



Department for  
Business, Energy  
& Industrial Strategy

# Research Quality Synthesis Report

Final Evaluation of the Newton Fund

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## Disclaimer

The views expressed in this report are those of the evaluators. They do not represent those of the Department for Business, Energy and Industrial Strategy, the Newton Fund or of any of the individuals and organisations referred to in the report.

This report was authored by **Marco Antonielli**.



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Any enquiries regarding this publication should be sent to us at: [enquiries@beis.gov.uk](mailto:enquiries@beis.gov.uk)

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# Abbreviations

AHRC	Arts and Humanities Research Council
ASM	Academy of Sciences Malaysia
BBSRC	Biotechnology and Biological Sciences Research Council
BEIS	Department for Business, Energy and Industrial Strategy
CIVR	Comitato di Indirizzo per la Valutazione della Ricerca
CNPQ	Brazilian National Council for Scientific and Technological Development
CONCYTEC	National Council for Science, Technology and Technological Innovation
CONFAP	Brazilian National Council for the State Funding Agencies
CSSP	Climate Science for Services Partnership
EPSRC	Engineering and Physical Sciences Research Council
ESRC	Economic and Social Research Council
FAPESP	São Paulo Research Foundation
GCRF	Global Challenges Research Fund
ICAI	Independent Commission for Aid Impact
ICDR	International Development Center
IPCC	Intergovernmental Panel on Climate Change
LMICs	Low- and middle-income countries
MCTI	Ministry of Science, Technology, and Innovation
MoHE	Ministry of Higher Education
NERC	Natural Environment Research Council
NGOs	Non-governmental organisation
ODI	Overseas Development Institute
PRFS	Performance-based research funding system
R4D	Research For development
REF	Research Excellence Framework
TÜBİTAK	The Scientific and Technological Research Council of Turkey
UKCDR	UK Collaborative on Development Research
UKRI	UK Research and Innovation
UNFCCC	United Nations Convention on Climate Change

# Summary

In this report we found that the Newton Fund has supported the delivery of research quality beyond the traditional measures of scientific value of research outputs. Based on in-depth case study data, there is evidence that four criteria of research quality, identified in the literature, are widespread in a sample of 14 research-focused Newton Fund projects, run in seven countries with a total UK budget of £5.3m<sup>1</sup>. This sample showcases the diversity of the Newton Fund portfolio but is not representative of all the research activities funded. The four criteria of research quality are long-term and equitable partnerships; interdisciplinary research; capacity strengthening; and research communication and uptake.

The most prevalent features of research quality across the 14 Newton Fund projects have been the delivery of equitable partnerships (which is an intrinsic aim of the Newton Fund model) and capacity building (which, again, features prominently in supported projects). To a lesser extent, projects also featured interdisciplinarity. By contrast, research communication and uptake were found to be less consistently considered in project design in the sample of projects. More specifically, the key findings of the review are the following:

## Long-term and equitable partnerships

- Perceptions of equitable partnerships are overall positive across the sample projects, and all projects feature characteristics and ways of working of an equitable partnership.
- Complementarity of skills, competencies, assets, and areas of expertise between and UK and partner countries institutions is a key enabling factor of Newton partnerships.
- The long-lasting effects of equitable partnerships are the advancement and expansion of research agendas, strengthened networks within and outside academia and potential for continued research partnerships after Newton partnerships' completion.

## Interdisciplinary research

- Efforts to promote interdisciplinarity are common but not pervasive in the sample projects.
- Where it is pursued, interdisciplinarity increases the potential impact and relevance of scientific innovation and contributes to solving complex science and development challenges.
- There is a sense among stakeholders that interdisciplinary research requires larger and longer-term investment.

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<sup>1</sup> Excludes partner country match funding.

## Capacity strengthening

- Researchers involved in Newton Fund consistently report improving their research capacity through the projects, with the potential to support future research quality.
- Most sample projects have successfully embedded capacity building activities such as training, scholarships, and exchanges into research project plans.
- Researchers and participating institutions also enjoy further benefits of international collaborations, e.g. in terms of international exposure and knowledge exchange.

## Research communication and uptake

- Newton Fund research focuses on development challenges and real-world issues.
- The pathways to influencing policy, changing practices, or developing and rolling out applications tend to be long and extend beyond the life of the projects.
- Dissemination activities are widespread but focus primarily on sharing findings with other researchers and academics. Dissemination activities have not always been appropriately planned from the start.
- While all projects are expected to contribute to a better understanding of real-world problems, some are still far from contributing to practical solutions, and more funding for new research, dissemination, or time might be needed.

## Unexpected criteria and drivers of research quality

- Innovativeness and the capacity to transfer research findings to new and different contexts can be seen as criteria of research success.
- The size of the project funding has been noted as a key factor hampering or promoting research quality in a few cases.

An overarching conclusion from the review is that, within the Newton Fund, there is a recurring risk that research projects are not designed with a focus on learning and knowledge transfer. Projects might lead to missed opportunities to address development challenges if they do not anticipate and plan for what will happen after project completion. While the design and delivery are well suited to delivering quality, this final hurdle in translating knowledge into tangible impact is an area of need within Newton Fund projects. Planning dissemination and awareness-raising activities, especially if targeted to research users in the early project cycle, could yield higher quality research.

# 1. Introduction

The objective of this report is to provide specific insight into the extent of **high-quality research through the Newton Fund model** for a sample of projects, thereby supporting the Final Evaluation assessment of activities under the research pillar (i.e. evaluation question 3.2<sup>2</sup>). This work complements the Value for Money Final Evaluation workstream and the Value for Money Assessment developed by the Department for Business, Energy and Industrial Strategy (BEIS), which focus on some criteria of research quality.<sup>3</sup> It looks particularly to uncover **what** research quality is and **how** it is achieved in the Newton Fund. It also aims to identify unexpected benefits of the Newton Fund model.

The approach for this report is a synthesis review of the evidence on 14 research-focused projects from seven partner country case studies. The review is guided by criteria of research quality identified in the literature and adapted to the Newton Fund. The sample of projects is not representative of all the research activities funded but is illustrative of the diversity of the portfolio and of priority areas at the partner country-level. This review is one of the workstreams that inform the Final Evaluation of the Newton Fund conducted by Tetra Tech and is complementary to other workstreams. Partner country case studies were also conducted by Tetra Tech as part of the Final Evaluation.<sup>4</sup>

This report is structured as follows:

- **Section 2** provides a summary of the methods used;
- **Section 3** reviews the definitions of research quality from the literature and identifies research quality criteria for the synthesis review; and
- **Section 4** presents findings from the review of research quality.

Supporting annexes include the summary of the rapid review of the literature (Annex A) and a list of the projects included in the review (Annex B).

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<sup>2</sup> Evaluation question 3.2 is “Have activities under the Research Pillar enabled successful research collaborations, and how? What are the benefits?”. Successful research collaborations were associated with high quality of the research in the mid-term evaluation of the Newton Fund.

<sup>3</sup> The BEIS Value for Money assessment explores evidence of capacity strengthening, equitable partnerships, and efficiency and effectiveness of research activities, among other criteria. These criteria also make up the definition of research quality in this report.

<sup>4</sup> More information on the Newton Fund can be found website: Available at: <https://www.newton-gcrf.org/newton-fund/>

## 2. Methodology

The overall approach of the research quality review is presented below. Using qualitative evidence collected by partner country case studies and a rapid review of the literature, our approach aimed to draw out insights on the nature and extent of research quality achieved by the Newton Fund research activities. The review was conducted in October to December 2020 and the methods comprise three core steps.

