

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.

Maximum 3,000 words

a) The priority objective for Solent University's development-related research is to build long-term, equitable and sustainable partnerships, with a focus on challenges faced by developing countries and their potential solutions.

Our strategic approach is to invest in research capacity and capability building both at Solent and in our partner countries to support the delivery of relevant research, outcomes and impacts.

b) Our three-year strategic plan for QR GCRF is to work with partners in India and the Philippines to develop collaborative, interdisciplinary research that sustainably promotes the economic development and welfare of those countries with a focus on coastal vulnerability and disaster management. The research aims to enhance the ability of people to understand, mitigate and adapt to climate-related hazards.

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

We will build on work already undertaken at Solent University and with partners in India and China, to test and refine an index of coastal vulnerability, working with local coastal communities, and paying particular attention to gender dimensions. Men and women's vulnerability to disasters is different and often related, in part, to cultural norms that may influence gendered behaviours. Gender-specific concerns may not have been embedded in pre-disaster risk reduction activities or post disaster response and mitigation. We will work with partners to understand and embed this.

The aim of the research is to assess coastal vulnerability and disaster risk management and to make recommendations for better management of coastal vulnerability and disaster risks in the identified areas of the Philippines and India.

To achieve these aims, the following objectives have been identified:

1. To accurately identify vulnerable coastal areas in the Philippines and India based on aerial photographs and observation of decadal changes using satellite images and coastal visits.

2. To estimate the impact of coastal vulnerability damage by applying the following indices:

Kantamaneni's (2017) Physical Coastal Vulnerability Index (PCVI)

Kantamaneni's (2016) Fiscal Coastal Vulnerability Index (FCVI)

Based on these two indices, a physical and socio-economic combined vulnerability index will be developed i.e., Combined Coastal Vulnerability Index (CCVI)

3. To develop GIS coastal vulnerability and disaster risk management maps based on the results

4. To undertake research to estimate and understand the effects of gender in disaster management

5. To make recommendations for improved management of disasters in disaster-prone coastal areas.

Coastal areas are one of the key systems for global sustainability, however, many global coastal regions are under increasing climatic, anthropogenic and physical pressures, which can lead rapidly to coastal vulnerability. It is predicted that 12% of the global population will reside in coastal flood risk zones over the next 50 years. The average population density in coastal areas is more than 80 persons per square metre, which is double the global average population density and continues to increase.

Coastal populations and infrastructure have increased dramatically resulting in additional stresses due to land use and hydrological changes within low-level catchments (Nicholls et al., 2007; Baker, 2012). More than 40% of the world's population lives within 150 kilometres of the coast, and 8 of the 10 largest cities in the world are near the shoreline (Atlas, 2013). Globally, several recent extreme storm events have caused major human

and economic losses in coastal zones; for example, Storm Xynthia (Kolen et al., 2010), Hurricane Sandy (Kantamaneni and Phillips, 2013), Typhoon Haiyan (Lagmay et al., 2015), and Cyclone Hudhud (Chejarla et al., 2016).

Over the last twenty years, 90% of disasters have been caused by storms, floods, heatwaves, and other weather-related events. More than 6,000 weather-related disasters have occurred across the world (EM-DAT, 2017). Asia and the Pacific region are the most disaster-prone areas with the highest number of fatalities (Hashim and Hashim, 2016; Kim et al., 2015). There have been £1.1 billion worth of fiscal losses for the period 1970 to 2014 (UNESCAP 2015). Globally, approximately 12,000 disasters have occurred during this period and economic damage from these disasters capped £2 trillion with £347.5 billion owing to extreme weather events such as floods and storms (UNESCAP, 2015).

On average, natural disasters caused £71 billion worth of damage across the world from 2001-2010, and 100,000 deaths were recorded for the same period (Guha-Sapir et al, 2012). According to Strömberg (2007), populations in low-income countries are 12 times more likely to die through natural disasters. The top five countries which experienced the highest number of disasters for the period 1995 to 2015 are: United States (472), China (441), India (288), Philippines (274), and Indonesia, (163) (UNESCAP, 2015).

India and Philippines often experience natural disasters such as floods, typhoons, earthquakes, volcanic eruptions, tsunamis and drought. Together, these seriously threaten their economies, populations and sustainable development.

In India, over 40 million hectares (12%) of land is prone to floods and river erosion; close to 5,700 kms of its 7,516 kms long coastline is prone to cyclones and tsunamis. Over 250 million people live within 50 km of the coast (Sudha Rani et al., 2015). More than 80% of India's geographical area is very vulnerable to multiple hazards (Patil, 2012). Intensified cyclones and flood events have increased in recent decades due to anthropogenic induced climatic changes. More than 50% of the land is susceptible to earthquakes, 8% to cyclones, 12% to floods and 15% to landslides (Government of India, 2015). More than 50 million people are exposed to floods and cyclones annually (World Focus, 2016). There is an average of nine cyclones per year in Indian coastal areas (ICZMP 2010); India is risk class level 9 (the range is between 0 and 10) (Sudha Rani et al., 2015).

