Section A: Official Development Assistance (ODA) and GCRF strategy

The strategy

1. Summarise the key aspects of your three year **strategy for development related and GCRF research activity**, including:

a. Your institution's strategy and priority objectives for all development related research activity funded through all sources for three years from 2018-19.

b. Summary of the key aspects of your three year strategic plan for QR GCRF in light of the criteria and objectives for the GCRF outlined in the guidance.

c. How activity funded through QR GCRF fits into your broader strategy and priorities for all development related research activity.

d. How activity funded through QR GCRF relates to the UK strategy for the GCRF.[1]

e. How your development-related and GCRF strategies relate to your wider institutional strategy for using QR.

f. Likely key barriers and enablers to implementing your strategy.

g. The key activities by which you will realise your objectives, such as capacity and capability building; mono-disciplinary interdisciplinary and collaborative research; generating impact from research; meeting the full economic cost of GCRF activity funded through other sources; rapid response to emergencies with an urgent research need; and pump priming.

h. The main Development Assistance Committee (DAC) list developing countries you intend to collaborate with.

Maximum 3,000 words

Although much progress has been made in recent decades, more than a billion people, one-seventh of the world's population, still do not have access to safe and secure drinking water and adequate sanitation services (www.un.org/sustainabledevelopment/water-and-sanitation). This lack of access shortens human life due to preventable water borne illnesses such as cholera, typhoid, and yellow fever as well as lost nutritional value. This also leads to lost human capital because of the time taken to locate alternative safe and secure water sources, a burden that falls disproportionately on women and girls. Climate change is intensifying these problems, for

[1] UK Strategy for the Global Challenges Research Fund, http://www.rcuk.ac.uk/funding/gcrf/challenges/

example through the increased frequency of both flood and drought events. Where there are also displaced populations (due to civil strife or disaster) water services challenges can be especially acute.

To date, UWE Bristol has led GCRF-funded work, which contributes to capacity building and research-underpinned growth, including:

- Attendance at the GCRF Global Engagement Meeting (Bogota), where excellent connections were made with academic and NGO collaborators – this allocation strategy ensures that these connections can be fully and formally expanded into collaborations in the themes outlined in the following sections;
- Project SINBaD (Sustainable Infrastructure Needs Basic Data), which explored connections between water resources-orientated data, modelling and decision making in Ghana, Jamaica and UK (with in-country partners) to underpin scenarioing for uncertain futures with a focus on impacts for sustainable development (journal paper currently under review with Journal of Hydroinformatics).
- Facilitating shared resources and horizontal knowledge transfer amongst the least developing and most developed countries.

Within the allocation strategy we have made space to broaden and deepen these existing partnerships and build on this past work. This fits extremely well with GCRF/ODA compliant ambitions in relation to processes underpinning the promotion of welfare, economic development and inclusive growth by facilitating the planning for, availability of and access to resilient and sustainable innovative water and sanitation infrastructure services (in their broadest sense from new technology and processes to behaviour change to shifting culture practices).

In this same vein, UWE Bristol is also a leader in the development and implementation of frameworks and small-scale decentralised solutions to these water challenges. Professor Chad Staddon's International Water Security Network (IWSN, www.watersecuritynetwork.org) is developing integrated solutions to water challenges, within the UK and around the world, addressing service inequalities as well as the needs of the natural environment. Key research initiatives in this area include:

- Quantitative assessment of household water insecurity using the "Household Water Insecurity Experiences" (HWISE) indicator set (with support from the US National Science Foundation).
- Development of decentralised solutions for household water security in the Global South (with support from the Lloyds' Register Foundation, and the GCRF Networking Programme), including rainwater harvesting, groundwater collection and blue-green infrastructure.
- Exploration of the potential for heritage water assets (e.g. step wells in India) to be rehabilitated and returned to service in otherwise water-stressed communities.
- Capacity-building in sustainable water management (SDG6 especially) at the local, regional and national scales through appropriate training and development programmes, for example participation in international workshops and conferences and also regional delivery (with UNESCO-IHP, NASA-ARCET and ESA) of "Remote Sensing and Geographical Information Systems for Water Management" CPD courses (first offered in Brazil in 2016).

