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. A 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 developing countries, included in the Development Assistance Committee (DAC) list, which you intend to collaborate with.

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a. Our GCRF strategy will build upon our research and global strategies which are heavily influenced by our recently launched corporate strategy (see https://www.surrey.ac.uk/about/management-and-strategy/our-corporate-strategy-2017-22). As part of our mission, the University of Surrey aims to transform lives and shape the world for a better future by partnering with students, governments, businesses, alumni and local communities. The University also aims to make social and economic impact through research and innovation, and provide solutions to global challenges. Our GCRF priority objectives will be to support high quality existing networks with ODA countries that have a proven ability to deliver impact; to use funding as a launch pad to expand networks of partners, especially in lower income countries and least developed

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

countries; to pump-prime new programmes across countries within each ODA income stratum; and to use funds to contribute to the full economic cost of existing and new ODA-compliant funding (UKRI GCRF, Newton etc.).

b. The key aspects of our three-year strategy will be to address the following priorities:
1) Support research programmes that contribute to increased capacity and capability in the partner country, focused on areas that will impact directly on health, economic development and sustainability;
2) Build upon existing ODA-compliant, challenge-led research strengths and networks within ODA countries to steadily increase the scale of activities and grow impact; and
3) To use pump priming approaches to expand ODA-compliant research in the least developed countries.

c. Our development related activity aims to increase local capacity in research related to the key planks of GCRF funding. In particular, we seek to improve health (through projects such as: healthy eating and ageing; development of point of care diagnostics (see www.i-sense.org.uk); enhancement of communication technologies (using existing 3G and 4G extending into 5G; see: https://www.surrey.ac.uk/5gic/5g-vision) to assist in improving healthcare delivery in remote rural communities through to disaster management; enhancement of pollution monitoring and pollution reduction (see https://www.surrey.ac.uk/global-centre-clean-air-research) in megacities; and development of remote sensing methodologies using mini-satellite technology to assist in monitoring climate change and natural disasters affecting ODA countries. These activities conjoin with the three research Grand Challenges that we launched in 2016 as part of our new research strategy (see https://www.surrey.ac.uk/research/vision/research-strategy).

d. Our activities are fully consistent with the articulation of the UK strategy for the GCRF. More specifically, a main plank of our approach centres on our expertise in areas relating to secure and resilient food systems and quality of health. (We have recently been awarded our 4th Queen's Anniversary Prize for Higher and Further Education in food and nutrition for health; see https://www.surrey.ac.uk/research/excellence/queens-anniversary-prize). We will also focus on water quality and sustainability (we are a past recipient of a Queen's Anniversary Prize for Higher and Further Education in drinking water and sanitation). Our emphasis on lifelong health and wellbeing; affordable, reliable sustainable energy all contribute to equitable access to sustainable development. In the context of Sustainable Economies and Societies, our research Grand Challenge on Sustainable Cities, Communities and Economies brings together members of the academic community in the Centre for the Digital Economy, the Centre for Environmental Strategy, areas such as sustainable tourism and engineering disciplines including advanced materials. Underlying our approach is to enable researchers from partner organisations and countries to benefit from, and contribute to, our research capacity, through short and long term mobility (supported through Santander awards amongst others), and to establish models of good governance that promote equality and inclusive prosperity, especially through our Centre for International Intervention (see: https://www.surrey.ac.uk/centre-international-intervention/about), and our research areas

in corruption and legal philosophy within our School of Law (see https://www.surrey.ac.uk/school-law/research).

e. The University approach to using QR is based on REF performance, with QR funding currently flowing back to the departments based on this allocation model, ensuring a direct link to research excellence. Going forwards, QR funding will be increasingly aligned with the University's Research Strategy, particularly its Research Themes. For our QR GCRF funding, we will look to combine the focus on research excellence with the GCRF objectives and ODA compliance. An important approach we will use to do this will be to operate a competition based on submitted project proposals/business cases. We have built a good team of knowledgeable staff who can support review of proposals, the project lifecycle, and the necessary project governance. The above will be augmented by the allocation of QR GCRF funding to existing UKRI- and Newton-funded projects, to bridge the fEC shortfall, reinforcing our focus on excellence by ensuring those proposals that have achieved success in external competitions are well supported.

