

UK Research and Innovation

An overview

What is UK Research and Innovation?

UK Research and Innovation, launched in April 2018, is the new funding organisation for research and innovation in the UK.

It brings together the seven UK research councils, Innovate UK and a new organisation, Research England, working closely with its partner organisations in the devolved administrations.





The Numbers

- More than £6.5 billion in combined budget per year
- 3,900 research and business grants issued every year
- 2,400 business-led collaborative projects and over 200 Knowledge Transfer Partnerships
- 151 universities receiving research funding
- 38 institutes, laboratories, units, campuses and innovation catapults





A world leading and <u>internationally networked</u> research and innovation system

World class system

Expertise spans all fields of knowledge

2nd most popular destination for overseas students

An increasingly international work force

At the heart of international networks

Funding spent effectively





The UK continues to perform well and is internationally collaborative



... With resulting research often leading to higher field weighted citation impact





How UK government is responding to a changing world



Increase in ODA research allocation



- Whole government approach to international development effort
- Leveraging wider expertise through UK's world-leading science, research and development base to tackle global challenges

6 CLEAN WATER AND SANITATION

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12 RESPONSIBLE CONSUMPTION

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THE GLOBAL GOALS

5 GENDER EQUALITY

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11 SUSTAINABLE CITI AND COMMUNITIE

17 PARTNERSHIPS FOR THE GOALS

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4 QUALITY EDUCATION

10 REDUCED INEQUALITIES

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16 PEACE AND JUSTICE

3 HEALTH

8 GOOD JOBS AND ECONOMIC GROWT

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14 WATER

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9 INNOVATION AND INFRASTRUCTURE

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13 CLIMATE

HM Treasury	Department for International Development
UK aid:	
tackling global ch national interest	allenges in the

UK International Development Research Funds

DFID Research £1.5 billion (2016-2021)

Department for International Development

To support high quality research, evidence, evaluations, innovation, science and technology to end extreme poverty

Global Challenges Research Fund (GCRF) £1.5 billion (2016-2021)

To support cutting-edge research and innovation that addresses the challenges faced by developing countries

Newton Fund £735 million (2014-2021)



Department for Business, Energy & Industrial Strategy

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To support the use of science and innovation partnerships to promote economic development and social welfare of partner countries, through matched resources

NIHR Global Health Research £430 million (2016-2021)

To improve global public health outcomes through applied global health research

Darwin Initiative* £153 million (since 1992)

To protect biodiversity and the natural environment through locally based projects worldwide. *not all research





GCR

Department for Business, Energy

NHS

National Institute for Health Research

Department of Health &

Social Care

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Newton Fund: £735M UK investment from 2014-2021 with 18 partner countries providing matched resources within the Fund

Aims to develop science and innovation partnerships that promote the economic development and social welfare of partner countries



Key principles of the Newton Fund

Our overall objective for our Newton Fund activities is Equitable Partnerships.

- □Country to country
- □Funder to funder
- **D**Researcher to researcher



✓ Matching our strengths with the strengths of our partners



✓ Addressing the development needs of our partner country

Newton Fund in South East Asia





Global Challenges Research Fund (GCRF)

SUSTAINABLE G ALS



2015 Government Spending Review Outcome

Cutting edge research which addresses the problems faced by developing countries



- Address global challenges through disciplinary and interdisciplinary research
- Strengthening capability for research and innovation, within developing countries and the UK
- Agile response to emergencies and opportunities

GCRF: Key Criteria





✓ Research Excellence

new approaches not constrained by traditional methodologies or disciplinary silos

✓ Official Development Assistance (ODA) compliance
OECD guidelines

Equitable Partnerships and Building Capacity strong and enduring partnerships between UK and developing-country researchers to enhance the research and innovation capacity of both

✓ Impact: Problem and Solution Focused

substantial impact on improved social welfare, economic development, and environmental sustainability

GCRF: Equitable Partnerships

- ✓ Identify research gaps and needs together
- ✓ Co-create research questions and research outcomes
- ✓ Value complementary skills and knowledge
- ✓ Fair recognition and sharing of benefits
- ✓ Build research capacity to address global challenges - UK and developing countries





UKRI International Development Peer Review College Deadline for new members: 20 December 2019







and Innovation





https://www.ukri.org/research/global-challenges-research-fund/ukri-international-development-peer-review-college/

High tech drugs for Thailand

A team of UK and Thai researchers are helping Thailand produce live-saving biopharmaceuticals on a large scale. As well as medicines for the treatment of human diseases such as cancer, the team is also working to produce a suite veterinary vaccines against major porcine diseases

- Biopharmaceuticals are usually produced in bacterial or animal cells, which makes them difficult to produce and too expensive for the vast majority of patients in developing countries.
- Thai groups are in a position to make the first steps towards self-sufficiency with the support of UK expertise in protein production, protein purification and protein analytics to ensure that biopharmaceuticals and animal vaccines produced will be fit for regulatory approval.
- Progress in the first 18-months of the project has been very rapid.A candidate vaccine against a major porcine virus has been produced and is ready for efficacy testing.
- In addition, two biopharmaceuticals for the treatment of cancer have been produced at lab scale and are now being scaled up in Thailand.

