1. Institutional research context

In line with its commitment to the Global Challenges agenda, the University of St Andrews created a Global Challenges Forum in 2018. The forum supports the University’s extensive GCRF challenge-led research base, funded by the Scottish Funding Council (SFC) Global Challenges Research Fund (GCRF) QR Grant, and contributes to the United Nations Sustainable Development Goals.

Supporting the SFC’s objective ‘to invest in excellent research and innovation that adds to current knowledge, delivers economic and societal value, enhances Scotland’s international reputation and attractiveness, and makes the world around us prosperous, healthier and more sustainable’¹ the University of St Andrews committed its support to the St Andrews Global Challenges Forum’s 3-year strategy ‘to improve the economic activity and strength of ODA countries by strengthening capability for research and innovation in developing countries and the UK, as well as building structures which will enable agile responses to emergencies and opportunities’. In the first year covered by the strategy, the Forum supported 49 projects² in 48 countries, prioritising three main themes:

- Energy and innovation
- Global health and inequality
- Sustainability and environmental change.

Underlying themes which include (a) sustainable livelihoods, (b) promoting justice and humanitarian action, (c) secure and sustainable food systems, (d) gender equity, (e) rapid urbanization and (f) cultural heritage preservation are embedded within the main themes.

The University has identified six priority areas for collaborative working across disciplines (see the University of St Andrews Strategy 2018–2023³). All our 49 SFC GCRF funded projects are aligned with these priority areas, as follows:

![Interdisciplinary themes chart]

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² 50 projects were originally funded, but one PI left the University before the project fully started so has been discounted from the reporting.
³ [https://www.st-andrews.ac.uk/about/governance/university-strategy/](https://www.st-andrews.ac.uk/about/governance/university-strategy/)
Our strategy for the SFC GCRF also aligns more broadly with the University Strategy pillars\(^4\) of Diverse (11 projects), Entrepreneurial (12 projects), and World-leading (22 projects), whilst all funded projects engage in different ways with the strategy’s Global pillar. Most importantly, our SFC GCRF strategy and processes aligns with the University strategy’s social responsibility principle to ‘act ethically, transparently, sustainably, and for the wider public benefit at all times.’\(^5\) Finally, our SFC GCRF activities fulfil a key University objective to ‘promote areas of world-leading research that provide international leadership, engage with big societal questions, have the highest level of integrity, and the potential to resonate externally’.\(^6\)

**Continuity, building on success and establishing agendas:** The 2018-19 funding of £809 902 has helped to progress all projects funded in 2017-18, as well as one from 2016-17. It has initiated a further 34 new projects. As the QR funding and the number of projects has grown, St Andrews’ Global Challenge research strengths by topics (fishing and coastal communities; global health, particularly TB, HIV and antimicrobial resistance; cultural heritage preservation and sustainable livelihoods; and energy security) and by region (East and sub-Saharan Africa, Amazonia and Southeast Asia) have become increasingly apparent.

*To date, the SFC 2018-19 funding has seeded £10.6M in follow-on applications and has leveraged £3.3M in additional funding.*

**Progress with your GCRF strategy**

We are aware that the poorest countries require longer lead-in time for effective change and are monitoring and developing strategy for stimulating ODA links through grants for networking and dissemination including developing regional activities. Our 2018-19 projects supported all 17 UN Global Goals for Sustainable Development in some capacity – most projects addressed more than one goal. The full breakdown, self-declared by the PIs, is shown below.