f. The University already has a number of ODA-compliant projects with countries designated as ODA by the OECD. This provides a firm basis on which to expand current activities, to provide a step change in the impact those projects bring through enhanced funding, and also to provide support to pump-prime new activities with existing partners. A good enabler is the matched funding we can liberate from partner organisations, such as FAPESP in Brazil, to leverage more from the GCRF QR funding stream (see below). One potential barrier is our relative lack of current engagement with LDC countries. In order to overcome this barrier, we will liaise with government agencies (British Council, FCO SIN, UKRI) and the Wellcome Trust to identify appropriate projects and partners in a priority list of LDC countries, namely, Tanzania, Malawi, Gambia and Bangladesh, and then use these nascent links to stimulate new ODA compliant activities. Of relevance here are the links we have in the DPRK, where an emeritus professor of the University of Surrey is providing education and training in computer science at the Pyongyang University of Science and Technology, allowing us an avenue to explore capacity building in a country with which few UK universities have engaged. Finally, ensuring full disbursement of funds will be greatly aided by having certainty around funding for the next three years. Further, we will carefully articulate and promote our strategy to staff in order to have a competitive range of suitable projects available.

g. Our key activities will be divided into the following:
1) Generate multidisciplinary approaches in research programmes which combine academics from STEM and the Arts and Humanities to address capacity building needs within complex projects, e.g., air pollution (which includes teams involved in smart cities, social impact of new technologies and the digital economy (see: https://www.surrey.ac.uk/business-school/departments/digital-economy); smart energy, public engagement with changes at the nexus (see: https://www.surrey.ac.uk/features/informing-public-policy-design); and rebuilding infrastructure and communities after natural disasters (e.g., the project we have with Antigua and Barbuda in the reconstruction of Barbuda, which will improve

multidisciplinary capacity in our Centre for Environmental Sustainability and our School of Hospitality and Tourism).

2) To compensate ODA-compliant projects where full economic costs are not being met. (We estimate that approximately 20% of the QR GCRF funds per annum will be allocated to such projects based upon current success rates.)

3) We have successfully allocated, through open competition, pump-priming funding from existing GCRF allocations (EPSRC and most recently QR GCRF funding) and so have confidence that we can disburse 25% of our funds in this way with a strategic view that such pump priming will produce networks that can be successful in applying for other GCRF major funding calls from UKRI, and leverage funds from other agencies such as the Gates Foundation.

4) We will also investigate how we can achieve better leverage from the QR GCRF funding through strategic partnerships with research funders in the ODA countries. Of note, we already have a strategic partnership with FAPESP in the state of Sao Paulo in Brazil through an existing SPRINT award, and will launch a new £30K research project call in September 2018 (50% match funding from FAPESP) and we shall seek to increase this funding to £100K per annum (£50K match funding) during the period 2019-2021. GCRF priorities overlap substantially with FAPESP priorities.

Although we will not directly allocate substantial funds for specific responses to emergency situations, flexibility in the use of the QR GCRF funding stream will enable rapid allocation of funds in this dimension as and when required.

h. The main developing countries we intend to collaborate with include:
Upper middle income countries: Argentina, Brazil, China, Mauritius, Peru, Iran, Malaysia, Colombia, Antigua and Barbuda.
Lower middle income and other lower income countries: Egypt, Ghana, India, Kenya, Pakistan, Vietnam, DPRK, Nigeria.
Least developed countries: Uganda, Ethiopia (expanding to Tanzania, Malawi, Gambia and Bangladesh during the three-year strategy).

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

The outcomes of our strategy will be measured by:
1. Increased research quality in our ODA partner universities as measured by the field-weighted citations of the papers they produce jointly with us in an area compared to the average field-weighted citations in that area for the partner.

2. Development of talented researchers experienced at working in ODA countries on Global Challenge research as measured by the number of PhDs we or our partners have commenced and progressed to completion using our GCRF funding.

3. Policy changes introduced as a result of the research and translation activities we have funded, especially in areas of sustainable energy, health and air pollution, reflecting the strengths of the University in these areas of research with ODA countries at all income levels. This will be measured through the open access publication of a series of Policy statements.

