



UK Research
and Innovation



UKRI's GCRF Collective Programme

Strengthening global partnerships for sustainable development



About UK Research and Innovation

UK Research and Innovation (UKRI) brings together nine of the UK’s leading funding councils to create knowledge with impact. We work with the UK government to invest over £8 billion a year in research and innovation by partnering with academia and industry to make the impossible, possible. Our work encompasses everything from the physical, biological and social sciences, to innovation, engineering, medicine, the environment and the cultural impact of the arts and humanities. In all of these areas, our role is to bring together the people who can innovate and change the world for the better – working in partnership with universities, research organisations, businesses, charities and governments and non-governmental organisations (NGOs) across the globe.

By working in partnership, sharing knowledge and expertise and building and growing capacity, international research and innovation has a vital role to play in finding sustainable solutions to address intractable challenges and help create a fairer, healthier, safer and more prosperous world for everyone.



SUSTAINABLE DEVELOPMENT GOALS

UKRI’s investments in research for international development support and contribute towards global efforts to achieving the United Nations Sustainable Development Goals.

1 NO POVERTY



2 ZERO HUNGER



3 GOOD HEALTH AND WELL-BEING



4 QUALITY EDUCATION



5 GENDER EQUALITY



6 CLEAN WATER AND SANITATION



7 AFFORDABLE AND CLEAN ENERGY



8 DECENT WORK AND ECONOMIC GROWTH



9 INDUSTRY, INNOVATION AND INFRASTRUCTURE



10 REDUCED INEQUALITIES



11 SUSTAINABLE CITIES AND COMMUNITIES



12 RESPONSIBLE CONSUMPTION AND PRODUCTION



13 CLIMATE ACTION



14 LIFE BELOW WATER



15 LIFE ON LAND



16 PEACE AND JUSTICE STRONG INSTITUTIONS



17 PARTNERSHIPS FOR THE GOALS




THE GLOBAL GOALS



Professor Andrew Thompson,
UKRI International Champion

UKRI’s new GCRF Collective Programme is a vital part of our commitment to bring diverse experts together in a collective response to some of the world’s greatest challenges. Working in partnership also ensures the voices of those most impacted are empowered to drive sustainable solutions for those most in need.

We are living in a globally inter-connected world where everything from climate change and conflict to water security and mass migration impact us all in some way. COVID-19 has proved the perfect example, highlighting our global connectivity and vulnerability as well as worsening inequalities. Rich or poor, North or South, everyone has been affected by this pandemic. Now more than ever the challenges we are facing need a collective response with a global reach.

The United Nations Sustainable Development Goals (SDGs) provide a framework for reducing poverty and improving global health, dignity and prosperity by 2030. But to achieve this vision there are numerous, seemingly intractable challenges such as fragile states, forced displacement, increasing extreme weather patterns and growing inequalities which add complexity to resolving the world’s problems and can even reverse development.

The UK is recognised as one of the world’s top research and innovation landscapes. Our research base thrives because we engage with the best minds, organisations and facilities from academia, policy, business, governments and grass roots organisations wherever they are in the world. This ensures we can share knowledge and build expertise which are making a big difference to peoples’ lives at a local, national and international level.

The UK government is committed to spending 0.7 per cent of Gross National Income on official development assistance (ODA). Part of this is through the Global Challenges Research Fund (GCRF) and the Newton Fund, both managed by the UK Department for Business, Energy and Industrial Strategy (BEIS). UKRI is part of a consortium of UK delivery partners for these funds.

About GCRF

GCRF is a £1.5 billion fund supporting cutting-edge research and innovation that addresses global issues such as: the sustainability of natural resources, flooding and famine resulting from climate change, resistance to antibiotics and rapid urbanisation. It supports equitable partnerships between the UK’s world-leading research base and expertise from within developing countries to enable challenge-led, interdisciplinary research, capability strengthening, innovation and knowledge exchange and provides an agile response to emergencies.



Professor Helen Fletcher, UKRI
Director of International Development

This is an interdisciplinary programme delivered by UKRI and steered by the Global Challenges Research Fund (GCRF) Challenge Leaders who are already having a significant impact on global challenges with their work on a wide range of projects and issues around the world.