### Step 1: Rapid review to establish ‘what is research quality’

The review involved the survey of internal and public programme documents (e.g. the bibliography of the BEIS Value for Money assessment framework); and additional literature, including academic literature, grey literature (e.g. documents from associated bodies, conference documents), and blogs/commentaries from relevant stakeholders which share analysis or thoughts on how research quality is achieved. Annex A provides the full results from this step.

### Step 2: Structured review of Tetra Tech’s Partner Country case studies to identify ‘what’ research quality is and ‘how’ it is achieved<sup>5</sup>

The review followed inductive and deductive search for evidence of the research quality criteria in a sample of projects found in Tetra Tech’s Partner Country case studies. A sample of 14 projects were drawn from the case studies conducted in Jordan, Kenya, Malaysia, Philippines, Turkey, Brazil, and Peru in June to November 2020. This included Research pillar projects as well as People and Translation pillar projects with substantive research outputs. These projects are not representative of Newton Fund activities but were selected to showcase the diversity of the portfolio and cover some of its priority areas in the different countries. Workstream timelines dictated that case studies on Chile, China, and India could not be used. The total UK budget for these activities is £5.3m. Annex B provides the list of projects reviewed in this synthesis.

The Partner Country case study methodology comprised a review of project-specific documentation (progress reports, final reports, presentations, research outputs etc.) and remote interviews targeted at in-country Delivery Partners in both countries, award holders (AHs), senior staff from partner organisations as well as the Newton programme team and UK Embassy staff. The number of interviews varied by country and project depending on scope of the projects, number of stakeholders involved, and availability of the stakeholders. Research findings were triangulated across different stakeholder groups and across various sources of documentation. However, the research team was not able to independently verify statements by all the different contributing stakeholders or to verify what was reported in documentation.

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<sup>5</sup> Tetra Tech (2021) Partner Country Case studies.



## Step 3: Analysis and synthesis

Frequency of projects featuring each identified aspect and features of research quality, as well as analysis of emerging and unexpected themes were used to draw general insights on research quality across projects and contexts.

## 3. What is Research Quality

This section provides a) a brief overview of what research quality is based on a rapid literature review, and b) identifies criteria of research quality that are applicable to the qualitative evidence of the Newton Fund Partner Country case studies. Further details are provided in Annex A.

Research quality has been traditionally judged on scientific values and criteria and measured by peer reviews, bibliometrics e.g. citation counts and journal impact factors, or number of patents. While these measures remain valid, our literature review has found that understanding what generates quality research needs to go beyond such measures. For example, an assessment of the quality of research should consider how useful or applicable the research is<sup>6</sup>. Specifically, in the context of research for development, research is called to solve complex and difficult development challenges, or “wicked problems”, as they are often labelled among development professionals. Addressing “wicked problems” implies that research quality should be context dependent and non-linear and take considerably longer to emerge than the time frame of an average five-year development programme<sup>7</sup>.

Based on our literature review (found in Annex A) we established the following four criteria to consider and assess in a review of research quality against a more expansive standard applicable to the research for development context: long-term and equitable partnerships, interdisciplinary research, capacity strengthening, and research communication and uptake.

**Long-term and equitable partnership:** establish the extent to which the research was conducted through a shared undertaking and how the partnership benefits all partners.

There is a growing view that new research needs to mobilise multi-stakeholder partnerships across the global North and South, and across sectoral boundaries, to build lasting research and innovation capabilities and infrastructures in low- and middle-income countries (LMICs).<sup>8</sup> North-South research partnerships can create a variety of opportunities and benefits for all parties but also bring with them their own unique set of considerations and challenges. Building and maintaining equitable partnerships can help ensure that research outcomes are mutually beneficial and more likely to achieve the desired development impact. Such collaborations offer new ways of approaching development challenges and can generate insights and evidence to inform development practice and policy and contribute to development goals.

**Interdisciplinary research:** establish the extent to which other disciplines were included in the research and the diversity of organisations and people taking part into the research.

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<sup>6</sup> For example, Lebel and Mclean (2018) reported the lack of rigor, originality, or usefulness as a measure to assess research quality. They believe that traditional measures do not provide much about how to improve science and research quality; Jean Lebel and Robert McLean (2018) ‘A better measure of research from the global south’. Springer Nature. Volume 559.

<sup>7</sup> The International Development Research Centre’s (IDRC) Research Quality Plus framework developed for IDRC spells out these conditions in greater detail. IDRC (2018): Available at: <https://www.idrc.ca/en/rqplus>

<sup>8</sup> BEIS has introduced the criterion of Equitable Partnerships and Collaborations within its Newton Fund’s Value for Money assessment methodology. This criterion emphasises fair opportunity, co-design, fair process, and fair sharing of benefits, costs and outcomes as key aspects of equitable partnerships. Our definition is compatible but more generic than BEIS’s criterion, which allows for broader search of evidence within the case studies. Internal source: Newton Fund Value for Money Pilot, July 2020, Panel Member Guidance.

Interdisciplinarity<sup>9</sup> is becoming an increasingly relevant component to define and evaluate research quality. This focus on interdisciplinarity recognises that different individuals and institutions bring varied relationships, knowledges, skills, and perspectives to the research. By working together across disciplines, people can collectively develop deeper understanding.

**Capacity strengthening** establish the extent to which capacity strengthening is built in the research delivery model.

Building research capacity internationally is a means to enhance research quality by sharing current knowledge and techniques to develop strategies, tools and methods that may be applied to the local setting and needs. Capacity strengthening, and excellence are considered to go hand in hand.

**Research communication and uptake:** establish the extent to which communication and dissemination plans were put in place and whether the research has been taken up (i.e. replicated, cited, or used to inform policies or derive economic opportunities).

Research is essential for understanding but also tackling challenges with rigorous evidence. For the UK-based International Institute for Environment and Development<sup>10</sup>, research excellence is about solving real-world problems. Within a national policy perspective, this means building national research excellence by supporting the development of national research institutions and ensuring research dissemination and uptake within the national context. Research dissemination and communication is considered to be a key part of the research-into-use change pathway. Indicators such as the number of events, the extent of participation in these, or the number of publications and citations can be used to indicate the level of communication and dissemination.

Taking the above research quality criteria, we reviewed the sample of case studies with a research focus to see how commonly, and in what ways, these criteria featured in Newton Funded research.

It should be noted that through our literature review, we found that there are a range of emerging concepts and criteria from several frameworks and examples of best practice, but definitions still vary. Therefore, we took definitions that encapsulate concepts from multiple sources which can be applied to Newton Fund case studies and the type of evidence available therein (i.e., documentary review and qualitative evidence). These definitions draw from, but are not identical to, the IDRC Research Quality Plus framework, which is in use in the evaluation of the UK aid-funded Global Challenges Research Fund (GCRF).<sup>11 12</sup>

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<sup>9</sup> UKRI definition: ‘the term interdisciplinary is used to refer to the full spectrum of interdisciplinary activity including cross-disciplinary, multi-disciplinary, interdisciplinary and transdisciplinary work’. Available at:

<https://re.ukri.org/research/interdisciplinary-research/>

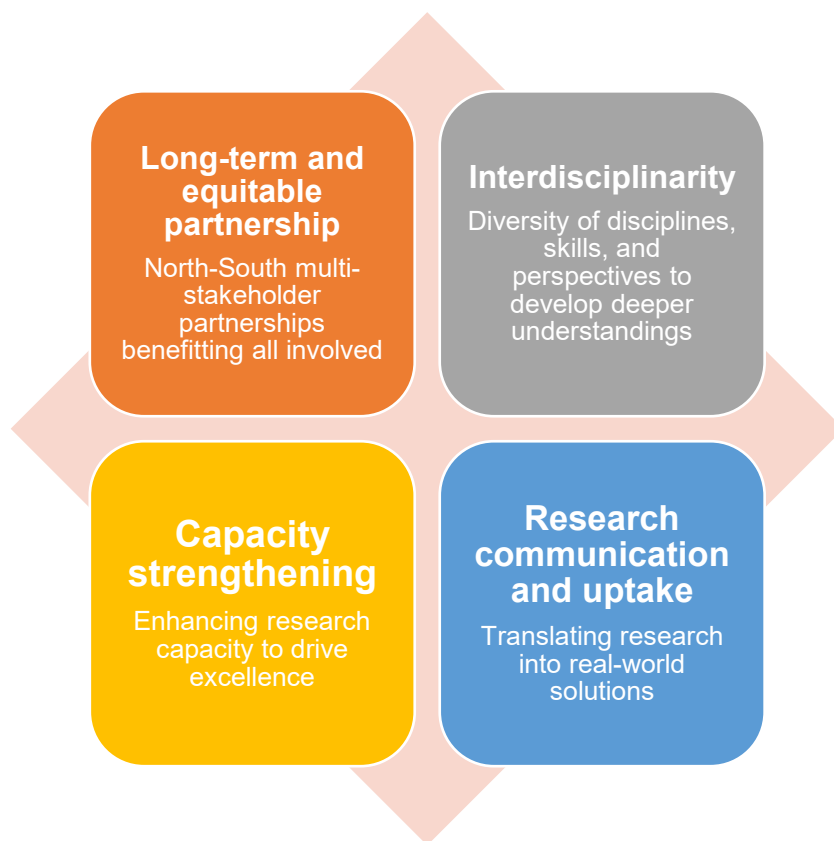
<sup>10</sup> International Institute for Environment and Development (2012). Towards Excellence: Policy and Action Research for Sustainable Development.

<sup>11</sup> Global Challenges Research Fund (2019): Foundation Stage evaluation. Available at:

<https://www.gov.uk/government/publications/global-challenges-research-fund-gcrf-foundation-stage-evaluation>

<sup>12</sup> GCRF evaluation also considers bibliometrics and alt-metrics, which we excluded in order to focus on the more relevant criteria for research in a development context.

**Figure 1 - Research Quality Criteria in Research for Development**



## 4. How is Research Quality achieved in the Newton Fund?

The following four sections summarise the findings of the research quality review based on evidence on 14 projects collected as part of seven Newton Fund Partner Country case studies. The final section presents the other unexpected drivers of research quality that we have uncovered across the sample projects.

### 4.1 Long-term and equitable partnerships

#### Key findings

- Perceptions of equitable partnerships are overall positive across the sample projects, and all projects feature characteristics and ways of working of an equitable partnership.
- Complementarity of skills, competencies, assets, and areas of expertise between and UK and partner countries institutions is a key enabling factor of Newton partnerships.
- The long-lasting effects of equitable partnerships are the advancement and expansion of research agendas, strengthened networks within and outside academia and potential for continued research partnerships after Newton partnerships' completion.

**Establishing equitable partnerships between UK and partner country researchers and institutions is one of the hallmarks and expected long-term outcomes of the Newton Fund.** All Newton Fund research projects must involve researchers / institutions from the UK and partner countries who jointly respond to research calls, and collaboration is expected in the delivery of the research activities. Evidence from the 14 sampled research projects shows that these partnerships are considered equitable and will endure in the long term (i.e. beyond the lifetime of the Newton Fund).

All the sampled partnerships feature characteristics and ways of working that illustrate this, notably:

- The scope and objectives of the research projects were found to address relevant national development challenges identified in partner countries. Further, research objectives often align with priorities of the partner government and other national stakeholders, as demonstrated for example by cited government policies and strategies. This demonstrates that the research is typically designed to benefit the partner country and attract positive engagement from its institutions.
- The partnerships created through the Newton Fund involve multiple institutions on both UK and partner country sides. Partner institutions include in some instances non-academic partners who provide contextual knowledge and support for the uptake and application of the research findings or outputs. This helps to create new relationships and strengthen existing ones, thereby fostering larger coalitions of stakeholders who promote and benefit from high quality research produced. A number of the sampled projects also provide specific opportunities for networking so as to harness these benefits.

- Research projects were in most cases co-designed by UK and partner country research teams who came together to develop the project idea and prepare proposals to respond to country-level calls. This ensured that the different experiences, skills, and assets of the research teams were built into the research design. Furthermore, some projects run participatory approaches to the design and implementation of research, involving a broader range of actors (e.g. different levels of governments, NGOs, civil society, end users). As a result, many projects enjoy a broad sense of ownership and buy-in from both research communities and other stakeholders.
- The research processes were perceived as fair and highly collaborative by all partners. Most researchers reported to have collaborated very closely starting with the research design stage, through to data collection, analysis, and, often, through to joint publication of research findings and outputs. Where responsibilities between the two sides were separate, for example, in virtue of different skills and competencies, both sides generally reported that there was clarity of roles and that collaborations were largely smooth.
- Finally, the benefits of the research for individual researchers also appeared to be shared equitably between UK and partner country counterparts. Partner country researchers suggest that access to high quality international researchers and networks is beneficial to their professional development and career progression. International partnerships also help them to raise their profile. UK researchers enjoyed access to local knowledge through the partnerships and were often able to expand their agenda to new fields. Notably, it was also found that the partnerships allowed, in most cases, for an exchange of knowledge and ways of working, i.e. the collaboration was not just conceived as transfer of skills from the UK to the partner country but vice versa.

While perceptions of equitable partnerships are overall positive across our sample, **two projects appear to be skewed to the UK partner playing the more active role**. Specifically, in the Turkey research project on musculoskeletal injury<sup>13</sup>, the UK project team tested a UK-developed eHealth tool in the Turkey healthcare context, to evaluate its transferability to new conditions. In parallel, the project had a knowledge transfer component whereby the UK research team engaged with students and post-doctoral researchers from the host institution on the technical aspects of the tool. Similarly, in CSSP Brazil, the UK institutions deployed a UK-developed climate simulation model to Brazilian atmospheric data and ran a project proposal evaluation and selection processes without inputs from the Brazilian counterparts. In both these cases, the UK partner probably had more influence over the research design than their counterparts, although both sides stand to gain from the success of the research.

The selected case studies also point to a range of **factors that enable the Newton partnerships to be equitable**:

- The complementarity of skills, competencies, assets, and areas of expertise between the UK and partner countries institutions facilitated both sides to share the responsibilities of the research, benefit from knowledge exchange, and engage as equals.
- The strong and reciprocal understanding of contexts, strengths, and potential of the partner institutions, which was often harnessed prior to project application and facilitated by Newton Fund networking mechanisms.
- The opportunity for researchers to travel between UK and partner country and meet in person was cited as an important mechanism to cement the partnership and learn from

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<sup>13</sup> Tetra Tech (2021) “Interdisciplinary Research Links for Medical AI: Management of Musculo-Skeletal Injury” Partner Country Case study: Turkey.

each other, whilst also creating personal bonds and helping to establish a partnership that would endure in the longer-term.

- The Newton match funding mechanism, by which both UK and partner country institutions contribute funding towards the research, helped foster shared ownership and create an equal and balanced partnership. However, match funding also came with challenges where funding capacity was constrained, particularly in Brazil and Jordan. The nature of these challenges ranges across contexts and include lack of government funding for research, for example due to government budget cuts, economic crises and currency fluctuations, as well as more structural issues such as administrative constraints and the need to adapt to the Newton funding model. Funding and disbursement constraints have impacted negatively on both research and its dissemination.