His team also manages the UWE Global Water Security Programme (GWSP), an initiative that blends applied research, development practice, and education to create a unique educational environment for UWE students based on the co-production of needed knowledge.

Other expertise in “WASH” related issues at UWE Bristol is briefly listed here:

- With financial support from NERC and other funders Professor Darren Reynolds’s team in UWE’s Centre for Research in Biosciences has developed a unique low cost and easy-to-operate system for ensuring water quality with a variety of applications in disaster relief and developing countries.
- The support from the Bill and Melinda Gates Foundation Professor Ioannis Ieropoulos’s team in UWE’s Bristol Bioenergy Centre has developed and is now field testing a zero water sanitation system that extracts electrical energy and also increasingly scarce nutrients such as phosphorus from urine. (www.brl.ac.uk/researchthemes/bioenergyself-sustaining.aspx). In summer 2017 the ‘Pee Power’ was trialled in Kisoro, Uganda, which additional units scheduled for commissioning in Kisoro, Sierra Leone and Kenya in 2018.
- Professor Lindsey McEwen’s “Centre for Floods and Communities Research” adopts a more social science-led approach to understanding both community vulnerabilities to flooding and impacts of flood events working to protect communities around the world.

UWE Bristol proposes to use the QR-GCRF allocation to support further activities in the above areas, all directly ODA compliant. Building on current activities funded through institutional allocations (the GWSP) and externally-funded projects (the IWSN). With respect to the latter we will use the GCRF funding to extend IWSN activities in the following areas:

- Implementation of the HWISE water insecurity assessment tool in additional communities in Sub-Saharan Africa
- Based on HWISE and other assessment data, specification of water infrastructure rehabilitation (e.g. ferrocement rainwater tank repair and refurbishment) or development (new groundwater or gravity schemes at community scale, or rainwater harvesting at domestic of institutional scale) strategies.
- Continuation of research into community-based groundwater recharge schemes, particularly in Gujarat and Rajasthan, India.
- Expansion of socio-technical research and capacity building on rainwater harvesting at a range of scales in the built environment across a range of contexts (Uganda, Kenya, Ghana, Colombia).
- Continuation of research into threats to local water (surface and ground water) quality from artisanal mining activities.
- Extension of research and knowledge exchange to improve practice in relation to water resources data collection (hydrometry), modelling & optioneering and decision and policy making (Ghana, Colombia)
- Continued delivery, to regional audiences in Africa, South America and Asia of the RS/GIS for Water Management training first offered in Brazil in 2016.
- To develop a Decision-Support Framework for critical infrastructure (CI) operators, including water, and CI policy makers to enable them to develop and

demonstrate best practices in engineering, materials, construction, planning and designing protective measures as well as crisis response and recovery capabilities for CI. We propose also to use funding to enhance and extend the UWE GWSP as follows

- Expansion of the numbers of UWE students (level 6 and 7) supporting the above development activities.
- Support for local capacity-building at all levels (from the equivalent of KS3 to college and higher levels) for residents of our partner communities.
- Support the UWE research community in taking forward and synthesiing the previous two items to catalyse culture change in relation to global development underpinned research of relevance to both the developing and developed world.

Finally, we propose to use the funding to further enhance and develop work in the disaster response and injury response areas. Led by Dr Julie Mynott, UWE has an NIHR Global Health Research Group (NIHR GHRG) funding to establish a Nepal Injury Research Centre (NIRC), partnering with Kathmandu Medical College. The aim of the award is to address the problem that there are no centres of academia in Nepal addressing the emerging public health problem of injuries. The primary outcome of the NIHR GHRG award is the establishment of a sustainable research team based in Kathmandu, capable of delivering excellent research on injuries and injury prevention. This NIHR funded project, started is July 2017 and will finish In June 2020, it is worth £1.99m.