![UN Sustainable Development Goals](image)

The aims set out in the University of St Andrews GCRF strategy, along with progress, are:

\(^4\) [https://www.st-andrews.ac.uk/about/governance/university-strategy/](https://www.st-andrews.ac.uk/about/governance/university-strategy/)

\(^5\) [https://www.st-andrews.ac.uk/about/governance/university-strategy/university-social-responsibility/](https://www.st-andrews.ac.uk/about/governance/university-strategy/university-social-responsibility/)

\(^6\) [https://www.st-andrews.ac.uk/about/governance/university-strategy/world-leading/](https://www.st-andrews.ac.uk/about/governance/university-strategy/world-leading/)
• Immediate and/or potential economic benefit to DAC-listed partners: all funded projects were selected on their potential to realistically enhance well-being and economic benefits to the partner countries. In some cases, the benefits will be felt in the future, for example, in the cases of infrastructure recommendations in Malawi, tax losses due to tax avoidance and outcomes to development of poor countries, combatting disease or making strides to achieve food security and sustainable cities. Others have more immediate economic benefits, such as those bringing about new exhibitions creating touristic opportunities or building capacity through industry training.

The split of support to DAC list ODA recipients (many projects supported countries in more than one category) was:

<table>
<thead>
<tr>
<th>Category</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Least Developed Countries (LDC)</td>
<td>25</td>
<td>36%</td>
</tr>
<tr>
<td>Lower Middle Income Countries (LMIC)</td>
<td>22</td>
<td>32%</td>
</tr>
<tr>
<td>Upper Middle Income Countries (UMIC)</td>
<td>22</td>
<td>32%</td>
</tr>
</tbody>
</table>

• Establishment and strengthening of formal links with scientists, commercial companies and end users in DAC-listed countries: all funded projects worked closely with in-country partners. Project beneficiaries (see graph below); many projects’ beneficiaries fell into more than one category.

• Establishment of ‘communication-based’ and fact-finding networks in ODA countries: this is a longer-term objective of the Global Challenges Forum as we continue to support PIs to connect and expand connections within and between ODA countries. Some projects already making strides in this area are fisheries on Lake Victoria, fishing in Peru, ex-combatants in Liberia, antimicrobial resistance in Africa, museums and cultural heritage work, and ophthalmoscopy training for health care students in Rwanda. The Forum requests PIs with visitors from ODA countries to make the GC Forum aware so that, where possible, we can increase the benefit to both sides through further networking during their visit.

• Establishment of ‘communication-based’ and fact-finding networks in the UK, with the aim of producing benefit to DAC-listed countries: The forum held two successful networking events, which included visiting academics from DAC-listed countries and the UK and Scottish editors of The Conversation. The Forum has actively sought potential collaborators to enhance projects, and has established webpages where existing projects are described, with this objective in mind. We also set up an Advisory Panel which includes ODA practitioners and policy experts that allows us to extend our reach and remain current with the changing international landscape. Success can in part be measured by our recent £1.1M UKRI GCRF Global Research Translation Award where three seemingly diverse projects (new potato varieties, biocontrol in fisheries and TB diagnostics) came together to show how Scottish excellence can help to break the current vicious circle of poor sustenance and
poor human health by tackling food security and health challenges in Malawi, Tanzania, Kenya and Uganda, as a single highly connected developmental issue.

- Students and local personnel in DAC-listed countries trained by researchers from the University of St Andrews – noting the areas where there are gaps in knowledge or skills shortages in the DAC-listed country concerned: 34 of the 49 funded projects had training elements which resulted in a total of 1,277 persons from DAC-listed countries receiving training.

Examples of training include:

- early career postgraduate-level or higher lake scientists working for National Fisheries labs in Kenya, Tanzania, Uganda and Mozambique trained on Fisheries Acoustics Data Analysis.
- training workshops in disaster preparedness and response for approximately 25 people, including firemen and community craft business members affected by floods in Rey Curré in Costa Rica.
- a teaching programme developed in collaboration with the University of Rwanda and St Andrews to train 178 Undergraduate Health care students from five different disciplines at the University of Rwanda in the use of the solar powered Arclight ophthalmoscope and low-cost simulation tools.
- workshops focused on changing the discourse around climate migration to understand climate change as a threat multiplier that exacerbates structural and social injustices, causing people to leave their homelands because their environment has increasingly become a factor in their struggle for survival. Around 60 people (30 in Kalobeyei, 20 in Ruiri, and 10 in Hargeisa) took part in the workshops held in Somalia and Kenya. The workshops were a mix of professional (project partners) and public, including refugees in Kenya and human rights journalists in Hargeisa.