The 18 funding calls that make up this UKRI GCRF Collective Programme are designed to enhance the overall impact of the six strategic GCRF Challenge portfolios by maximising opportunities for joint working across these vital areas.

Over 141 pioneering and ambitious projects have been funded through the programme, bringing together a diverse range of global organisations to develop a shared understanding of the challenges faced by humanity and build the capacity, capability and infrastructure needed to deliver long-lasting solutions.



“ This is an exciting, innovative programme to ensure our ambitious GCRF portfolios are melded together – just as global warming, natural disasters, conflict, displacement, education and poverty all are in real-life.

Professor Helen Fletcher,
UKRI Director of International Development



“ Forging equitable partnerships and bringing together interdisciplinary teams – anthropologists, urban planners, geographers, science and technology experts, architects and engineers – provides the Off-Grid GCRF Network a unique opportunity to study the connection between heat, caused by global temperature rise and heatwaves and vulnerability.

Dr Nausheen Anwar, Director, Karachi Urban Lab (KUL), Network Director, Climate Change & Urban Violence Network (CCUVN), Pakistan



“ We need to develop new approaches to inclusive city development that benefit marginalised groups with due understanding of the interactions and effects in off-grid cities through equitable partnerships (local, regional and north-south) and innovative interdisciplinary/multi-disciplinary research; a way to reach those negatively affected and often left behind.

Dr Kifle Woldearegay Woldemariam,
Mekelle University, Ethiopia



Cities and Sustainable Infrastructure

Most of humanity now live in cities and towns. Rapid changes in their size and density, in the amount of energy used and waste generated, and in the manner by which agglomerated systems of water provision, food production, transport and communications operate, are affecting the lives of more and more people every day.

While cities offer immense opportunities, inequalities and the trade-offs involved in accessing those opportunities are causing millions to be left behind. Already, close to one billion people globally live in informal urban settlements. This means some of the most marginalised or least resourced people are not appropriately connected to formal services and have to manage without, or are dependent on, inadequate and unsafe informal provision. This lack of access is not accidental but can be understood as the result of political decision-making processes that have led to widely differentiated outcomes across urban populations.

New projects across this portfolio address the technical, social, political and environmental implications of human-infrastructure interactions. They focus on the most disadvantaged populations who face a combination of latent stresses and acute shocks, who are also especially vulnerable to wider contextual challenges like climate change. These research projects aim to create practical policy and programming alternatives, engineering solutions and social innovations.

“ We cannot take access to essential services for granted. Nearly 870 million people live in informal settlements known as ‘slums’, while one billion people lack access to electricity. Such dramatic inequality in access has immense implications on human health and wellbeing and hampers our collective ability to achieve the SDGs. The challenge is not simply technological, so we must look beyond to socio-political and institutional innovations for solutions too.

Dr Jaideep Gupte, GCRF Challenge Leader for Cities and Sustainable Infrastructure

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Researchers mapping service provision in low-income urban neighbourhoods in Maharashtra, India

£16.3m

11 projects

GCRF (Re)thinking the off-grid city: Human infrastructure interactions in the context of urban crisis and urban change

£6.2m

5 projects

GCRF Sustainable Energy and International Development: Beyond Technology

Education

Education is an indispensable tool in the pursuit of sustainable development as it is the foundation to improving people’s lives. Indeed, over the past decade, the international education agenda has shifted to recognise education’s potential influence over social dynamics and the spheres of security, governance and economics.

Yet, despite marked progress in education access and quality over the past 15 years, advancement towards a global ‘education for all’ agenda remains very uneven. Marginalised populations in low-income settings remain particularly disadvantaged, with 50 per cent of the world’s 263 million out-of-school children living in areas affected by crisis¹.

Research can play a critical role in improving education access and quality and it is essential to inform evidence-based policy and to guide the design of practical solutions.

Responding to this knowledge, GCRF has sought to expand its portfolio of education research, with the Collective Programme funding a range of research into education’s crucial role in the development agenda. These projects will explore early childhood education for the most disadvantaged children; the provision of education for those living in contexts affected by conflict and crisis and education’s interdisciplinary role in driving sustainable development.