The above activities are designed specifically to support development of technical and research capacity in the UK and in partner countries as well as leaving maintainable water supply and sanitation assets and human capacity in partner ODA-list countries. The above strands is further developed below.

Assessing Levels of Water Insecurity at the Household Scale

WASH development efforts are often hampered by the lack of a robust quantitative tool for assessing relative household water insecurity. This hampers both initial field assessment of relative need as well as the assessment of impact post intervention. In 2016 Staddon joined a global group of scholars from geography, anthropology and public health to create the Household Water Insecurity Experiences (HWISE) programme charged with creating just such an assessment tool. We are currently in phase two (validation) trials in more than two dozen ODA countries and will be moving to a phase three roll-out with partners in the WASH community later in 2018. The plan for QR-GCRF spend is to accelerate the completion of the validation trials through additional field sites, especially in the poorest communities in ODA countries, including ethnic, religious and racial minority communities.

Innovative Sanitation Approaches with Multiple Human and Ecosystems Benefits

The Bristol BioEnergy Centre (BBiC) has been working in WaSH since 2011, with funding and support from the Bill & Melinda Gates Foundation. BBiC has a longer track record, going back to 2002, in robotics and autonomous systems (RAS). Through this research in bioenergy and waste utilisation within RAS, BBiC has advanced the TRL of the MFC technology it has been developing, and is now trialling its own Pee Power (a UWE registered trademark) system in real environments. The first example of a Pee Power(R) installation, which is part of the R&D programme funded by the Gates Foundation, has been at the Seseme Girls' Boarding School in Kisoro, Uganda, where MFCs have been

integrated with one of the two toilet blocks at this school, to provide light in the evenings, both inside each cubicle and outside. The R&D programme, named “Urine-tricity” has got several other field trials to deliver, as part of the original objectives and the Team have already visited a number of other ODA countries, where there is a real need - in schools, hospitals, orphanages, rural communities - for power and sanitation improvement. The Team have already visited potential field trial sites in Nairobi (Kenya), Sierra Leone, Pondicherry (India), Kathmandu (Nepal), as well as other locations in Uganda and India.

Socio-Ecological Approaches to Water Security in the Banas Catchment, Rajasthan, India

Communal stewardship of water has enabled people to prosper throughout millennia in the arid/semi-arid lands of Rajasthan state, India. Collaboration is central to innovative water stewardship measures, particularly to interception water during monsoon rains recharging underground reserves for year-round availability. Research to date focuses on the Banas catchment. Multiple interdependent beneficiaries of the Banas – rural, urban, irrigation, wildlife, tourism – face water resource depletion, driving ecosystem breakdown, water contamination, poverty, village abandonment and urban vulnerability. Technically efficient mechanised water extraction techniques (tube wells and dam-and-transfer schemes) are key drivers, breaking down social cohesion through individualised, competitive extraction without rebalancing resource recharge and communal stewardship. 90% of Rajasthan now suffers depleted/degraded groundwater. Mechanised technologies play important roles, but our work addresses the catchment as an integrated system. Resource recharge from infrequent rains is vital, reliant on local-scale collaboration supporting local livelihoods. Our diverse stakeholder network across the catchment includes strong links with Government of Rajasthan water and livelihood security programmes. Our action research will focus on a selected sub-catchment of the Banas, working with local communities for their self-benefit but also promoting measures that have catchment-wide benefit. Lessons learned are relevant to wider dryland developing world regions facing similar trends and challenges.