- Influence of research on practitioner and public perceptions via documents, web pages, newsletters and commentaries published to raise awareness, influence policy and form opinions: where applicable, particularly as part of training, workshops and presentations (see numbers above), projects have engaged with practitioners and relevant public audiences via online and print media. As a direct result of the 2018-19 funding, there have been:

  - seven policy documents: Examples include (i) a UN Police Report Briefing, 'The Legacy of DDR [Disarmament, Demobilization, and Reintegration] in Liberia', presented in July 2019 and submitted in August 2019; (ii) a position paper for the Armenian Government on the Spitak Fault and consequences for disaster planning in the capital city of Yerevan (1.1 million residents); and (iii) a briefing report, ‘Chagwa Dam Flood Crisis Observations’, to Zomba City Council and Malawi Department of Disaster Management Affairs (DoDMA, Ministry of Homeland Security) engineers about the risks and mitigation actions needed to deal with the Chagwa Dam which is poised to collapse, endangering approximately 700 homes.
  - five films/videos for web dissemination: Examples include (i) a production of two films as part of a series, ‘15 Years of Peace’, focused on security, educational, gender, and economic challenges of conflict legacy and fragility for young Liberians; and (ii) the production of two short films which capitalised Pacific film-makers' recent developments of culturally effective participatory methods to tap into anthropological evidence that Pacific gender differentiates relational roles not biological difference.
  - many webpages & blog posts
In addition, to build public communication capacity, two members of The Conversation editorial team presented at the Forum’s networking event in May. Four projects will be highlighted in promotional videos being produced.

- Added value to current research in terms of contributions to publications, and other academic outputs: Additional value to the academic community and research areas can be measured in the number of academic publications and presentations/conference proceedings:
  - 30 publications
  - 10 academic presentations / conference proceedings

- Leveraged follow-on funding: To date, the SFC 2018-19 funding has resulted in over £10M in submitted follow-on applications and has leveraged £3.3M in additional funding to different funding bodies, including the Leverhulme Trust, British Council Newton Fund, STFC GCRF, AHRC GCRF Food Systems Partners, Innovate UK, and a £1.1M UKRI GCRF Global Research Translation Award.

The first PhD funding call closed in July 2019. We received 13 high quality applications and have awarded three (with one in reserve). The PhD Review Committee (VP Research and Innovation, Provost, Director of GC Forum and Head of Research Impact) made the recommendation that the next four highest quality proposed studentships (after the three awards) are to be recommended to receive a £10K fieldwork bursary each, if the fees, stipend and research costs for the PhD studentship can be met beyond SFC GCRF funds. Reflecting the quality of applications from our priority areas, the first three PhD studentship are from within our three priority regions in sub-Saharan Africa, Amazonia and the Pacific Rim.

**Changes to the 3-year GCRF strategy:** In as much as we have adhered to the aims and objectives set out in our 3-year GCRF strategy, we have fine-tuned elements of it to make best use of the funds available and to incorporate on-going reflection and new learning in dialogue with our Advisory Panel and partners.

**Change to composition of the Steering Group:** With the additional focus on cultural heritage, ODA expertise in this area was necessary to include on the Steering Group. As such, two academic members of staff joined the Group in Spring 2019.

**Funding allocation split by theme:** This past year, we focused on our objective of supporting projects with the strongest demonstrable expertise to deliver maximum benefits to the global poor, over our expectation that this would be done by equal measure across themes. Based on analysis of the use of funds for year 2018-19 (see Table 1), we aim to allocate 90% of available funding to the three priority areas and 10% to rapid response and contingency projects (instead of 20% of the budget to each of the three themes and 40% for contingency funds). We will continue to monitor projects by themes, but we will no longer aim to fund themes by an equal split between them.