1. <https://en.unesco.org/news/unesco-half-all-out-school-children-live-conflict-affected-countries>

“ Education isn’t just a fundamental Human Right; it can also be an essential tool in the pursuit of sustainable development. Education can empower the most vulnerable and act as a catalyst for positive societal change. But education’s relationship with sustainable development is extremely complex. Education is not a neutral pursuit and can equally result in negative impacts. In this sense research is essential to ensure we harness the potential good that can be achieved for current and future generations.

Dr Kelsey Shanks, GCRF Challenge Leader for Education

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£4.8m

1 project

GCRF Education as a Driver of Sustainable Development Network Plus

£9.1m

7 projects

GCRF Education as a Driver of Sustainable Development

£9.9m

6 projects

GCRF Early Child Education

£7.7m

4 projects

GCRF Education in Conflict and Crisis



UKRI's GCRF Collective Programme consists of:

141
projects

£147 million
investment

this figure includes only funded/
authorised grants as of July 2020

16
countries

involved in the research

625
partners

involved across the projects

1,140
researchers

working across the projects
of which 408 are international

75
organisations

leading on the projects of
which 19 are international

Food Systems

In 2018, over 820 million people did not have enough food to eat, let alone access to adequate nutrition beyond simple caloric intake.

To tackle the multifaceted issues that lead to malnutrition, we need to conceptualise food in terms of systems - considering every aspect of the food chain from food production, processing, distribution and consumption, to waste disposal and use of residue. This approach also recognises that food systems interact with numerous other systems, for example health, environment, conflict and displacement, so collaboration between various government and non-governmental sectors are important for research that seeks solutions to the challenges of achieving the Sustainable Development Goals.

The Collective Programme recognises the wide range of areas that require coverage to take a truly comprehensive approach to improving global food systems, and so focuses on building more research capacity in scaling up nutrition sensitive interventions, as well as understanding histories, cultures and behaviours around food choices, to complement existing GCRF investments on research focused on food production, processing and distribution.

This new funding was inspired by the fact that while sustainable food production is an undeniably crucial aspect of achieving sustainable development, so, too, are the related areas of the provision and consumption of nutrient rich, not just calorie dense food, as well as understanding how traditions and histories around food can influence people’s choices and the way food is produced and consumed.

“Producing and distributing the most food at the lowest cost is no longer enough. Food systems need to be transformed to meet increasing global demands for nutritious food, while mitigating negative impacts on the environment. To add to the complexity of the situation, while some progress has been made towards tackling undernutrition, there is also concern about the rise in overnutrition globally and the health consequences that are associated with this. The GCRF Collective Programme has made a significant investment into research aimed at addressing these complex challenges, bringing together expertise from a broad range of disciplines to work together to find sustainable solutions.”

Dr Tahrat Shahid and Professor Nicola Lowe,
GCRF Challenge Leaders for Food Systems



Sowing zinc- biofortified wheat in Khyber Pakhtunkhwa, north west Pakistan

£2.4m

14 projects

GCRF Cultures, behaviours and histories of agriculture, food and nutrition

£8.8m

10 projects

GCRF A combined Food Systems approach to developing interventions to address the Double Burden of Malnutrition

Global Health

The right to the highest attainable standard of health has long been recognised internationally as a fundamental human right which encompasses the many underlying determinants of health, from access to safe drinking water to adequate housing, healthy environmental conditions and gender equality. Overall life expectancies have increased worldwide, but growing numbers of the world’s most vulnerable people are exposed to daily threats to their health, often due to the unanticipated consequences of global development.

In any given setting, local contexts determine whether efforts to prevent disease or improve health are successful. Global health programmes often wrongly assume that an innovation which proved effective in an experimental setting - be it a vaccine, change in behaviour, diagnostic test, or training activity - will automatically work elsewhere. In reality, local features such as agricultural practices, sanitation arrangements, house design, community structures, religious norms, gender roles, dietary practices, or water supplies promote or obstruct improvements in health.

The GCRF Collective Programme recognises that addressing these determinants requires interdisciplinary, cross-sectoral approaches that cut across the Global Challenge portfolios.

The projects awarded under the GCRF ‘Health and Context’ call use interdisciplinary approaches to determine the impact of context on the health of the community and develop interventions that take account of these influences to maximise their effectiveness.