It was also found that **nine out of the 14 Newton partnerships result in the intent to continue working together after the partnership is complete** as the researchers seek opportunities to advance or expand their research agenda. A related finding in the reviewed case studies is that these partnerships help to create or strengthen wider networks, not only between the research communities of the two countries, but also with government, NGO, civil society, and business. However, limited availability of follow-up funding may have been a constraint in some cases, and this is discussed more in terms of research communication and uptake below.

## 4.2 Interdisciplinary research

### Key findings

- Efforts to promote interdisciplinarity are common but not pervasive in the sample projects.
- Where it is pursued, interdisciplinarity increases the potential impact and relevance of scientific innovation and contributes to solving complex science and development challenges.
- There is a sense among stakeholders that interdisciplinary research requires larger and longer-term investment.

The assessment of the interdisciplinarity of research was based on two elements:

1. the types and number of partners involved in setting the research agenda, particularly where they include non-academic players, such as government, NGOs, civil society organisations, and business partners.
2. the diversity and number of academic disciplines that researchers incorporate into the research agenda, as well as the degree of complementarity and synergy between these disciplines in producing more innovative and relevant research.

By these standards, **efforts to promote interdisciplinarity are common but not all-pervasive in the sample projects**. Nine out of the 14 projects feature elements of interdisciplinarity. Conversely, five projects exploit methods from only one dominant discipline and do not receive critical inputs from non-academic partners in the design stage.<sup>14</sup> Nonetheless, these ‘non-

<sup>14</sup> The six projects that do not feature interdisciplinarity are: “Innovating the Turkish supply chain for services in humanitarian aid”, Turkey; “Micro bubble aeration system for nursery pond of shrimp aquaculture in Malaysia under energy, water quality and bio floc circulation constraints”, Malaysia; “Strengthening skills on structure-based drug



interdisciplinary' projects may have engaged with stakeholders during or after the research, for example to collect data or disseminate findings. For example, in the Malaysia shrimp aquaculture project<sup>15</sup>, the researchers involved small-scale aquaculture farmers in testing and demonstration of an innovation they could use, while there is no clear evidence that these farmers contributed to the research design in the first place.

**Models of partnership with non-academic stakeholders vary significantly in the sampled projects.** In several of them, researchers cooperated with government, NGOs, and civil society organisations from the start, as a means to incorporate the views and needs of research users and beneficiaries. Two examples of a 'bottom-up approach', whereby different partners and stakeholders input into the research priorities and design, stand out:

- In the Jordanian Multicultural Amman project, Sela, an NGO working on cultural heritage protection, and the Jordanian Department of Antiquities, were research partners together with the Arts and Humanities Research Council (UK), Durham University (UK), and Hashemite University (Jordan).<sup>16</sup> These partners provided contextual understanding of the museum and heritage landscape specific to Jordan at the early stages of the projects, which ensured that research would be directly relevant to them.
- An infant nutrition project in Peru involved stakeholders and end users to identify and then pilot solutions to the challenges of healthy complementary feeding through a community-based participatory design.<sup>17</sup> This approach complemented an academic literature review and the data collection phase, and helped to fill evidence gaps that informed later research activities.

Six out of 14 selected projects also feature researchers bringing insights and methods from distinct academic disciplines.<sup>18</sup> These include combinations of disciplines that can be seen as contiguous branches of the same science, but also include more distant disciplines. An example of a highly interdisciplinary research is Brazil's (Re)connect the Nexus project, where engineers from São Paulo State University (UNESP) worked with geographers from the University of Birmingham. In this case, the Brazilian partners brought a focus on technology for sustainability, energy, and water quality, while the UK partners complemented this with a focus on socio-economic issues and nutrition. A more modest degree of interdisciplinarity is also visible in Peru's "CASCADA: Toxin or Treat?" project which brought together glacial biogeochemists, glaciologists, sensor developers, ecologists and paleo-environmentalists, and water resource and remote sensing experts. This wide mix of skills was made possible by the broad coalition of institutes involved, specifically one UK and five Peruvian research organisations.

In these projects, **integrating different disciplines into a coordinated research agenda promoted research quality.** According to the stakeholders interviewed in case studies,

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discovery for novel anti-schistosomal therapeutics", Brazil; "Household air pollution and risk of esophageal cancer: a case-control study in Western Kenya", Kenya; "The identification of genetic vulnerabilities in head and neck cancers for the development of novel therapies", Malaysia: Tetra Tech (2021) Partner Country case studies.

<sup>15</sup> Tetra Tech (2021) "Micro bubble aeration system for nursery pond of shrimp aquaculture in Malaysia under energy, water quality and bio floc circulation constraints" Partner Country case study: Malaysia.

<sup>16</sup> Tetra Tech (2021) "Learning from Multicultural Amman: Engaging Jordan's Youth" - Partner Country Case study: Jordan.

<sup>17</sup> Tetra Tech (2021) "New strategies to reduce anaemia and risk of overweight and obesity through complementary feeding of infants and young children in Peru" - Partner Country Case study: Peru.

<sup>18</sup> The six projects are: "New strategies to reduce anaemia and risk of overweight and obesity through complementary feeding of infants and young children in Peru", Peru; "CASCADA: Toxin or Treat?", Peru; "Work Package 3: Climate Impacts and Disaster Risk Reduction", Brazil; "(Re)Connect the Nexus: Young Brazilians' experiences of and learning about food-water-energy", Brazil; "The identification of genetic vulnerabilities in head and neck cancers for the development of novel therapies", Malaysia; "Interdisciplinary Research Links for Medical AI: Management of Musculo-Skeletal Injury", Turkey: Tetra Tech (2021) Partner Country Case studies.



interdisciplinarity increased the potential impact and relevance of scientific innovation. It also contributed to solving complex scientific and developmental challenges, such as the nexus between water resource management and resilience to glacial retreat in Peru, and the food-water-energy nexus in Brazil. As another example, a project in Turkey had the explicit objective of linking the disciplines of artificial intelligence and medicine in an interdisciplinary research approach, which was considered innovative in the country.<sup>19</sup>

Importantly, the case studies also demonstrate that **large and long-term projects are more likely to enable interdisciplinary research**. These conditions allow a wider range of researchers and institutions to join the research project and establish a network, as in the case of CSSP Brazil. In addition, interdisciplinarity tends to require longer timeframes than more traditional, single discipline studies, as diverse insights and methods are merged in a joined-up plan.

### 4.3 Capacity strengthening

#### Key findings

- Researchers involved in the Newton Fund consistently report improving their research capacity through the projects, with the potential to support future research quality.
- Most sample projects have successfully embedded capacity building activities such as training, scholarships, and exchanges into research project plans.
- Researchers and participating institutions also enjoy further benefits of international collaborations, e.g. in terms of international exposure and knowledge exchange.

Evidence from the case studies suggests that **Newton Fund research projects improve the capabilities of researchers overseas to carry out successful research in the future**.<sup>20</sup> This is evident in projects that include specific capacity building activities, such as training, workshops, and fellowships, and, to a lesser extent, also in projects that did not entail dedicated activities and funding.

**The degree of integration of capacity building activities in research-focused projects is high in the sample:** out of the 14 sample projects, 11 feature at least some training, scholarships and exchanges for the principal investigators and their team members, including master students, PhD students, and other collaborators. The trainings, usually delivered during visits at the respective universities and research centres, focused primarily on technical skills. Technical trainings most frequently aimed to build knowledge and practical expertise in new methods, data or technologies that are relevant to the research, while scholarships are provided to PhD students to focus their thesis on the project's research field.

