entail both a forward tracking, bottom-up, results-chain based approach with a top-down, reverse-engineering approach.

Case Studies

Research evaluation makes good use of case studies. This is true for example in the UK in the Research Excellence Framework (REF)[36], and in Australia's national research system[37].

The REF 2014 impact case studies have yielded interesting and useful analysis of research that UK academics have undertaken which has been beneficial in the developing countries[38, 39]. We expect that a case-based approach will be a significant feature of the eventual evaluation strategy. However, we are conscious that both a) more consistent quality is need across case study submissions, and b) that by their nature, REF impact case studies present a sampling issue, since they essentially top-slice the most impactful research.

The Stern REF2014 review[40] noted that while many impact case studies *"showed a degree of interdisciplinarity, the need to link back to research outputs may have constrained the submission of case studies where the impacts arose from collaboration across units of assessment, whether between departments in the same institution or between institutions."* The review expressed concern about mechanistic linkages between specific outputs and eventual (often very specific) impact, which was restrictive on the way impacts were reported. For REF 2021, it recommends that: *"Impact should be based on research of demonstrable quality. However, case studies could be linked to a research activity and a body of work as well as to a broad range of research outputs."* This is relevant for shaping case studies that might be used for evaluation impact in Challenge Portfolios.

Issues of timing

Timing and delivery of interim and final products from the evaluation will be important. They will need to be in-step with other timetables and schedules. We will get insight to these during the next phase of the Foundation Stage. Synchronisation issues that we see as important include:

- Timing of **Process Evaluation reports** (in the Foundation and Main stages), so that they can inform the issue prioritisation and management of future calls.

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36 Lord Nicholas Stern (2016). *Building on Success and Learning from Experience - An Independent Review of the Research Excellence Framework*. BEIS, London

37 ACIL Allen Consulting (2017). *The Value of CSIRO. An estimate of the impact and value of CSIRO's portfolio of activities*. 2017 update. Canberra.

38 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*. Bristol, United Kingdom: HEFCE.

39 http://www.ukcds.org.uk/the-global-impact-of-uk-research

40 Stern (2016). *Ibid.*

- Conduct of a potential **Formative and Mid-Term Evaluations** so that they can help improve GCRF's performance in a number of areas, while there remains sufficient time to influence selection and/or implementation. These areas might include: success of organising GCRF around challenges and Challenge Portfolios; achieving interdisciplinarity; ODA-focus; and addressing ICAI issues or strategic focus, coordination, and partnering with institutions in the global South.
- Timing the production of 'Advocacy' and 'Accountability' oriented evaluation modules to contribute to **decisions about renewal** of the Fund.
- Coordination with annual BEIS and delivery partner cycles
- Recognition of the **REF2012 case study timetable**
- Any timing issues related to **ResearchFish returns**.

An additional timing issue, which has a significant funding implication, is worth raising now for further discussion. This is the planning (and the feasibility of committing funds to) a module of impact studies to take place a number of years ex-post the current GCRF funding block. There are precedents for this in government – DFID has recently commissioned a ten-year longitudinal study to systematically analyse the mobilisation of private investment by CDC.

The argument for an ex-post study is that if the intention of the Fund is to have transformational effects of a set of complex global challenges, it is unrealistic to expect the funding to have resulted in impact-level changes at scale within the five years of the Fund. This is exacerbated since the majority of funds will be disbursed in remaining three financial years. The evaluation problem is one of time lags to achieve impact - that GCRF-funded research Outcomes and Impact will necessary lag Fund disbursement and use by a number of years. An assessment point at the conclusion of the current funding window in 2021 will have to rely heavily on prospective conclusions and predictions about impact and sustainability. It makes sense to reserve some funding and judgement to an ex-post assessment five, if not ten, years post funding[41]. We look forward to discussing this with the Steering Panel.

7. Points for further discussion

Within the limited period of the inception, a number of questions and issues have arisen, but there hasn't been the opportunity to discuss them with evaluation stakeholders and the Steering Panel. We therefore believe it's useful to present some of these here, to stimulate to discussion and as a place holder to return to as the three modules progress. These are in no particular order:

I. At an early stage, it would be useful to review the **Foundation Stage timetable** with respect to the timetable for commissioning the Main Evaluation. There is a concern that on-going GCRF activity in the meantime will mean that there is limited scope for the evaluation, especially the Process Evaluation and formative components, to be acted upon.