The awards involve a variety of stakeholders, including members of the community, to examine contextual influences in diverse country settings across Africa, the Middle East, Asia and South America. Research projects include co-development of interventions to reduce the impact of zoonotic diseases among forest communities in India, slum dwellers in Brazil and camel-herding populations in Jordan, mitigating diabetes in Ghana and HIV infection risk in South Africa, tracking gastroenteritis in Pakistan and preventing childhood diarrhoea and stunting in Mali; studying factors affecting childhood exposure to urban pollution in Thailand and mitigating antimicrobial resistance in Nepal.



“The current coronavirus pandemic highlights the urgent need to prioritise international interdisciplinary partnerships that combine specialist skills and expertise with context-specific knowledge as essential for understanding and tackling contemporary global health issues, and that’s exactly what the Collective Programme is all about.”

Professor Helen Lambert,
GCRF Challenge Leader
for Global Health

£21.3m

11 projects

GCRF Health and Context

Resilience to Environmental Shocks and Change

Disaster events such as earthquakes, flooding and hurricanes, are often a product of failed development – and cause development to fail. Between 1998 and 2017 disasters affected 4.4 billion people and killed a further 1.3 million². Economic losses have totalled more than US\$ 5,200 billion since 1980³. Such losses are devastating locally and send repercussions across the world through impacts on supply chains, financial systems and forced migration.

The Collective Programme’s GCRF Multi-hazards and Systemic Risk call focuses on containing the magnification of risk and spreading of losses through cascading impacts. The greatest tolls of disaster are concentrated in low-and middle-income countries and on women, children, older people and disabled. Losses trap people in poverty and at a stroke take away development gains built by decades of hard work. But disasters also provide key moments for the questioning and realignment of established development practices and pathways.

The projects focus on tackling the root causes of risk and bringing policy, practice and research partners together to reduce risk through changing development priorities and actions.

£11.2m

3 projects

Multi-hazards and Systemic Risks

£12m

14 projects

Equitable Resilience: Ensuring Resilience enhances the Sustainable Development Goals

“ Through interdisciplinary and co-produced research, risk management has become a key responsibility of development practice. Disaster risk and loss, mainly born by the marginalised, can no longer be seen as a natural or neutral externality of development.

Professor Mark Pelling,
GCRF Challenge Leader for Resilience

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Earthquake risk in Kathmandu: research supporting socially inclusive and physically resilient reconstruction

2. <https://www.preventionweb.net/publications/view/61119>
3. <https://www.munichre.com/en/risks/natural-disasters-losses-are-trending-upwards.html>

Security, Protracted Conflict, Refugees and Forced Displacement

Millions of people are forced from their homes every year due to conflict, disease, poverty, natural disasters and hunger making these individuals, families and communities vulnerable to exploitation, violence and further hardship. There is a need to develop more robust, effective and comprehensive approaches to protection and assistance in order to better support vulnerable people on the move.

The global research community has a key role to play in working with policy makers, NGOs and communities to address the root causes of people feeling forced to leave their homes. Over 68.5 million people are displaced⁴ across the world, making it a major international development issue, and this Collective Programme aims to tackle that through several innovative grant clusters within the Security, Protracted Conflict, Refugees and Forced Displacement portfolio. Four large projects focus on preventing conflict and building sustainable, inclusive peace; these develop a deeper and more nuanced understanding of conflict and prevention of violence.

While a cluster of grants, developed with the British Academy, focus on heritage, dignity and violence to advance our understanding of the relevance and importance of the historical context of development, culture and heritage to addressing sustainable peace and the prevention of violence.



Running a print workshop on the Pakistan side of the India/Pakistan border

“ Conflict, insecurity, injustice and weak governance are likely to become even stronger drivers of poverty over the coming years. The presence of deeply embedded interdisciplinarity within these projects will enable honest and inclusive approaches into peace building, with outcomes and impacts that are of immediate value to local partners and also scalable in their application.

Professor Laura Hammond and
Dr Neelam Raina, GCRF
Challenge Leaders for Security,
Protracted Conflict, Refugees
and Forced Displacement

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£13.1m

6 projects

Development-based approaches to Protracted Displacement

£7.9m

4 projects

Preventing Conflict, Building Sustainable and Inclusive Peace

£5.9m

3 projects

Protection in Contexts of Conflict and Displacement

4. <https://www.unhcr.org/uk/news/stories/2018/6/5b222c494/forced-displacement-record-685-million.html>

Cross Portfolio Calls

To ensure maximum cohesion, multidisciplinary and innovation, four calls within the GCRF Collective Programme cut across all six of the GCRF portfolios.