For example, the Brazilian research project on climate impacts and disaster risk reduction involved a Met Office team providing trainings on climate modelling to Brazilian researchers.<sup>21</sup> In addition, several collaborations provided opportunities for networking within and outside research teams, through dedicated sharing events involving government stakeholders, NGOs, civil society

<sup>19</sup> Tetra Tech (2021) "Interdisciplinary Research Links for Medical AI: Management of Musculoskeletal Injury" - Partner Country case study: Turkey.

<sup>20</sup> Throughout the sample of projects, the primary beneficiaries of capacity strengthening are researchers and institutes overseas. This has been the focus of this criterion. However, there is evidence that UK researchers and institutions also benefit from Newton Fund research partnerships. This has also been shown in the analysis of the long-term and equitable partnership (see p. 3).

<sup>21</sup> Tetra Tech (2021) "Household air pollution and risk of esophageal cancer: a case-control study in Western Kenya" - Partner Country case study: Kenya.

organisations, and businesses. For example, the researchers of the Peru biodiversity and livelihoods project engaged with NGOs and local communities to build capacity and awareness around using drones for crop management and monitoring.<sup>22</sup> In-person training, events, and collaborations were reported as particularly beneficial to building new capabilities.

Where activities are targeted, **outcomes are reported in terms of knowledge gains that are likely to be sustained after the end of the project.** Career progression was also identified. More broadly, the sample Newton Fund collaborations enabled researchers and students, particularly early career researchers in the partner countries, to gain their first exposure to an international research partner. This was reported for example in the multicultural Amman project in Jordan and in the biodiversity and livelihoods project in Peru.<sup>23</sup> The close collaboration between the two sides was also reported to have led to an exchange of knowledge and working practices, which was perceived as a valuable experience by the researchers and students involved.

**Researchers and institutions also reported enhancing their capacity in projects without dedicated capacity building,** through one or more of the following mechanisms:

- Learning by doing research, often in research fields that were not previously accessible to them, for example in a new country or context;<sup>24</sup>
- By expanding their networks and raising their profile;
- The transfer of knowledge and working practices through collaborations, field trips and visits; and
- By accessing new technologies, data, or laboratory facilities.

**There is evidence of benefits for participating institutions** in terms of access to broader research networks, reputational gains associated to high quality international collaborations, opening of new research fields, and improved capacity to conduct interdisciplinary research. All these benefits can improve the positioning of institutions to expand their research activities, including by attracting new funding in the longer-term, according to case studies. For example, the main Peruvian partner in the research on glacial retreat, University Cayetano Heredia in Lima, reported the project to be their first high-profile international collaboration, and as a result have started engaging with several new institutions and potential partners.<sup>25</sup>

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<sup>22</sup> Tetra Tech (2021) “Novel approaches to understand the state of biodiversity and support livelihoods: the distribution and degradation levels of *Mauritia flexuosa* stands in Amazonia” - Partner Country case study: Peru.

<sup>23</sup> Tetra Tech (2021) “Learning from Multicultural Amman: Engaging Jordan's Youth “, Jordan; “Novel approaches to understand the state of biodiversity and support livelihoods: the distribution and degradation levels of *Mauritia flexuosa* stands in Amazonia”, Peru: Partner Country case studies.

<sup>24</sup> For example, the Brazilian researchers in the food-water-energy nexus project reported not being exposed to qualitative research methods prior to participating to the Newton funded research. Source: Tetra Tech (2021) “(Re)Connect the Nexus: Young Brazilians' experiences of and learning about food-water-energy” - Partner Country case study: Brazil.

<sup>25</sup> Tetra Tech (2021) “CASCADA: Toxin or Treat?” - Partner Country case study: Peru.

## 4.4 Research communication and uptake

### Key findings

- Newton Fund research focuses on development challenges and real-world issues.
- The pathways to influencing policy, changing practices, or developing and rolling out applications tend to be long and extend beyond the life of the projects.
- Dissemination activities are widespread but focus primarily on sharing findings with other researchers and academics. Dissemination activities have not always been appropriately planned from the start.
- While all projects are expected to contribute to a better understanding of real-world problems, some are still far from contributing to practical solutions, and more funding for new research, dissemination, or time might be needed.

According to the case studies, **the research designs of all the 14 sample projects focus on relevant development challenges in national and global contexts** and can be expected to generate a better understanding of real-world problems. The longer-term impacts of these projects align with the stated outcomes and impacts of the Newton Fund, which are to contribute to economic development and welfare through influencing policy, changing practices, and unlocking economic opportunities. This is a first key step to ensure that Newton-funded research generates uptake in the future.

However, **the expected timeframe for real uptake of the research are long on average, with most projects only expected to have tangible impact after their funding lifetime.** Projects vary with respect to the research-into-use pathways they entail, and to the progress made along these pathways:

- Two projects out of 14 have already resulted in applications implemented with tangible impact, although their roll-out was still at a small scale. These included the commercial application of an innovation in shrimp aquaculture, for which researchers are also seeking a patent, and the deployment of a new biodiversity monitoring system by a government agency in Peru<sup>26</sup>.
- Several other projects show promising signs of uptake among stakeholders and appear likely to translate their research into applications and policies in the near future. For example, the research project on the food-water-energy nexus in Brazil is carrying out a pilot in the town of Potim to introduce sustainability concepts in school education, following interest from local institutions<sup>27</sup>. This was the result of a bottom-up approach to engaging with local youth, as well as extensive dissemination activities with national policymakers, which appear promising for informing and influencing education and environment policy.
- Most of the reviewed research focuses on producing academic publications aimed at growing the knowledge base or catalysing further research and innovation, with more tangible impacts dependent on this further research. Sometimes partnerships continue beyond the end of a funding cycle to run the follow-up research, as exemplified by a

<sup>26</sup> Tetra Tech (2021) “Micro bubble aeration system for nursery pond of shrimp aquaculture in Malaysia under energy, water quality and bio floc circulation constraints”, Malaysia; and “Novel approaches to understand the state of biodiversity and support livelihoods: the distribution and degradation levels of *Mauritia flexuosa* stands in Amazonia”, Peru: Partner Country case studies.

<sup>27</sup> Tetra Tech (2021) “(Re)Connect the Nexus: Young Brazilians' experiences of and learning about food-water-energy” - Partner Country case study: Brazil.

Malaysia project on genetic vulnerabilities to cancer. This partnership has attracted additional funding from the Newton Fund Impact Scheme, UKRI, and other Malaysian funders. The researchers are also expecting a Malaysian pharmaceutical company to begin separate research off the back of projects findings, specifically to run a medical trial for a vaccine targeting genes identified by the research teams<sup>28</sup>.

- Five out of the 14 sample projects do not appear to have a clear pathway to influencing public policy or leading to commercial innovations in the absence of follow-up research or clearer dissemination strategies<sup>29</sup>. Of these five projects, however, two are fellowships with an added research component and one is focused on institutional links and interdisciplinary research, which suggests that research applicability and uptake was unlikely to have been a priority in the project design.

At an overall Fund level, available monitoring data from the seven UK Delivery Partners covering six financial years (2014-20) indicates that the Fund activity has resulted in 5,697 publications, 164 patents, and 77 spin outs.<sup>30</sup> Further bibliometric data on the body of research produced by the 14 sample projects, such as citation counts, would provide evidence of influence and uptake, but were not available to this evaluation.