II. Given the likely theory-based approach, we would like to discuss the scope for **iterative review of the Theory of Change** by BEIS and the delivery partners as part of the Main Evaluation. Theories of Change are necessary constructs based upon best current understanding. The evaluation should confirm parts of the theory and challenge others in an on-going way. Is it feasible to bring partners together annually, or at mid-term to update the theory, based on latest evidence?

[41] Rather than an arbitrary ex-post period, this should be set based on when the Challenge Portfolios' theories of change predict that impact will be achieved.

III. We note that there is little mention of **gender** in GCRF documentation. We understand that the GCRF theme 'Equitable access to sustainable development' is the way the Fund intends to address HMG's Leaving No One Behind promise[42]. However, gender seems absent as a programming concern. Our gender specialist on the team will be involved in the next phase to consider how the evaluation can improve this, and we would welcome a discussion on the topic.

IV. ICAI has identified partnering with research institutions in the global South as an issue. We would like to use **Research Fairness**, as promoted by the Research Fairness Initiative[43] and its Fair Research Contracting initiative, as lenses on to this issue. We recognise that ICAI raises concerns about the wider issue of categorising research funding as untied, but we see that as different and particularly within their ambit.

V. As part of on-going development of systems and approaches to monitoring and evaluating ODA funds in BEIS, this evaluation has been asked to also help develop a set of **monitoring indicators**. Some of these would be joint or common indicator with the Newton Fund, others would be Newton or GCRF specific. Newton has started a piece of work on this indicator set, and we will become involved once this is shared. Timing is therefore to yet to be confirmed. Our understanding is that the indicators are to be used on at least an annual basis to monitor the delivery of the funds in terms of progress along the expected pathway to impact.

VI. GCRF has two very particular features:

- It has a two-part purpose: "aid and UK interest"
- It is centred on six to twelve Challenges. This in turn gives an emphasis on interdisciplinary research.

The overarching strategic framework for the GCRF research agenda is structured around three areas: Equitable access to sustainable development, Sustainable economies and societies, and Human rights, good governance and social justice[44]. Within these, 12 areas of focus are identified. BEIS' response to the ICAI review makes clear that in the first instance, six Challenge Portfolios, led by Challenge Leaders, will be created to ensure greater coherence across programmes and projects. These portfolios will be designed to extract and amplify the research outcomes and impact of GCRF as a whole against particular sets of challenges. They will focus on Global Health; Food Systems; Security Protracted Conflict, Refugee Crises and Forced Displacement; Education; Resilience to Environmental Shocks and Change; Cities and Sustainable Infrastructure and Health.

This concept of **Challenge Portfolios** resonates with both the interdisciplinary intent of GCRF, the overall shifts within the UK research architecture towards greater attention to interdisciplinary research[45], and indeed the recommendations from Lord Stern's review of the REF[46]. The broad question that we want to explore is the extent to which Challenge Portfolios can and should be a primary **unit of analysis**[47] for the Main

[42] https://www.gov.uk/government/publications/leaving-no-one-behind-our-promise/leaving-no-one-behind-our-promise
[43] http://rfi.cohred.org/
[44] GCRF Delivery Partners (2017). *UK Strategy for the Global Challenges Research Fund (GCRF)*. http://www.rcuk.ac.uk/documents/documents/global-challenges-research-fund-gcrf-strategy-pdf/
[45] Sir Paul Nurse (2015). *Ensuring a successful UK research endeavour - A Review of the UK Research Councils*. BIS, London.
[46] Stern (2016). *Ibid.*
[47] As distinct from REF Units of Assessment.

Evaluation. The 'Challenge' in the title of GCRF suggests an important aspect of what is unique about GCRF, and this provides an organising principle against which to seek results beyond what might be expected from remaining in disciplinary channels. Other units of analysis, such as the Call and the Delivery Partner, will be studied, not least in the Process Evaluation module of the Main Evaluation.