Resilient Critical Infrastructure (CI) against Extreme Weathers Events (EWE) /Natural Disasters

Globally, extreme weather due to climate change and natural disasters are causing severe threats to the uninterrupted functioning of critical infrastructures in cities. Trends show an increase in the frequency of more extreme weather events, be it in high/low temperatures, periods of drought, precipitation, floods, and earthquakes. These extreme weather events and natural disasters give evidence of severe challenges to critical infrastructures, and in foreseeable future, these challenges could become even more demanding. The collaborative project shall focus on addressing the challenges of building resilience for Critical Infrastructure in order to develop and demonstrate good practices in planning and designing protective measures as well as crisis response and recovery capabilities. Developing and maintaining critical infrastructures require major capital investments. Most technical Critical Infrastructures are to serve for lifetimes (50+ years). The local environment always plays a critical role in determining the factors that make CI resilient thus, resilient design is always regional Thinking through every potential problem and possible disaster situation can be overwhelming for designers, which is why a

sensible approach starts by examining the most likely problem situations and pulling from local wisdom, knowledge and experience.

Rainwater Harvesting

Rainwater harvesting (RWH) is being increasingly considered as one of the standard options in a toolkit of decentralised alternative water supplies, where conventional centralised piped systems are either not feasible or are at capacity. RWH has been modelled across a range of ODA countries, but few schemes are in place to trial different systems strategically across different contexts and monitor and evaluate both the social and technical aspects of such schemes. We propose to undertake such a research-intensive programme of activity in Uganda, Colombia and Nepal (through existing IWSN/GWSP partnerships) with the aim of enhancing engineering research-led teaching and innovation-led practice. Objectives of this programme would include: incorporate content related to RWH systems in the undergraduate curriculum of Civil Engineering at Universidad Industrial de Santander and postgraduate curriculum of Environmental Technologies and Management at the University of the West of England, as well as other curricula in Uganda and Nepal (to be identified); create a range of accessible learning spaces on RWH systems - virtual, theoretical and hands-on, targeting different audiences; create an international innovation platform to promote interdisciplinary and inter-institutional learning; contribute to the development and documentation of cases around bi/multi-lateral industry-academia collaboration with potential to be replicated across other ODA countries (who will be engaged throughout the programme via mutual connections).

Public Health and Safety in Nepal

Interdisciplinary education for road danger reduction; bringing together Community Medicine practitioners, Transport engineers, Town/Road Planners and Police across institutions in Kathmandu to map injury prevention and safety legislation content of undergraduate and professional courses. This will support Capacity and capability building, and foster collaborative interdisciplinary knowledge sharing to facilitate the development of novel interventions and unmet research needs. In particular we are keen to expand research into culturally competent approaches to injury prevention and first response - a pump priming study to explore the potential to bring social anthropological approaches to transport engineering and emergency care, thereby directly addressing the GRCF objectives of promoting novel interdisciplinary partnerships for research excellence. 3 UWE experts will partners with 3 Nepali academics/professionals to focussing on interdisciplinary learning.

E) Institutional Strategy for using QR

UWE Research 2020 strategy sets out the university's strategy for sustaining and strengthening our research environment and achievements, while ensuring that the research effectively contributes to the university mission. GCRF and development research are intrinsic to key strategic objectives including:

- ***To advance knowledge, support sustainable economic growth and development, enhance health, well-being and the environment***
- ***To achieve outstanding and far-reaching research impacts on business, government, the NHS and other stakeholders, communities and society.***

- ***To enhance the recognition and profile of UWE nationally and internationally.***

All UWE QR GCRF supported research will help to advance the economic growth and well-being of the DAC countries where it will be conducted.