Climate Change

Three decades of science on climate change have mapped out the profound, global challenge in front of us. Research has begun to identify technical mechanisms for low and no-carbon energy and for reducing the carbon embedded in development activities from agriculture to urbanisation. Science has also offered starting points for reform of development finance, risk management, the provision of critical infrastructure and business models to better anticipate and cope with the impacts of climate. But many difficult challenges remain, some are technical, many cultural and social - almost all combine these areas of challenge.

The GCRF-FCDO Climate Resilient Networks programme is focused on bringing new science and policy/practice coalitions together to better diagnose problems and define solutions; too often science is on the outside of critical development decision-making. Addressing the urgency of climate change requires research on fundamental questions of physical, biological and material sciences as much as fundamental questions on power, equity and voice. Only through joined up thinking and research can science play its role in helping humanity imagine and action transformations today for a sustainable tomorrow.

Clusters

The GCRF Challenge Clusters are research community driven projects that identify new Challenges that can be addressed through clustering of current or previously funded GCRF projects whilst also leveraging external expertise to accelerate impact, share knowledge and build capability and capacity beyond GCRF.

Bringing together clusters of GCRF and other official development assistance (ODA) oriented research projects alongside other relevant stakeholders such as NGOs, CSO, government or industry the projects – which range from optimising antibiotic use in East Africa to using the arts to improve human security in areas affected by conflict – could achieve much greater impact. The GCRF Challenge Clusters are a two-stage investment – providing seed funding for 21 initial projects over 12 months followed by second stage funding for up to 8 projects over the subsequent three years.



Participation in Research with Communities – Banda, an unplanned settlement in Kampala, Uganda

£2.7m

21 projects
GCRF Challenge Clusters

Gender and Intersectionality

Gender and intersectionality cut across all of UKRI's GCRF portfolios. For example, gender roles and the way that they interact with other identities such as ethnicity, sexuality, age, marital status, and disability influence the different ways in which people experience the effects of climate change, poor health, nutrition and conflict, and where relevant the impact of these different identities should be acknowledged and incorporated in research across all of these areas and more.

To help further acknowledge this under-recognised need to create solutions for the different contexts in which people experience development challenges, GCRF has funded a Network Plus project to connect researchers who work on ensuring that gender and intersectionality is incorporated more fully into achieving the Sustainable Development Goals.

£4.8m

1 project

GCRF Gender and Intersectionality Network Plus

“ One of the things that we’re beginning to be more and more aware of, within and beyond the world of academic and policy research on global development, is that identities like gender and race can have a deep, deep impact on people’s every-day lives everywhere in the world. It’s absolutely crucial to take these different types of identities into account in studying and trying to resolve the challenges that people face, sometimes precisely because of or intensified by those identities, if we’re going to ensure that lives improve for the better everywhere. ”

Dr Tahrat Shahid, GCRF Challenge Leader for Food Systems



Global Networks

Twenty Global Engagement Networks are bringing together experts from across developing countries to tackle global challenges. They are developing practical solutions to address issues such as the prevalence of single-use plastic in Kenya, hurricane recovery in the Caribbean and water management across Africa. Each network is focusing on problems and solutions identified within the countries themselves and bring together a diverse range of organisations and skillsets.

These new Networks have equitability at their heart and are led by researchers from across Africa, Asia, South America and Europe, working in collaboration with researchers from the UK. Together these networks will share ideas and expertise to identify practical, sustainable and scalable solutions that will improve the lives of many disadvantaged communities worldwide.

£3m

20 projects

GCRF Global Engagement Networks

“ By looking at plastics as part of the circular economy, this GCRF network offers an exciting and important chance to join academics, industry and community groups to improve social structures for our citizens. If plastic waste can be incorporated into a circular economy, then it is no longer waste but part of a sustainable solution that can provide employment. ”

Professor Nicholas Ogue – GCRF Plastics Pollution Governance Framework Network, Kenya





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