4. New Intellectual Property aligned to GCRF priorities, as measured by commercialisation activities, such as granting of licences and awarding of patents.

5. Improved public engagement and outreach especially with diverse communities and young people by developing case studies of our GCRF research and demonstrating the societal benefits that accrue globally from the research.

The impacts of our strategy will be measured by:
1. An increased awareness of the importance and value of the Global Challenges work through increased numbers of the University's research community actively engaged in that work.

2. An increased volume of ODA research within the University as measured by the value of ODA funding within the University.

3. New and deeper networks as measured by the number of ODA countries and the number of partners within those countries who we engage.

4. Increased capacity and capability for translating our ODA research into impact as measured by the number of end user or intermediary organisations who we engage in partner countries.

5. An increased capability for ODA research in us and our partners as measured by the following metrics:
a. Number of staff seconded or placed between us and our ODA partners;
b. Number of secondment/placement months per year; and
c. Value of research grants we have that have ODA collaborative partners engaged in them.

6. Increased research capacity in our ODA partner universities measured by volume of research being undertaking in the areas in which we are partnering, compared to the 2017 baseline. Increased visibility of the impact that this funding is having through our research impact pages (see: https://www.surrey.ac.uk/research/impact).

7. Increased engagement with organisations in countries within the 'least developed country' category, as measured by the number of organisations we interact with compared to the 2017 baseline.

8. Leveraged external funding derived from GCRF QR funding for pump-priming projects to a ratio of at least 3:1.

9. Increased mobility of PhDs and ECRs between the University and GCRF partners as measured by the number and duration of secondments/placements.

10. New knowledge aligned to the UN Sustainability Development Goals as measured by the numbers of outputs generated from research grants related to those goals.

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.

All activity will be overseen by Research & Innovation Services (RIS), managing calls for project proposals and reviewing proposals for ODA compliance prior to scrutiny by the QR GCRF funding panel. The GCRF funding panel will include the Vice-Provost Research & Innovation (VPRI), Senior Vice-Provost Global, Director of RIS, Director of Research Strategy and Associate Deans for Research. Along with the RIS team, these senior individuals will have been made fully aware of the rules and regulations associated with ODA compliance and they will be tasked with selecting only those proposals that meet those regulations.

When soliciting proposals from the Research Community, we will develop and issue notes for guidance alongside clear criteria for assessment. This will help build awareness and understanding within the Community.

The calls for funding will list our priority DAC areas. All funding allocated under the strategy will be managed by the Post Award team within Research Finance, who have good knowledge of GCRF funding rules through our existing UKRI and Newton projects. RIS will review the funded projects quarterly for progress against the project plan, and report this to the University Research & Innovation Committee (URIC), which in turn reports to the University's Senate. A key role for URIC will be to review the outcomes and impacts for future funding decisions. All funded activity will be required to complete a final report detailing outcomes against plan, impact and next steps. Lessons learned will be built into our future funding calls (likely to be annual).

We will produce templates to facilitate more standard reporting within our GCRF portfolio and these templates will be framed to support the capture of the impacts and outcomes of the projects.

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.

We have attempted to estimate our current contribution to fEC of ongoing projects but are conscious that we wish to allocate funds to create a steep upward gradient in our GCRF activities. There will be a degree of overlap between pump priming activities and multidisciplinary research projects but we will differentiate these based on the breadth and depth of the activity and its maturity. An important aspect of our planned expenditure is our strategic partnership with FAPESP, where any investment we make will be matched 100% by FAPESP. In addition, we are aiming to allocate £30K to ECR mobility, similar in concept to the Rutherford scheme, to bring high-quality ECRs to the UK for short periods to benefit from a UK experience and, more importantly, to then share their experiences with colleagues and build more substantial bridges. We are confident that, as with existing GCRF projects, all support will be ODA compliant.

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.

A decreased amount of GCRF would result in the following modifications:

1. We would reduce the amount we would allocate against fEC for existing projects, which would help protect our expenditure on existing and pump priming new networks. We estimate this would save up to £100K against budget allocation, although it could be higher if required, with the commensurate increased commitment from the University to underwrite any fEC shortfall. If funds were constrained further, then the priority would be to support existing networks to ensure that impact was fully realised. This would allow us

to continue to meet ODA criteria for planned expenditure but would result in a smaller volume of activity and hence total impact.