Within this strategy, we also have a focus on excellence with impact. This includes:

- *Focused investment, building on demonstrably excellent international and world-leading research – focusing our investment on QR funding…* along with other sources.
- *Encourage and support interdisciplinary and collaborative research and world-leading academic partners and other stakeholders, both in the UK and internationally in order to drive up research quality.*
- *Build on our success in research impact through co-created and long-term collaborative research* – including internationally.
- *Build on our best performing subject areas, our strongest performing Units of Assessment (UoAs) in REF 2014 and high profile, high impact research centres and emerging centres of excellence.*

Point F – Likely key barriers and enablers for impact

Strong partnerships will be critical to delivering our research impacts. Our approach to establishing long-term, sustainable, overseas partnerships in DAC countries is and will be carried out with the same rigour as all UWE partners. We will work with long-established partners where possible, and complete careful due diligence for any new collaborations. Our DAC delivery partners for QR GCRF projects will enter into formal agreements with UWE, and be assessed on their capacity to deliver specified activities and ability to achieve sustained, long-term impact in the project area.

Political and economic instability and natural disaster is a potential barrier to the research and capacity-building outlined above. UWE has robust systems for risk management that have been tried and tested (e.g. post Nepal earthquake, and inter-communal violence in Kenya).

2. Provide details of the main intended **outcomes and impacts** of your strategy.

Economic and social impacts – short-term = new business or community initiatives established to take forward new technologies or to embed new practices in everyday living; Long-term = a step-change in resilient and sustainable behaviours at both local and policy levels relating to water and sanitation practices and future planning for welfare and inclusive growth;

Outcomes – at a practitioner level we would expect to see updated processes and procedures as well as the implementation of new technologies, social practices and ways of doing things. At a policy level we would expect to see outputs embedded into policy, guidance, standards and planning, as well as the potential formation of new governance structures for water where none currently exist (IWSN has past experience in witnessing

this). These would all be directed at improving welfare, economic development and inclusive growth by facilitating a multi-level shift in approaches to water and sanitation provision.

Specific RWH Metrics
Metrics for success would include:

- Undergraduate/postgraduate rainwater harvesting module approved
- Number of undergraduate/postgraduates registering for the module
- Number of students taking part in the development of the RWH systems
- Number of stakeholders participating on the platform
- Number of Institutions participating on the platform
- Number of people visiting the demonstration sites
- Number of participants in the short course delivered (MOOC)
- Published paper (citations, other usual impact metrics)
- Number of new research proposals developed among partners
- New linkages among stakeholders built
- Value of onward funding secured to make the initiative sustainable

Management of GCRF

3. How will your HEI **monitor** and **evaluate** its progress and compliance in ODA and GCRF activity, including assessing geographical distribution of activity, outputs, outcomes and economic and social impacts?

Please describe the policies, procedures and approach you have in place to measure progress, evaluate outcomes, identify lessons learned, and ensure ODA compliance.

Maximum 1,500 words

The main objective of the UWE research activities funded through QR GCRF will promote the economic development and welfare of developing countries. UWE will use GCRF funding in accordance to ODA principles, as all funding will be used to directly and primarily benefit the selected developing countries through research carried out in these locations.

Success will be determined by the extent to which outcomes and impacts (see **Question 2**) have been achieved through the research, and the activities and outputs effectively delivered.

Outputs – to enable capacity building, knowledge exchange and engagement activities, research and practice-based outputs such as journal papers, conference presentations (at events in the ODA countries) and reports will be produced. The latter will be aimed at practitioners and policy makers in order to facilitate outcomes and change at all levels of water and sanitation operations and planning.

Geographical distribution – as already acknowledged in other parts of this strategy, there is an extensive diversity of GCRF/ODA countries with which we are engaged across several continents. Our target to demonstrate progress in terms of reach would be to increase the number of collaborators in the UWE network by 50% through capacity building, knowledge exchange and engagement activities between and across the collaborators, consequently expanding their networks. This will be quantified through numbers of attendees at meetings (physical and virtual), projects completed (at a range of scales) and onward planned activities.