VII. The **ICAI rapid review**[48] made four recommendations (Table 11). These are areas to which the evaluation design will pay attention. However, there are two specific questions for the Steering Panel:

- The need for a results framework, and the nature of this. HMG's response to the ICAI review[49] accepts Recommendation 3, but does not directly address developing "a results framework for assessing the overall performance, impact and value for money of the GCRF portfolio". Is this the Evaluation Framework, or does GCRF need something more akin to a logframe?
- As noted above, ICAI is concerned about the extent to which research finding is by definition or by convention untied. This might be seen as an issue of competition, and therefore a VFM concern. We would like to explore VFM scope in more detail.

Table 11. ICAI Recommendations on GCRF

Recommendation 1 To increase its prospects of achieving transformative research impact, the GCRF should develop a more **deliberate strategy that encourages a concentration of research portfolios around high-priority global development challenges**, with a stronger orientation towards development impact.
Recommendation 2 The GCRF should develop clearer priorities and approaches to **partnering with research institutions in the global South**.
Recommendation 3 BEIS should develop a **results framework** for assessing the overall performance, impact and value for money of the GCRF portfolio, drawing on DFID's guidelines on value for money in research and evidence programming.
Recommendation 4 With the increase in investment in development research across the UK government, the responsible departments should put in place a **standing coordination body** to clarify roles and responsibilities, avoid duplication and overlap, and facilitate exchange of learning.

VIII. We think would be useful to discuss the desirability of an **Evaluation Communication module** in the Main Evaluation.

48 ICAI (2017). *Global Challenges Research Fund - A rapid review*. Independent Commission on Aid Impact, London.

49 *HM Government Response to the Independent Commission for Aid Impact rapid review of the Global Challenges Research Fund*: September 2017

Appendix A: Scoping Interviews

Dr Claire Edwards	Senior Evidence and Evaluation Manager, GCRF; RCUK
Rebecca Tanner	RCUK
Jon Cooper	Programme Director (Itad), Fleming Fund Evaluation
Michael Schultz	Team Leader, Prosperity Fund Evaluation
Jamie Fotheringham	Team Leader, Newton Fund Evaluation (*meeting now in January*)
Louise Olofsson	Royal Academy of Engineering
Athene Gadsby	UK Space Agency
Helena Mills	HEFCE

Appendix B: List of calls for proposals

Call ID	Call title	Delivery partner
1	Global Challenges Research Fund: Cities & Infrastructure	British Academy (leading) on behalf of all other national academies
2	Sustainable Development Programme	British Academy
3	Early Childhood Development funding call	British Academy - partnership with DfID
4	Seed funding	RAEng
5	GCRF Africa Catalyst	RAEng
6	International Collaboration Awards	Royal Society
7	Challenge Grants	Royal Society
8	Research Networking Highlight Notice for International Development	AHRC
9	GCRF Area-Focused Network Plus Call	AHRC
10	Translating Cultures and Care for the Future Innovation Awards on International Development	AHRC
11	Research Networking and Follow-on-Funding for Impact and Engagement scheme highlight notice	AHRC
12	Sustainable Agriculture for Sub-Saharan Africa (SASSA)	BBSRC
13	Bioinformatics and Biological Resources Fund	BBSRC
14	Ecology and Evolution of Infectious Diseases	BBSRC
15	BBSRC GCRF Strategic Training Awards for Research Skills (GCRF-STARS)	BBSRC
16	Pre-announcement: Global Challenges Research Fund Translation Award	BBSRC
17	GCRF Postdoctoral Fellowships	ESRC
18	GCRF Centres competition 2016: Foundations of inclusive growth	ESRC
19	ESRC GCRF Strategic Networks call 2016	ESRC
20	GCRF Secondary Data Analysis Initiative highlight notice	ESRC
21	Resilient and sustainable energy networks for developing countries	EPSRC
22	Diagnostics, prosthetics and orthotics to tackle health challenges in developing countries	EPSRC
23	Tackling global development challenges through engineering and digital technology research	EPSRC
24	Confidence in Global Mental Health Research: Institutional "pump-priming" awards	MRC