**Table 1: 2018-19 split of funds**

<table>
<thead>
<tr>
<th>Theme</th>
<th>Open call</th>
<th>Rapid response*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy and innovation</td>
<td>13%</td>
<td>7%</td>
</tr>
<tr>
<td>Global health and inequality</td>
<td>29%</td>
<td>6%</td>
</tr>
<tr>
<td>Sustainability and environmental change</td>
<td>31%</td>
<td>14%</td>
</tr>
<tr>
<td>Total</td>
<td>73%</td>
<td>27%</td>
</tr>
</tbody>
</table>

*includes unanticipated and contingency projects
Examples of rapid response projects include:

Earthquake risk in the Ararat Valley: an environmentally challenged, politically contested corridor (XFC080 – funded for £6,680):

The devastating 1988 Spitak Earthquake killed ~50,000 Armenians, injured >130,000 more, and led to economic and political upheaval, and global humanitarian response, that contributed to the geopolitical landscape in which Perestroika faltered and the Soviet Union dissolved. Fifty kilometers to the SE of the Spitak epicentre, an even stronger earthquake on the same fault occurred in 1827. We have discovered a newly-exposed section of lakebeds in the Dzknaget River delta north of Lake Sevan, which record five palaeo-earthquakes. Wide area digital elevation mapping by Armenian partners places this section in country-wide context that can be used for dating of the characteristic earthquake cycle along this segment of the Spitak Fault.

Because the Dzknaget Delta is along a segment of the Spitak Fault which did not rupture in 1988 or 1827, future rupture along this fault poses significant risk on modern timescales with consequences for disaster planning in the capital city of Yerevan (1.1 million residents). Collaboration allows the findings of this work to be directly input to earthquake planning strategies by the Armenian Government.

Assessing flood risk at Chagwa Dam, Malawi: dating palaeo-wets and droughts and thermal contraction of damaged wall (XFC083 – funded for £5,370):

The Chagwa Dam, containing a perched natural lake holding up to ~100 million litres, is poised to collapse, endangering ~700 homes, a secondary school, and residential infrastructure serving three suburbs in Zomba City (pop. 80,000), Malawi’s education and judicial centre. This project informed Zomba City Council and Malawi Department of Disaster Management Affairs (DoDMA, Ministry of Homeland Security) engineers as they attempt to stave off the dam bursting, and it promoted accurate public understanding of the risk and mitigation actions to avoid exposure of children to potential flood risk in the downstream Mulunguzi River. The Malawi Army unclogged a downstream relief valve we imaged with a drone, and also expanded the lake-level water overflow intake, which appears to have reduced lake level by about 10 cm in two months. We have expressed opinions as to the medium- and long-term risk of flooding from a burst Chagwa Dam to be considered by Malawian engineers and planners as part of their ongoing mitigation strategy.

An additional subtheme, ‘heritage preservation’, has emerged as a real strength of our St Andrews research this year, with projects ranging widely geographically. As a result, the GC Forum Steering Group has added ‘cultural heritage preservation’ as an embedded subtheme to our three umbrella Global Challenge themes.

Frequency of meetings: In organising the St Andrews Global Challenges Forum, after approval of our 3-year GCRF strategy it became apparent that the frequency of meetings was excessive. We have therefore amended our strategy document to reflect that the Steering Group will meet on a quarterly basis, and the Director will meet with individual Steering Group members as required (so far, an average of three meetings per month).

Use of funds: The aim of the Global Challenges Forum was to keep the amount of funds used to recoup GCRF FEC to a minimum. The Forum allocated 100% of the funds but, due to some projects having issues with due diligence and visa applications, £23,180.81 were not allocated and will be used to minimally off-set GCRF FEC. It may be worth noting that, where the Panel saw merit in a
project which had elements where ODA compliance was marginally questionable, those elements, totalling £24,585, were supported by central University of St Andrews funds.