Monitoring and Evaluation will be underpinned by key UWE policies and procedures including:

Research 2020 Strategy* and corresponding *Research Metrics* – *See Section A.1

Research Impact Strategy *– This includes objectives to evaluate available products and ensure that appropriate systems and processes to facilitate research impact are in place, including for collection of relevant information; to ensure clear reporting lines for research impact within faculties and between faculties and the university; to monitor and evaluate activities leading to research impact, as well as impact itself, to ensure a culture of learning and continue improve.*

Sustainability Plan

Meeting the United Nations Sustainable Development Goals plan

The existing Project Approval Support System (PASS) and the developing Project Information Management Systems (PIMS) – Systems for research approval and management across the whole of a project lifecycle.

Financial System AGRESSO- All university funds are monitored and recorded through the universities financial system (AGRESSO), including project spend. In working with partners, partners are monitored for financial compliance.

UWE will report against this QR GRCF strategy annually, in accordance to HEFCE reporting requirements by providing information such as financial breakdowns of spend across GCRF allocation, activities funded, outputs produced, and emerging impacts.

Martin Boddy (Pro Vice Chancellor for Research and Business Engagement) will maintain corporate responsibility for ensuring that GCRF funding is ODA compliant and reporting back to HEFCE on research outcomes and impacts, supported by a Project Board which will bring together interdisciplinary faculty and service teams supporting GCRF. UWE will monitor and evaluate compliance of all research activities funded through QR GCRF, by measuring the outcomes and impacts as proposed in **Question 2**. We will do this by coordinating an annual process to measure overall progress against

QR GCRF plans, while each respective research will evaluate its short-term outcomes and impacts and longer-term prospects at project completion. UWE will also monitor and report on how the QR GCRF allocation has been spent across projects. UWE's Research, Business and Innovation (RBI) team will coordinate reporting across all projects receiving QR GCRF funds, and support Faculties to ensure continued ODA compliance and monitoring and evaluation support throughout project lifecycles via the RBI Operations Team, and reported to the Project Board. The Finance team will monitor and report on financial allocations and spend across projects, and support project teams in their on-going financial activities.

Academic Project Managers will take responsibility for the overall project-level monitoring and evaluation of activities, outputs and outcomes and compliance to ODA principles. All research activity is underpinned by UWE's Ethics and Governance and Equality and Diversity policies. Working with local partners, project launch events will in occur in which research project activities and outputs, as well as intended outcomes and impacts, will be reviewed. Roles and responsibilities around each activity and output will be agreed, including leading and supporting roles. This will include monitoring and evaluation activities and procedures such as data collection methods, recording tools and reporting processes to be employed. Periodic meetings to regularly report and assess project progress will be held, both in-country and remotely. These will incorporate reviewing lessons learned that emerge throughout the research activities, which will be applied as relevant to future activities. An internal evaluation will occur at the end of each project to measure achievements against the intended outcomes and impacts. Project Managers will take responsibility for reporting inputs into the corporate assessment and reporting processes.

Section B: Use of QR GCRF 2018-19 allocation and future QR GCRF priorities

4. Please complete the table in Annex A2 detailing the expected spending and activities for QR GCRF in the academic year 2018-19. Note that the total QR GCRF spending must equal the indicative allocation (available in Annex C), and all activities must be ODA-compliant for strategies to be assessed as ODA-compliant overall.

5. Please add here any explanatory notes on how you have completed the table in Annex A2 that will help inform assessment of ODA compliance.

Maximum 200 words

The data in Annex A2 has been based on UWE Bristol previously GCRF-funded work, which contributes to capacity building and research-underpinned growth, including:

- Attendance at the GCRF Global Engagement Meeting (Bogota), where excellent connections were made with academic and NGO collaborators – this allocation strategy ensures that these connections can be fully and formally expanded into collaborations in the themes outlined in the following sections;
- Project SINBaD (Sustainable Infrastructure Needs Basic Data), which explored connections between water resources-orientated data, modelling and decision making in Ghana, Jamaica and UK (with in-country partners) to underpin scenarioing for uncertain futures with a focus on impacts for sustainable development (journal paper currently under review with Journal of Hydroinformatics).
- Facilitating shared resources and horizontal knowledge transfer amongst the least developing and most developed countries.