Alongside the different pathways to uptake<sup>31</sup>, **most projects have also planned dissemination and awareness-raising activities targeted to a range of stakeholders, with a focus on other researchers and academics.** Producing conference papers, participating in external events, hosting workshops, or running websites and blogs are prevalent activities for sharing findings and ideas with other researchers and academics (both nationally and internationally). Activities involving policymakers in government or public agencies, such as workshops or policy briefs, are also common but have been more limited. Finally, a smaller but still significant number of projects have also engaged directly with private sector players, NGOs and civil society organisations, and research application users, such as farmers, households, youth, etc.

Across the case studies there is also evidence emerging from interviews that **dissemination activities increase visibility, generate interest, and help to maximise uptake of the research in the future.** Some but not all Newton Fund projects have planned these at the design stage and built in time to run these. At least two projects did not plan sufficient or appropriate outreach and influencing with policymakers, civil society, or private sector actors, according to the case studies<sup>32</sup>.

Finally, in terms of constraints to research quality, **the likelihood of future uptake has been negatively affected by lack of follow-up funding to drive forward the research agenda.** Where partnerships may be expected to continue and expand after the project lifetime, case studies have found that additional funding is not always available.<sup>33</sup> This has been cited in at least

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<sup>28</sup> Tetra Tech (2021) “The identification of genetic vulnerabilities in head and neck cancers for the development of novel therapies” - Partner Country Case study: Malaysia.

<sup>29</sup> Redacted.

<sup>30</sup> Tetra Tech (2021) Newton Fund Final Evaluation Report.

<sup>31</sup> Tetra Tech’s Theory of Change evaluation workstream has reviewed the Theory of Change pathways and provided a new narrative for these in 2020. Tetra Tech’s Partner Country case studies also show the change pathways of each project within the Fund Theory of Change. See Tetra Tech (2021) Newton Fund Final Evaluation Report and Partner Country case studies.

<sup>32</sup> Redacted.

<sup>33</sup> These three projects are: “Micro bubble aeration system for nursery pond of shrimp aquaculture in Malaysia under energy, water quality and bio floc circulation constraints”, Malaysia; “New strategies to reduce anaemia and risk of overweight and obesity through complementary feeding of infants and young children in Peru”, Peru; “Novel approaches to understand the state of biodiversity and support livelihoods: the distribution and degradation levels of *Mauritia flexuosa* stands in Amazonia”, Peru: Tetra Tech (2021) Partner Country case studies.

three projects, including where researchers faced uncertainty of Newton Fund follow-up funding streams. Without this further funding, some of the research benefits might not be realised.

## 4.5 Unexpected criteria and drivers of research quality

### Key findings

- Innovativeness and the capacity to transfer research findings to new and different contexts can be seen as criteria of research success.
- The size of the project funding has been noted as a key factor hampering or promoting research quality in a few cases.

Beyond the criteria identified in the literature, the case studies reveal other unexpected factors have promoted the quality of research in the Newton Fund. These criteria and drivers of research quality were identified through inductive interviews with award holders, Delivery Partners, and a range of in-country stakeholders, so they provide insight as to what different stakeholders perceive research quality to be, and how this may be maximised.

- **Innovation.** Innovative research concepts and methodologies were perceived to improve the quality of the research overall. At least four projects out of 14 clearly featured this finding, including the Kenya's "Household air pollution and risk of esophageal cancer: a case-control study in Western Kenya", where new questionnaire tools were developed and may be of benefit to future research teams.<sup>34,35</sup>
- **Transferability.** The capacity to transfer methods, findings, or tools to new and different contexts, including internationally and globally, can greatly improve the potential impact of a project, and cited across a number of projects. As such, transferability contributes to research uptake. For instance, the innovation of the "Micro bubble aeration system for nursery pond of shrimp aquaculture in Malaysia under energy, water quality and bio floc circulation constraints" has been applied by other researchers in Ghana and is considered suitable across Sub-Saharan Africa.
- **Size of funding provided and risk appetite.** In a number of contexts, Newton funding has enabled researchers to work on a larger scale than would otherwise be possible. Grants of sufficient size can allow for certain more expensive and risky interventions to be carried out, as for example in the case of research in Malaysia on genetic vulnerabilities to cancer.<sup>36</sup> The funded experiment in this project was considered too costly for non-governmental actors. At the same time, the size of some projects were perceived by stakeholders to be too small and constricting the potential for research uptake and influence. This was the case in another Malaysia project focused on shrimp aquaculture.<sup>37</sup>

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<sup>34</sup> The four projects are: "Micro bubble aeration system for nursery pond of shrimp aquaculture in Malaysia under energy, water quality and bio floc circulation constraints", Malaysia; "Syrian Refugees in Turkey: Understanding Local Government Responses", Turkey; "New strategies to reduce anaemia and risk of overweight and obesity through complementary feeding of infants and young children in Peru", Peru; "CASCADA: Toxin or Treat?", Peru: Tetra Tech (2021) Partner Country case studies.

<sup>35</sup> This is perhaps not surprising or unexpected as all research needs to be motivated by the need to fill research gaps or address challenges, which require innovativeness. This criterion is generally embedded in calls for proposals. However, it is worth noticing where case studies found this in particular.

<sup>36</sup> Tetra Tech (2021) "The identification of genetic vulnerabilities in head and neck cancers for the development of novel therapies" - Partner Country case study: Malaysia

<sup>37</sup> Tetra Tech (2021) "Micro bubble aeration system for nursery pond of shrimp aquaculture in Malaysia under energy, water quality and bio floc circulation constraints" - Partner Country case study: Malaysia.

Thus, funding size is important for research quality. Yet whether Newton funding has been optimal was probably dependent on project, subject area, and context.



# Annex A: Rapid review supporting annex

## Introduction

This annex presents in full the results from the rapid review of the literature to establish the characteristics and definition of “research quality” in research for development, providing key themes to investigate in the sample of Newton Fund projects; and (for context) how research quality is pursued in more “traditional” research where co-design and co-delivery with partner countries does not feature. This is referred to as “step 1” in the research quality review.

## Methods

The review involved the review of internal and public programme documents (e.g. the bibliography of the BEIS Value for Money assessment framework); and additional literature, including academic literature, grey literature (e.g. documents from associated bodies, conference documents), and blogs/commentaries from relevant stakeholders which share analysis or thoughts on how research quality is achieved. Appendix 2 provides a reference to method used. A reference list is contained in Appendix 1.

## Findings

### **How research quality is traditionally defined**

How to measure research quality is the subject of on-going debate and it is difficult to find a definition that is a widely used and recognised. The available literature on research quality (including defining research) is quite scarce. There appears to be a lack of consensus on the specific standard for assessing research quality: for example, some universities only focus on the number and quality of publications in scientific journals, whereas other institutions focus on all kinds of publications. Research quality is also likely to vary across different disciplines making it difficult to standardise or compare across.

It is however widely acknowledged that research quality has traditionally been assessed by a combination of quantitative indicators (e.g. number of citations, funding received and degree of collaboration) and peer review. Peer review involves a panel of experts reviewing the research work and scoring it based on originality, quality, and validity. The use of metrics has also been used to assess research quality through the research impact on the wider academic community. Bibliometrics, for example, is a complementary tool that analyses the impact of research output using quantitative measures<sup>38</sup>.