**Interdisciplinarity:** One of St Andrews’ strengths is our close working relationship between disciplines and Schools. As challenge-led issues require multi-disciplinary approaches, the Global Challenges Forum builds on this strength by encouraging, nurturing and building further links between Schools and disciplines, and increasing Global Challenges capacity at the same time. For our latest internal call, we asked for Expressions of Interest, where we asked potential PIs about other disciplines or expertise which could strengthen the project, and then proceeded to make introductions to increase collaboration and synergies to try to fill these self-acknowledged gaps. We also upped our top limit to £150K for multi-disciplinary projects to strategically bring together related projects to consolidate themed projects unique to St Andrews. We organise internal networking opportunities and bring academics together across Schools when mentoring or synergy opportunities become apparent.

2. **Detailed list of funded activities**
   Please see separate Excel spreadsheet for this information.

**Gender equality**

*How the University is progressing gender equality through its research*

The University has newly appointed an Assistant Vice-Principal (Diversity), who holds a research budget (the Equality, Diversity and Inclusion Fund), and supports the University’s commitment to put equality, diversity and inclusion at the heart of the St Andrews experience. The AVP and the Principal lead the University’s commitment to the Diverse St Andrews strategic agenda through a variety of existing and new initiatives. For example, a new portfolio of courses, Dignity & Inclusion at Work, is being offered by the University. The course portfolio covers a range of awareness, support and training sessions related to equality, diversity, inclusion and wellbeing issues in the workplace. The courses, designed for all staff, can be taken in stand-alone form or as part of a portfolio which secures a certificate of recognition once all courses are completed. There are specific courses for those in management and leadership positions, including those related to research. The AVP and the Equality, Diversity & Inclusion team more generally are working with Schools and Units to ensure that staff from diverse backgrounds have access to research time and resources, and to equal and fair treatment through workload model mechanisms, sabbaticals and research leadership opportunities. The University also co-ordinates several mentoring schemes for staff, including mentoring in relation to research roles and activity.

*How the University is embedding gender equality specifically within its ODA/GCRF activities*

One of the overarching subthemes in our umbrella themes is ‘issues of gender equity’. The Forum monitors the gender split of all funded projects. This year, 19 projects, funded to the total value of £326,253.30 (40% of the overall budget) self-declared to be addressing SDG 5: Achieve gender equality and empower all women and girls, to some degree. In addition, 44% of projects had a female PI.

Through the SFC GCRF, we also encourage early career PDRA on fixed-term contracts to apply, in their own right, as PIs. One example is a named PDRA who secured funding on a project to assess small-scale fisheries’ contributions to nutrition in Peru (XFC048). We are pleased to report that the funding was also able to accommodate maternity leave.
Information about gender equality in the context of specific GCRF projects

Four funded projects which addressed gender equality as the focus of their work are highlighted here.

(1) **Co-operatives as an organisational model for urban women in Papua New Guinea, PI:** Melissa Demian, Social Anthropology (XFC060)

Towns and cities in Papua New Guinea (PNG) are characterised by rapid in-migration from the rural areas of the country, insecure housing, a youth bulge, and precarious livelihoods that depend heavily on the informal economy. Due to ongoing structural inequalities in access to education and to land-based resources, women in PNG are subject to high rates of violence that are both physical and economic in nature. This participatory action research project is framed as an intervention into knowledge exchange between newly-formed urban women’s business co-operatives in Lae and established co-operatives elsewhere in the country. The present project addresses the following goals voiced by research participants:

- The desire for economic activities independent of their husbands. Urban women frame the aspiration of generating their own income as one of releasing themselves from dependence on precariously employed men to support them and their children.
- The desire to form groups with other women for mutual support and to embark on larger business ventures than any of them would be able to do individually.
- The desire to engage with other women in educational, training, or other knowledge transfer capacity.

The project engagement has included meeting with 8 urban women’s groups of varying size (10-30 members each) and with public Provincial Government officers from the following departments: Commerce and Community Development, the Institute for National, and has informal sector officers for UN Women.