Within the allocation we have considered the projects we will be undertaking in 2018-19 and made space to broaden and deepen these existing partnerships and build on this past work. This fits extremely well with GCRF/ODA compliant ambitions in relation to processes underpinning the promotion of welfare, economic development and inclusive growth by facilitating the planning for, availability of and access to resilient and sustainable innovative water and sanitation infrastructure services (in their broadest sense from new technology and processes to behaviour change to shifting culture practices).

6. How would your **priorities and activities** for 2018-19 QR GCRF change if the funding level differs from that outlined in indicative allocations? Please include detail of how priorities will change with increases and decreases to QR GCRF funding, and details of how each priority meets ODA criteria.

Maximum 500 words

Funding levels for ODA-compliant activities under this programme, as well as changes in academic staff interests, emergence of new relevant areas will be kept under review by a strategy group composed of university leadership and Professors including Martin Boddy (Pro-Vice Chancellor for Research), Philippa Shelton (Senior Research Manager), Chad Staddon (Professor of Resource Economics and Policy) and Ioannis Ieropolous (Professor of Bio-energy). This will ensure the impact of any changes to funding levels will either be kept to a minimum, should the funding lower, or be maximised should money become available. If funding levels alter so that we need to reduce or increase our priorities, this will looked at on a case-by-case basis considering our academic remit and ODA priorities. Part of the remit of this group will be to monitor ODA criteria and the DAC-list to ensure alignments are maintained.

7. Based on indicative funding allocations, what are your **priorities** for QR GCRF activity in 2019-20? Please include detail of how priorities will change with increases and decreases to QR GCRF funding, and details of how each priority meets ODA criteria.

Maximum 1,000 words

UWE Bristol proposes to use the QR-GCRF allocation to support further activities in the above areas, all directly ODA compliant. Building on current activities funded through institutional allocations (the GWSP) and externally-funded projects (the IWSN).

We propose to use the funding to further enhance and develop work in the disaster response and injury response areas, those countries where partnerships are developing will be consolidated, and work undertake to build on WASH activities, and establish appropriate health related activities. In particular embedding the prototype RWH development work with the continuation of student engaged work to build capacity in target communities in aspects of water engineering, operations and maintenance.

Work through the NIHR Global Health Research Group to establish a sustainable research team based in Kathmandu, capable of delivering excellent research on injuries and injury prevention in the Nepal Injury Research Centre (NIRC) will be built. The NIHR funding finishes in 2020 and time will be spent to consider its future sustainability, and where best practice can be used in other countries for similar activities.

A Decision-Support Framework for critical infrastructure (CI) operators, including water, and CI policy makers to enable them to develop and demonstrate best practices in engineering, materials, construction, planning and designing protective measures as well as crisis response and recovery capabilities for CI, will be developed and trailed, for role out in 2020-21

8. Based on indicative funding allocations, what are your **priorities** for QR GCRF activity in 2020-21? Please include detail of how priorities will change with increases and decreases to QR GCRF funding, and details of how each priority meets ODA criteria.

Maximum 1,000 words

Building on current activity, for 2020-20 we will ensure a continuation of research into community-based groundwater recharge schemes, particularly in India and the expansion of socio-technical research and capacity building on rainwater harvesting at a range of scales in the built environment across a range of contexts (Uganda, Kenya, Ghana, Colombia). Extension of research and knowledge exchange to improve practice in relation to water resources data collection (hydrometry), modelling & optioneering and decision and policy making (Ghana, Colombia)
Particular consideration will be taken to build on health practices in countries, considering where areas of best practice can built, for example work already undertaken in Nepal can be translated for activity in neighbour countries such as India or Bhutan, and likewise how can water schemes be used in Nepal.