Research institutions have developed frameworks to assess research quality for the purposes of making comparisons. In the UK, we have the Research Excellence Framework (REF)<sup>39</sup>. The REF is based on peer review of outputs of research that are submitted by the UK universities. The REF is a performance-based research funding system (PRFS) which uses indicator-based and relies on a mixture of scientometric indicators (typically relating to scientific publications and sometimes

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<sup>38</sup> University of Leeds (2021) Measuring Research Impact. Available at [https://library.leeds.ac.uk/info/1406/researcher\\_support/17/measuring\\_research\\_impact](https://library.leeds.ac.uk/info/1406/researcher_support/17/measuring_research_impact)

<sup>39</sup> Research Excellence Framework (2021). Available at <https://www.ref.ac.uk/about/what-is-the-ref/>

patents) and indicators of other outputs, such as the number of PhDs produced. Examples of this are the Multidimensional Research Assessment Matrix (Assessing Europe's University-Based Research 2010) in Europe and CIVR (Comitato di Indirizzo per la Valutazione della Ricerca) in Italy (2006).

There has been ever growing criticism in the traditional methods to assess research quality. For example, Lebel and Mclean (2018) reported the lack of rigor, originality, or usefulness as a measure to assess research quality. They believe that traditional measures do not provide much about how to improve science and research quality<sup>40</sup>.

### **How research quality may be understood in the development context**

Over the years, research quality has gained more scrutiny, given the increase interest of governments, funding agencies and research organisations to maximise societal and economic returns on investment from research, especially in the international development sector. In this context, research quality should be judged against traditional markers but also against its use<sup>41</sup>. This is particularly true for the international development sector.

A webinar hosted by UK Collaborative on Development Research (UKCDR) on *Research enablers for impact – accelerating the impact of the UK's investment in international development research* which took place on the 29th September 2020<sup>42</sup> and the Research Quality Plus framework developed by the International Development Center (ICDR)<sup>43</sup> are a useful basis to determine the key criteria to look for when assessing research quality in the development sector.

### **Long-term and equitable partnership**

There is a growing view that new research needs to mobilise multi-stakeholder partnerships across the global North and South, and across sectoral boundaries, to build lasting research and innovation capabilities and infrastructures in low- and middle-income countries (LMICs). North-South research partnerships can create a variety of opportunities and benefits for all parties but also bring with them their own unique set of considerations and challenges. Building and maintaining equitable partnerships can help ensure that research outcomes are mutually beneficial and more likely to achieve the desired development impact. Such collaborations offer new ways of approaching development challenges, and can generate insights and evidence to inform development practice and policy, to contribute to development goals<sup>44</sup>. The UKCDR cited a success story working to improve the future of urban cities reported that working in long-term research collaborations have introduced sustainability and participation into urban governance and shifted the focus towards safe and resilient urban futures<sup>45</sup>. Co-creation of research products could be used as an indicator of the level of collaboration<sup>46</sup>.

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<sup>40</sup> Jean Lebel and Robert McLean (2018). A better measure of research from the global south. Springer Nature. Volume 559

<sup>41</sup> International Development Research Center (2016). Research Quality Plus, A Holistic Way to Evaluating Research

<sup>42</sup> UKCDR (2020). Available at: <https://www.ukcdr.org.uk/event/research-enablers-for-impact-accelerating-the-impact-of-the-uks-investment-in-international-development-research/>

<sup>43</sup> International Development Research Center (2016). Research Quality Plus, A Holistic Way to Evaluating Research

<sup>44</sup> UKRI (2018). Promoting fair and equitable research partnerships to respond to global challenges, Rethinking Research Collaborative

<sup>45</sup> UKCDR (2020). The Global impact of UK research, Success stories

<sup>46</sup> Itad and Technopolis Group (2020). Research For development (R4D) Indicators: A Review of Funder Practice



## Promote interdisciplinary research

Interdisciplinarity<sup>47</sup> is becoming an increasingly relevant component to define and evaluate research quality. This focus on interdisciplinarity recognises that different individuals and institutions bring varied relationships, knowledges, skills, and perspectives to the research. By working together across disciplines, people can collectively develop deeper understanding. The response to Ebola was a good example of a success story reported during the webinar, where incorporating the anthropological insights with virologists and scientists supported the simultaneous development and trials of vaccines in multiple countries. This resulted in the eradication of the virus fairly quickly. This focus also recognises that global development challenges are often complex, requiring collaboration and interactions across disciplines, sectors, and geographies. Type of indicators to measure could include the number of disciplines involved or the number of researchers and type (academic or non-academic)<sup>48</sup>.

## Capacity strengthening

Building research capacity internationally is a means to enhance research quality by sharing current knowledge and techniques to develop strategies, tools and methods that may be applied to the local setting and needs. Capacity strengthening, and excellence are considered to go hand in hand<sup>49</sup>. Too many funders assume that research efforts in which teams receive training and skills development produce poor-quality research. However, a meta-analysis conducted by the IDRC<sup>50</sup> found a significant positive correlation between scientific rigour and capacity strengthening. This suggests that research requiring a focus on capacity strengthening does not need be avoided out of a desire for excellence. Indicators such as number of capacity-strengthening events, number of staff trained, number of staff with strengthened skills could be used to measure capacity building<sup>51</sup>.

## Research communication and uptake

Research is essential for understanding but also tackling challenges with rigorous evidence. For the UK-based International Institute for Environment and Development<sup>52</sup>, research excellence is about solving real-world problems. Within a national policy perspective, this means building national research excellence by supporting the development of national research institutions and ensuring research dissemination and uptake within the national context. For example, the Intergovernmental Panel on Climate Change (IPCC) reports has shaped the global discourse on climate and provided the basis for international action by producing and sharing assessment reports that are perceived as the most credible source of information on climate change and the baseline for making evidence-based decisions in international negotiations by the United Nations Convention on Climate Change (UNFCCC)<sup>53</sup>. Research dissemination and communication is considered to be a key part of the research-into-use change pathway. Indicators such as measure of the number of events, and extent of participation in events can be used to capture the level of communication and dissemination<sup>54</sup>.

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<sup>47</sup> UKRI definition: 'the term interdisciplinary is used to refer to the full spectrum of interdisciplinary activity including cross-disciplinary, multi-disciplinary, interdisciplinary and transdisciplinary work'. Available at:

<https://re.ukri.org/research/interdisciplinary-research/>

<sup>48</sup> Itad and Technopolis Group (2020). Research For development (R4D) Indicators: A Review of Funder Practice

<sup>49</sup> As argued during the webinar.

<sup>50</sup> Jean Lebel and Robert McLean (2018). A better measure of research from the global south. Springer Nature. Volume 559

<sup>51</sup> Itad and Technopolis Group (2020). Research For development (R4D) Indicators: A Review of Funder Practice

<sup>52</sup> International Institute for Environment and Development (2012). Towards Excellence: Policy and Action Research for Sustainable Development.

<sup>53</sup> UKCDR (2020). The Global impact of UK research, Success stories.

<sup>54</sup> Itad and Technopolis Group (2020). Research For development (R4D) Indicators: A Review of Funder Practice

## Summary

More traditional ways to measure research quality such as peer review and bibliometrics remain valid but it is increasingly understood that the assessment needs to go beyond such measures. Research quality in a development setting is likely to be highly context dependent, non-linear and take considerably longer than the time frame of an average five-year development programme<sup>55</sup>.

Based on literature review and the IDRC research quality plus research framework scoring system, it is good to consider using quantitative and qualitative criteria to measure:

- **Long-term and equitable partnership:** the extent to which the research was conducted through a shared undertaking and how the partnership benefits all partners.
- **Interdisciplinary research:** the extent to which other disciplines were included in the research and the diversity of organisation taking part into the research.
- **Capacity strengthening:** the extent to which capacity building featured as a component to carry out the research.
- **Research communication and uptake:** the extent to which communication and dissemination plans were put in place and whether the research has been taken up (e.g. replicated or cited).