The Philippines is an archipelago consisting of 7,107 islands with 36,289 km of coastline. The majority of the coastal areas are densely populated; 25 major cities are located near the coast. Annually, more than 20 tropical cyclones occur across the Philippines (The World Bank Group, 2011). Over the past 20 years, the Philippines has experienced 274 natural catastrophes, making it the fourth most disaster-prone country in the world (Bagarinao 2016).

Thus, there is an urgency to undertake this research and share it with stakeholders to help them understand and influence decisions that are made about their homes and livelihoods. Identifying and evaluating coastal vulnerability is crucial for future infrastructure planning and development and managing disaster responses.

c) The process of undertaking the QR GCRF activity will support the development of key partnerships in India and the Philippines, build research capacity and capability building in all partners, and provide the opportunity and a platform for mutual learning.

d) The activity funded through Solent's QR GCRF aims to work with some of the world's poorest in India and the Philippines and address some of the problems they face in respect of coastal vulnerability and disaster management. By working together with local communities and researchers, we aim to generate innovative solutions, promote resilience, and identify practicable pathways to healthier and safer lives and sustainable development whilst also developing cutting-edge interdisciplinary research with impact.

e) Solent's development-related and GCRF strategies are directly related to the University's wider institutional strategy for using QR with a focus on research capacity and capability building and pump priming.

f) A key barrier will be the limited amount of QR GCRF funding available. Enablers would be additional funding and/or partners.

g) The key activities by which we will realise our objectives are: capacity and capability building; interdisciplinary and collaborative research; generating impact from research; and pump priming.

h) The main developing countries, included in the Development Assistance Committee (DAC) list, which we intend to collaborate with are India and the Philippines.

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

Maximum 500 words

Outcomes

1. Vulnerable coastal areas in India and the Philippines will be identified
2. GIS vulnerability maps will be generated
3. Engagement with user groups will be undertaken
3. A Combined Coastal Vulnerability Index (CCVI) will be developed and shared with stakeholders
4. Policy and decision makers, coastal planners and stakeholders will be supported and encouraged to use the indices to inform decision making about coastal vulnerability and disaster management.
5. The gender dimensions of disaster management in the identified areas will be explored and recommendations made to mitigate any inequalities
6. Ongoing partnerships will be developed
7. Research results will be submitted to high impact factor journals for publication

Academic impact

Conference presentations
Journal articles

Economic and societal impacts

Consultation and development of the research with local stakeholders throughout the whole lifecycle from initiation, design, progression, knowledge exchange and application
Training workshops
Public engagement activities
Development of guidelines
Creation of a film/documentary of the project
Research user conference

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 implementation, monitoring and evaluation of this strategy will be conducted by the University's Research, Innovation and Enterprise team who are experienced in research project management. A steering group will oversee the project, receive regular reports on progress, provide feedback, recommend any modifications, and ensure that the focus of the research remains on the impacts on the local population and how their lives will be improved.

We will also conduct regular meetings with collaborators, stakeholders and policy and decision makers in the Philippines and India. We will incorporate the use of a variety of software and project management tools such as mobile apps, social media and decision-making tools and will undertake both formative and summative evaluation.

All research is subject to the University's research policies and procedures and data will be captured in the University's research information management system.

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

N/A

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

If the QR GCRF funding level were to increase, we would be able to work with more communities, undertake extended research and plan for additional impact; however, if the QR GCRF funding level were to decrease, we would have to consider working with only one of our partner countries, due to the already low amount of QR GCRF funding.

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

In 2019-20, we would expect to be involved in undertaking collaborative field work in the communities identified. The following activities will be undertaken to achieve the project aims and objectives:

1. Multiple coastal visits in the research areas
2. Assessment of current local and national economic/GDP circumstances
3. Identifying the most vulnerable coastal areas in India and Philippines
4. Conducting engagement workshops with local stakeholders, including a focus on gender
5. Discussions with local NGOs
6. Involvement in local activities to enhance stakeholder engagement
7. Discussions with local and regional disaster management officials
8. Primary results presented and discussed with local stakeholders, local and regional authorities, and at an international conference
9. Continuous monitoring and evaluation of project progress and ODA compliance
10. Preparation of a preliminary report regarding project progress
11. Submission of journal articles to high impact factor journals

As per question 6, if QR GCRF funding were to increase, we would undertake extended field work; if QR GCRF funding were to decrease, we would focus on a single partner country.

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

In 2020-21, we would expect to be involved in the analysis and interpretation of the research, sharing the findings, and ensuring impact of the project. We would expect the project to have academic and societal impacts.

We would be involved in working with local stakeholders to maximise the benefit of the research for them and their communities. This would include the development of guidelines, public engagement activities, completion of filming etc.

In addition, we would expect to participate in relevant conferences and publish in relevant publications.

If QR GCRF funding were to increase, we would extend our work on ensuring impact; if QR GCRF funding were to decrease, we would review our proposed activities and prioritise them.