25	Institutional "pump-priming" awards to develop new opportunities in Global Nutrition and Health Research	MRC
26	Innovation Follow-on Call: Enabling innovation in the UK and developing countries	NERC
27	STFC Global Challenge Research Fund Foundation Awards	STFC
28	International Partnership Programme call 2	UK Space Agency
29	International Partnership Programme call 2	UK Space Agency
30	MRC-AHRC Global Public Health: Partnership Awards Call	Combined - AHRC and MRC
31	Global Public Health: Partnership Awards Call 2	Combined - AHRC and MRC
32	Antimicrobial Resistance in a Global Context – A Cross-Council call in partnership with the Department of Health	Combined - MRC, ESRC, NERC, SHRC, BBSRC, EPSRC
33	GCRF Call in Networks for Vaccine R&D	Combined - BBSRC, MRC
34	Networks in Vector Borne Disease Research	Combined - BBSRC, MRC
35	Tackling antimicrobial resistance: behaviour within and beyond the healthcare setting	Combined - NIHR, MRC (leading), AHRC, DfEnvironment, DEFRA, Veterinary Medicines Directorate (VMD)
36	Global Challenges Research Fund: Building Resilience	Combined - NERC (leading), AHRC, and ESRC
37	Partnership for Conflict, Crime and Security Innovation Awards on Conflict and International Development	Combined - AHRC and ESRC
38	Forced displacement of people	Combined- ESRC/AHRC
39	Towards a Sustainable Earth: The environment-human landscape - Pre-announcement of Opportunity	Combined - NERC, ESRC and The Rockefeller Foundation
40	Non-Communicable Disease (NCDs) foundation awards	Combined - AHRC, BBSRC, ESRC, MRC (leading) and NERC
41	GCRF Foundation Awards for Global Agricultural and Food Systems Research	Combined - AHRC, BBSRC (leading), ESRC, MRC and NERC
42	Infections Foundation Awards: Global Infections	Combined - AHRC, BBSRC, ESRC, MRC (leading) and NERC
43	EqUIP call for collaborative research on sustainability, equity, wellbeing and cultural connections	Combined - 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)
44	Global Challenges Research Fund Networking Grants	Combined - AMS, British Academy, the Royal Academy of Engineering and the Royal Society
45	Interdisciplinary Research Hubs to Address Intractable Challenges Faced by Developing Countries	Collective fund
46	Growing research capability to meet the challenges faced by developing countries	Collective fund

Appendix C: Call appraisal framework

Domain	Description	Example(s)
Delivery partner	Body delivering the fund	name
Call title	Official call title	name
call type	Form of the call and funding offering	small, large, collaboration, collective fund, pump-priming
Activities	What activities the funding covers	To fund studentships, establishing hubs, travel costs
Topic	The specific topic(s) the call covers	early childhood development
SDGs	UN sustainable development goal focus	Numerical 1-17, e.g. 1 - No poverty
GCRF challenge area	Specific GCRF challenge area(s)	5 - affordable, reliable, sustainable energy
geography	particular region/country or group/type of countries of call and awards	Sub-saharan Africa (16), India (12), Countries on DAC list (1200)
Partnership model	how DP has suggested projects are arranged between partners and arrangements of the collaborations if explicit or implicit.	Must include an International co-investigator, must involve an international research institute or company, must engage with LMIC target audience
Pathways to impact	How pathways to impact are measured, what suggestions are given by DP.	Pathways to impact statement and guidance, must deliver X number of workshops
Disciplinarity	What disciplinary approach is suggested	inter/multi/single
Date call issued/closed	When the full call opened and closed	date
Grant start date and duration	The specified date by which projects must start and their maximum duration	01.01.18 for maximum 12 months
Budget and spend - £	budget / accompanying cost in total and per project	Budget: £6m for 6 projects at 80% FEC. Spend: 100% spent on 7 projects at £X per project
Application and assessment process	stages in application and how bids are evaluated at all stages	eligibility check, peer review, assessment panel
instruments (final selection criteria)	assessment criteria/system used and weightings	quality and importance, management of the project, value for money, output, dissemination and impact
Composition of selection panels	Number of panellists, their professional roles, qualifications, international aspect	5 UK based, 6 professors, 3 industry experts, 40% from LMICs
ODA compliance measure	How ODA compliance is assessed and monitored	ODA statement required and guidance given to applicants
monitoring and evaluation	procedures: checking of UK and non-UK partners, progress monitoring, reporting	project management plan required, quarterly updates with a final report and presentation
Research questions	types of research questions	Blue sky crop microbiology
Number of responses	total, successful and unsuccessful	500 - 5% success rate (n=25)
No. of partner countries	in total and per call/project	8 countries for call X with 2 per project
Inclusion	to what extent the call requires projects to be inclusive and the measures to assess this	call requires an equality statement,