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<sup>55</sup> IDRC (2018) Research Quality Plus framework. Available at: <https://www.idrc.ca/en/rqplus>

## Appendix 1 Reference list

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UKCDR (2020). *The Global impact of UK research, Success stories*. Available at: <https://www.ukcdr.org.uk/wp-content/uploads/2020/08/01766-UKCDR-Impact-Success-Stories-Booklet-3.pdf> [Accessed 20 April 2021].

## Appendix 2 Steps in rapid review

The table below sets out the sub-steps for the rapid review, and how these were implemented. It is worth noting the function of this review was really to identify a **limited** number of the most relevant sources and summarise the results, rather than conduct an extensive literature review (which would be beyond the scope).

**Table 1: Three-step structured rapid review**

Step	Explanation
<b>Perform search to identify sources that</b>	In addition to any programme documentation, we performed a dedicated search to identify relevant documents and literature using a search string containing key words. These included, for example:

Step	Explanation
<p><b>may contain useful information/data</b></p>	<ul style="list-style-type: none"> <li>• Google (using both an open search, and a dedicated document search by querying using filetype:pdf and filetype:docx).</li> <li>• Google Scholar.</li> <li>• Hand searching of documents from key conferences/events, if applicable e.g. Global Development Network, UKCDR.</li> <li>• Hand searching of the websites for key associated bodies e.g. ODI, ICAI, Bond, UKCDR, UKRI, RAND.</li> </ul> <p>The material identified has been screened for relevance. We also looked for sources that contained information that could help us establish the characteristics and definition of research quality, that were recent (i.e. not older than five years), and comprehensive (e.g. includes or makes reference to a number of sources).</p>
<p><b>Rapid review of selected reports</b></p>	<p>Only literature and documents identified as <i>potentially relevant</i> were indexed by the study team and reviewed to establish: a) how research quality is pursued in “more traditional” research where co-design and co-delivery with partner countries does not feature, and b) the characteristics and definition of “research quality” in research for development, <i>providing key themes to investigate in the sample of Newton Fund projects</i>.</p>
<p><b>Synthesise the information to distil main themes and characteristics</b></p>	<p>The final output is a short paper (i.e. this Annex) with the key features of the research partnerships that can generate research quality and the strategies commonly pursued in other programming to achieve research quality. This is used to facilitate the structured analysis in Step 2.</p>

## Annex B – List of Newton Fund projects included in the Review

**Table 2: Newton Fund projects sampled**

N	Country	Name of call	Case Study Title	Dates of funding	Delivery Partner	Sector
1	Brazil	Joint Research Call - Social Science of the Nexus and Healthy Cities	(Re)Connect the Nexus: Young Brazilians' experiences of and learning about food-water-energy	September 2016 – September 2018	UK: ESRC; BR: CONFAP, FAPESP	Sustainability/ Energy/ environmental education
2	Brazil	Climate Science for Service Partnership (CSSP) Brazil	Work Package 3: Climate Impacts and Disaster Risk Reduction	2016 - ongoing	Met Office; Ministry of Science, Technology, and Innovation (MCTI)	Climate resilience
3	Brazil	Newton Advanced Fellowships 2018/19	Strengthening skills on structure-based drug discovery for novel anti-schistosomal therapeutics	November 2018 - October 2020	Academy of Medical Sciences, CONFAP, CNPQ	Researcher capacity building/ parasitological neglected tropical disease / drug discovery
4	Jordan	Newton-Khalidi: Cultural Heritage and Sustainable Development in Jordan	Learning from Multicultural Amman: Engaging Jordan's Youth	February 19 - January 21	AHRC (UK) Department of Antiquities (Jordan)	Museum education Youth engagement in cultural heritage Tourism industry

N	Country	Name of call	Case Study Title	Dates of funding	Delivery Partner	Sector
5	Kenya	UK-Kenya Joint Partnership on Non-Communicable Diseases	Household air pollution and risk of esophageal cancer: a case-control study in Western Kenya	January 19 - December 21	Medical Research Council National Research Fund	Esophageal cancer Household air pollution Clean-energy alternatives
6	Malaysia	UK-Malaysia Joint Health Research Call in Non-Communicable Diseases	The identification of genetic vulnerabilities in head and neck cancers for the development of novel therapies	January 2017 - December 2019	MRC Academy of Sciences Malaysia (ASM)	Public health Oral squamous cell carcinoma type cancer Vaccines and novel therapies
7	Malaysia	Joint call for small scale research and networking activities with South East Asia, including Malaysia	Newton: Micro bubble aeration system for nursery pond of shrimp aquaculture in Malaysia under energy, water quality and biofloc circulation constraints	May 17 - November 19	Engineering and Physical Sciences Research Council (EPSRC) Ministry of Higher Education (MoHE)	Aquaculture Agri-technology Food security

N	Country	Name of call	Case Study Title	Dates of funding	Delivery Partner	Sector
8	Peru	Institutional Links 7	Novel approaches to understand the state of biodiversity and support livelihoods: the distribution and degradation levels of <i>Mauritia flexuosa</i> stands in Amazonia	February 2019 - February 2020	British Council (UK) CONCYTEC (PE)	Sustainable tropical forest management Use of innovative technology (Unmanned Aerial Vehicles - UAVs)
9	Peru	Peruvian Glacial Retreat and its Impact on Water Security and Resilience to Natural Hazards	CASCADA: Toxin or Treat?	Feb 2019 - Dec 2021	NERC (UK) CONCYTEC (PE)	Water quality and water resource management Resilience to glacial retreat
10	Peru	UK-Peru: Relationship between Food, Nutrition and Health	New strategies to reduce anaemia and risk of overweight and obesity through complementary feeding of infants and young children in Peru	April 19 - April 22	MRC (UK) CONCYTEC (PE)	Infant and young child feeding Malnutrition and dietary risks NCDs: Anaemia and overweight/obesity

N	Country	Name of call	Case Study Title	Dates of funding	Delivery Partner	Sector
11	Philippines	UK-China-Philippines-Thailand-Vietnam Call for Collaborative Research Proposals in Rice Research'	Developing Rice Resources for Resilience to Climate Change & Mitigation of Carbon Emissions	June 2016 - September 2019	UK Biotechnology and Biological Sciences Research Council (BBSRC) Philippines Department of Agriculture – Philippine Rice Research Institute (PhilRice) Vietnam Ministry of Science and Technology	Agriculture Climate resilience Biofuel/energy
12	Turkey	RCUK-TUBITAK Research Partnership Call	Innovating the Turkish supply chain for services in humanitarian aid	Sep 16 - May 19	UKRI (UK) and the Scientific and Technological Research Council of Turkey – TÜBİTAK (Turkey)	Humanitarian aid / resilience logistics/ support services
13	Turkey	Institutional links 6	Interdisciplinary Research Links for Medical AI: Management of Musculo-Skeletal Injury	February 2018 - February 2020	British Council (UK) and The Scientific and Technological Research Council of Turkey – TÜBİTAK (Turkey)	Medical/ ICT/ Processing/ healthcare systems and strengthening



N	Country	Name of call	Case Study Title	Dates of funding	Delivery Partner	Sector
14	Turkey	Newton Advanced Fellowships (Year 5, Round 1)	Syrian Refugees in Turkey: Understanding Local Government Responses	September 2018 - December 2020	British Academy (UK) and the Scientific and Technological Research Council of Turkey – TÜBİTAK (Turkey)	Capacity building/ research/ refugees

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