(2) **Pacific Connections: community film-making & gender inequality in the Pacific, PI:** Tony Crook, Social Anthropology (XFC066)

The prevalence of violence against women in the Pacific region is among the highest in the world. Countries across the region have identified the social, well-being and economic consequences of gender-based violence and women’s economic and political marginalization. Pacific Connections takes up the development challenge of understanding how development policy and practice in the area of gender inequality can be more closely aligned with Pacific vernacular understandings and processes of social change at a community level and in a context of collective rather than individual rights. With Pacific film-makers’ recent development of culturally effective participatory methods to tap into vernacular ideas and concerns, and anthropological evidence that Pacific gender differentiates relational roles not biological difference, this project capitalizes on previous research-policy work which has established an international research consortium and
network of film-makers and development practitioners working across the spectrum of gender inequality. In 2019, project activity focused on: creating an online resource and repository for film-makers; on producing short films from our existing rushes; on a regional workshop in Fiji to gather together - for the first time - film-makers from six Pacific ODA DAC-listed countries.

The project has actively engaged with:

- Fiji: Fiji Women’s Rights Movement, UK FCO British High Commission, European Union Delegation, UN Women, Pacific Women
- Papua New Guinea: Voices from the Wilderness
- Samoa: Tiapapata Art Centre
- Solomon Islands: Sparklens Freelance
- Tonga: Women and Children’s Crisis Centre
- Vanuatu: Wan Smol Bag Theatre, Further Arts

(3) Gaining cultural heritage status for Urarina textiles: a pathway to peatland livelihoods and ecological conservation in Loreto, Peru, PI: Nina Laurie, Geography & Sustainable Development (XFC079)

The Urarina live in dispersed communities along the Chambira river and its tributaries in the Amazon basin, making their livelihoods from subsistence farming, and hunting and gathering from the tropical peatlands that lie within their territories. Research conducted collaboratively by the Institute of Investigation in the Peruvian Amazon (IIAP), and the Universities of St Andrews and Leeds has established that these peatlands are a significant carbon store. Indigenous autonomy and ways of life are being rapidly eroded by commercial farming and extractive industries. Researchers are working with local communities to find ways to conserve peatlands and support livelihoods sustainably. In July 2019, research findings, profiling indigenous knowledge of peatland ecosystems and women’s use of the peatland growing aguaje palm as source of fibres for traditional weaving, fed into a successful application by the Urarina people to gain Cultural Heritage Status. This status, granted by the Peruvian Ministry of Culture, gives the Urarina formal recognition, affording their culture some protection in facilitating access to markets for their artisan goods. Research findings on Urarina peatland ecosystems and women’s textile production were included in a book authored by the team on the Urarina in Spanish for a Peruvian popular audience to raise awareness about their threatened livelihoods.

(4) Motoring from war to peace: understanding long-term re-integration trajectories of ex-combatant youth in Liberia’s motorcycle taxi unions, PI: Jaremey McMullin, International Relations (XFC040)

After the civil war in Liberia, former child soldiers and young people, who had lost educational opportunities due to war, found themselves in the commercial motorcycling sector as motorcycle taxi drivers. It is one of the few economic sectors thriving in Liberia in which young people can make money to survive, return to school, and build a better life. At the same time, it is a dangerous activity that comes with high risk and insecurity for conflict-
affected youth. Cyclists are often involved in violent roadside accidents, which lead to wider reprisal violence and killing, and cyclists are marginalized within Liberia as wayward youth and criminals, stereotypes that cyclists say unfairly overlook their contributions to peace-building and economic growth after war. International development actors also overlook these contributions and tend to see young, male cyclists only as a source of insecurity. This research establishes the several ways that cycling has contributed to post-war reintegration and peacebuilding after civil war in Liberia and holds valuable lessons for how the United Nations and development actors confront peacebuilding and development challenges in other ODA contexts. The research produced several impact-generating activities: the production of a short documentary film series, sponsorship of community-cyclist dialogue groups to reduce cyclist-community and cyclist-police tensions, and a policy report presented to the UN Department of Peace Operations.