2. An increase in funding would result in more rapid expansion of new networks, increased ability to co-fund initiatives with other agencies prepared to match fund proposals, e.g., FAPESP and expansion of the programme to stimulate mobility of PhD and ECR researchers within the networks. Overall, such an approach will yield an increased volume and depth of activity and enhance the capacity building aspect of the relationships through increased two-way mobility.

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.

For the 2018-20 cycle, we aim to prioritise delivery of partnership networks in the following countries: China, India, Columbia, Brazil, Mexico, Egypt, Ghana, Uganda, Kenya, Vietnam, Argentina, Pakistan, Egypt, Ethiopia, Nigeria, Malaysia, Mauritius, Iran, Antigua and Barbuda and the DPRK with a view to expand activity to more LDC countries (Tanzania, Malawi, Gambia and Bangladesh) in years 2 and 3 of the strategy. Projects will include, as a priority set of supporting actions, Self-Organising Drone-based Emergency Communication Network for Disaster Response (China; CRS code 73050 (relief co-ordination, protection and coordination), Bio-ESPRESSO: Bio-Electrochemical Systems for Product and Energy Salvage from Spent Coffee; (Columbia: CRS codes: 14050 – Waste management/disposal; 23070 - Biomass; 32161 – Agro-industries). Investigation of a scroll expander-based waste heat recovery system (two Chinese partners; CRS code 41020 - Biosphere Protection). Catalytic Solutions to Mitigate Global Warming in Latin America (Brazil, Mexico and Argentina: CRS codes 41010 – Environmental Policy and 41020 – Biosphere Protection); Determining the role of mycolactone in the survival of M. ulcerans complex organisms in free-living amoeba (Ghana: CRS code 12250 Infectious Disease Control) and Knowledge exchange for flood risk, water pollution and water resource mapping in the Akaki Basin, central Ethiopia (Ethiopia: CRS code 14015 Water Resources Conservation). We will also prioritise further investment in the Global Centre in Clean Research (see https://www.surrey.ac.uk/global-centre-clean-air-research) since this provides a network of researchers across multiple ODA countries (India and Brazil) while linking it to a network of developed nations (UK, Australia, USA and countries within the EU). Capacity is facilitated by the Air Quality Lab (AQL) which has advanced pollution monitoring instruments, and is part of GCARE. GCARE will provide a virtual and physical collaborative platform for conducting leading-edge research, supporting University-wide national and international projects under the themes of Urban Living and Sustainability and the United Nations' Sustainable Development Goals. This monitoring laboratory will be developed as a local capability in the target ODA countries in collaboration with the key partners. The other priority will be to attract proposals that are ODA compliant for the

increased research funding available through our strategic partnership with FAPESP (£30K allocation). As part of our commitment to capacity building, we will initiate a more extensive mobility programme which facilitates young researchers at PhD level and ECRs to take advantage of short and medium term visits (up to 6 months) for skills development, to contribute to research outputs and more broadly to provide impact in the host country. We anticipate that this scheme will launch by supporting up to 15 visits in 2018/19 and would complement the shorter term visits to certain ODA countries that we currently support through our Santander Universities award. In addition, we will continue to use a proportion of the QR GCRF funding to support fEC on existing and any new awards secured that are GCRF compliant and which have not attracted full fEC.

If QR GCRF funding increases, then we will target expansion of the PhD and ECR mobility programme to include 30 visits and would aim to expand this to offer more opportunities to researchers based in least developed countries. We would also expand the quantity of support available to the aforementioned and other projects that are ODA compliant and which fall under GCRF funding, while ensuring that their pathways to impact are robust and quantifiable. All of the activities will be evaluated and monitored using the internal mechanism described in Section 3 above.

If QR GCRF funding were to be reduced, then the first priority would be to reduce the proportion of the funds we allocate to provide fEC for existing/new awards. If reductions in funding are more substantial, we will reduce the quantity of funds available for partnerships with researchers in ODA countries, but would be conscious that such reductions in funding may lead to a minimal likelihood of delivery and commensurate loss of impact. Therefore, we will sub-prioritise funding levels to those networks (existing or new) that show the greatest promise for delivery against the goals of the GCRF and the University GCRF strategy.