Respondent organisations	Which types are more successful? What combination are successful?	Universities most successful when an industry partner features

Appendix D: Data headings and evaluation questions

A.1 Calls

Heading	Description	Relevant EQs
Unique ID	To link call to project to participant	n/a
Call type	Small, large, research hub, pump-priming	1.2
Associated SDGs	UN sustainable development goal focus	1.1, 4.1
GCRF challenge area	Specific GCRF challenge area(s) focused upon. Can be explicit or implied. Standard grouping used by RCUK.	1.1, 4.1
Date call opened/closed	Dates when the full call opened and closed	1.2
Grant start date and duration	Date when the grants were due to start by and the maximum duration	1.2
Application process	Expression of interest, feedback received, information event, full application.	1.2, 2.2
No. of EoIs received	Number of expressions of interest received to be compared to number of subsequent proposals.	1.3
No. of applicants and success %	Proportion of successful and unsuccessful	1.3
Budgeted spend and actual spend	Maximum amount available and subsequent spend	1.2, 1.3
Assessment process	Eligibility screen, peer review, interview, assessment panel	2.2, 2.1
Selection criteria and weightings	Assessment criteria/system used, criteria with percentage weighting	2.2, 2.4, 2.1
Panel composition	Number of individuals and types of individuals on the panel	2.3
ODA compliance measure	ODA statement, ODA compliance is in the eligibility criteria, in the assessment criteria, pre-screened for ODA compliance	2.1
Reporting requirements	ODA, checking of UK and non-UK partners, monitoring	6, 2.5, 2.1

A.2 Projects

Heading	Description	Relevant EQs
Unique ID	To link call to project to participant	n/a
Lead applicant name	For survey/interview contact	n/a
Start/end date	Funding awarded date, actual or projected finish date	n/a
Funding allocated to project	Spend given per project	1.4, 4.4, 1.10
Co-funding and sources	Other funders and amounts	4.4, 3.3, 1.4
Delivery partner and call title	Body delivering the fund and call received funding from	n/a
Type of organisation (lead and partners)	University, research institute, charity research institute, private company, private technology centre	3.1
SDGs	UN sustainable development goal focus	1.1, 4.1, 1.10

GCRF challenge area	Specific GCRF challenge area(s) focused upon. Can be explicit or implied. Standard grouping used by GCRF.	1.1, 4.1, 1.10
Abstracts (research questions)	Main questions from proposals	1.7, 4.2, 1.10
Project theme	e.g. blue skies, applied, pilot, pump-priming, extension of existing research, research hub.	4.1, 3.1, 4.2
Geography - countries of focus	Particular region/country or group/type of countries	3.2, 1.10
Partnership model used	Arrangements of the collaborations if explicit or implicit	3.3, 1.10
Impact/benefits to international partner and target countries	Pathway to impact statements should contain this information	3.4, 1.10
Number and names of disciplines per project	What is the make-up of projects by disciplinarity? What combinations exist?	1.6, 1.10
Number of International partners	Co-authors, Co-investigators. Number.	3.3, 1.10
Number of project partner organisations	Number.	3.3, 1.10
Date informed of decision	EoI, ITS, full call if applicable	1.2, 2.2
Accepted/rejected + reason	EoI, ITS, full call if applicable	2.2
Approach to knowledge sharing	Section of application addressing 'learning'	3.3
Approach to project sustainability	Section of application addressing 'learning'	3.3
Assessment score overall and by assessment category	What score did the application receive in total and by category if available	2.2, 1.10
ODA compliance	ODA assessment score, ODA statement	2.1

A.3 Participants

Heading	Description	Relevant EQs
Unique ID	to link call to project to participant	n/a
Applicant name	name	n/a
Applicant organisation	name	n/a
Applicant organisation country	country	3.2
Contact information of applicant	for interviews/survey	n/a
demographics of applicant	all available characteristics	1.9, 3.5

Appendix E: 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.