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.

We anticipate that some of the research programmes initiated during 2018/19 and 2019/20 will continue to be high priorities for further support. Support will be directed towards projects in which: there is clear evidence of immediate impact or impact within a short time frame; where the investment can bring on board partners from other ODA countries to increase the potential transnational impact and to share practice; and, finally, to ensure that projects are aligned to future major GCRF calls by UKRI or its agencies. Thus, we believe that we can expand the activities within Global Centre in Clean Research (see https://www.surrey.ac.uk/global-centre-clean-air-research) particularly into other LMIC (Pakistan and Egypt) and LDC (Bangladesh) countries (CRS code 41020 Biosphere Control (includes air pollution control)). We will also prioritise projects that embrace the power of 5G technologies which will, by 2020, be firmly established in the

context of international standards and expectations. However, the transformative nature of 5G and the Internet of Things are unlikely to be fully realised in all ODA countries. Hence, we will prioritise programmes that link 5G researchers into research and public networks within ODA countries in South America, sub-Saharan Africa and India. This will leverage our strong links with Huawei and Vodafone. The impact of 5G technology in a range of applications, such as healthcare monitoring in rural communities, increased efficiency and effectiveness of control systems to minimise pollution and energy consumption, and delivery of secure end-to-end solutions for democratic processes, should be transformative. We will also prioritise funding into social policy changes which impact on the quality of the environment. For example, we will increase investment in projects involving heavy metal use in mining, especially in the implementation of the Minamata Convention in Sub Saharan Africa (CRS code 32210 mineral/mining policy). We are already collaborating in Ghana with key players in this area and have an ongoing partnership with the Chinese Research Academy for Environmental Sciences based in Beijing, which has widespread experience of understanding pollution of the water table with heavy metals and methods to reduce pollutants to safe levels in rivers and lakes. By bringing together cross-ODA expertise with our technical and policy expertise, we will enhance the quality-driven research and accelerate the impact of research programmes.

We would also aim to continue to expand opportunities to partner with international funding agencies in ODA countries to leverage more from QR GCRF funding. The most likely priority will be with FAPESP due to our existing relationship and profile with this agency. However, through activities in 2019/20, we anticipate being in a strong position with other agencies or specific universities who wish to co-fund initiatives based in ODA countries. This will continue to have a Latin American focus, since the University has a number of current and historical links. Countries include Peru (Concytec), Columbia (Colcincias) and Argentina (through the INTI, which is the national agency fulfilling the role of NPL and LGC in the UK). In addition, we will continue to partner with relevant agencies in China (Chinese Academy of Sciences and China Scholarship Council). Depending upon the success of the mobility programme in 2018/19 and 2019/20, it is likely that we shall maintain a commitment to fund researcher visits in 2020/21. We will also aim to create a series of workshops bringing multiple stakeholders together around specific themes. This will allow stakeholders from a range of different ODA countries and colleagues in the UK working in similar areas (funding for these participants will not be from the GCRF funds) to share experiences, challenges and solutions, and be hosted at the University of Surrey but be streamed through our 5G technology to multiple international stakeholders in ODA countries. Importantly, these workshops will also involve policy makers and members of government administrations to broaden the potential impact of such workshops. Areas will be aligned with the priority areas under the GCRF. These workshops will result in a series of policy dialogues, which would be published as open access.

If QR GCRF funding were to be increased, we would aim to enhance the funds allocated to creating partnerships with the funding agencies, to leverage more from the QR GCRF stream. In addition, we would aim to expand the policy dialogue workshops both in

number and in participants. Expansion of pump-priming support to create new networks would also be planned, based around areas where the University had already demonstrated evidence of impact.

If QR GCRF funding were to be reduced, we would prioritise reducing the amount of funds allocated to cover shortfalls in fEC on grants which have a GCRF component and are ODA compliant. If further reductions in funding were necessary, we would reduce funds available for pump priming support and collaboration with other funding agencies (resulting in a more targeted funding approach based on likely impact) and also reduce the allocation to the workshop programme.