May 2019





"Thanks to GCRF, we will be able to bring science to the people who need it the most."

Dr Panit Kitsubun, BIOTEC, Thailand

PROJECT INFORMATION

COUNTRY/COUNTRIES: UK, Thailand, Vietnam, Malaysia, SE Asia region

TITLE: GCRF establishment of biopharmaceutical and animal vaccine production capacity in Thailand and neighboring South East Asia countries

GRANT NO: BB/P02789X/I

UK LEAD: Professor Colin Robinson, Professor Mark Smales, University of Kent

FUNDER: Biotechnology and Biological Sciences Research Council (BBSRC

PARTNERSAND FUNDERS INCLUDE:

Engineering and Physical Sciences Research Council, University of Kent, National Biopharmaceutical Facility, King Mongkut's University of Technology Thonburi, National Center for Genetic Engineering and Biotechnology (BIOTEC), University College London, Imperial College London, London School of Hygiene and Tropical Medicine



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Rice research influences international policies on arsenic levels

Arsenic is highly toxic, and continuous exposure to relatively low levels in the diet can result in serious illness and death. Arsenic occurs naturally in a number of forms, as identified by the World Health Organisation's International Agency for Research on Cancer.

- Research highlighted that rice contains about ten times more inorganic arsenic than other crops, and that rice from some regions, such as Bangladesh, India, China and the USA, often contains even higher levels of inorganic arsenic as it is grown on contaminated land.
- As a result of the findings the WHO withdrew its standard for inorganic arsenic Provisional Tolerable Daily Intake, considering it too high. This led international policy-makers to review guidelines for inorganic arsenic levels in food.
- The genetic markers identified by the research are being used by rice breeders to produce varieties with low levels of inorganic arsenic in the rice grain and which can be grown in contaminated soils.





"We found there was a large genetic basis to inorganic arsenic in rice grain, which is what we were interested in."

Professor Andrew Meharg, University of Aberdeen

PROJECT INFORMATION

COUNTRIES: South East Asia - Bangladesh, India and China TITLE: Characterizing genetic & soil induced variation in arsenic uptake translocation & metabolism in rice to mitigate arsenic contamination in Asia GRANT NO: BB/F004184/1 UK LEAD: Professor Andrew Meharg, University of Aberdeen PARTNERSAND FUNDERS INCLUDE: University of Aberdeen Rothamsted Research.UK University of Calcutta Bangladesh Agricultural University Chinese Academy of Sciences International Rice Research Institute, Philippines **Biotechnology and Biological Sciences Research Council** Natural Environment Research Council Department for International Development



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Transport for social mobility

Walking can constitute up to 75% of all journeys in Low Income Countries yet urban planning focuses on car-centric travel environments which tends to magnify inequalities, increase the number of traffic deaths and lead to congestion and poor air quality.

- The International Network for Transport and Accessibility in Low Income Countries is now paving the way for cities to meet the mobility needs of their most vulnerable citizens.
- For the majority of people in Global South cities, walking is the only available and affordable mode to access work, markets, healthcare and education. However, walking is still largely ignored by governments across the world.
- This collaborative approach is informing transport projects in Nairobi, Cape Town, Dhaka, Concepción, Kampala and Manila, and INTALInC has already directly engaged with NGOs to promote women's access and entitlement to cities, as women are disproportionately affected by poor travel provision.



PROJECT INFORMATION

COUNTRIES: Bangladesh, Ghana, Kenya, Nigeria,

Philippines, South Africa, Uganda

TITLE: Transport and Mobilities: Meeting the Needs of Vulnerable Populations in Developing Cities GRANT NO: ES/P006221/1 UK LEAD: Professor Karen Lucas, University of Leeds FUNDERS: Walk 21, SloCAT, UN Environment, UN Habitat, VREF and FIAF





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Living Deltas Hub

River deltas comprise just one per cent of global landscapes yet support over half a billion people. Deltas are vital social-ecological systems and global food-baskets, but the terrain and the livelihoods of those who rely on them are under threat from human exploitation, environmental degradation and climate change. Focusing on three deltas in Asia, this Hub will operate on a model of equitable partnership with the delta-dwellers and the research community working together to develop new knowledge and policies. The aim is to safeguard delta futures through more resilient communities and sustainable development.

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It is very exciting that this Hub will be active in the Red River Delta - the cradle of the wet rice civilization of Vietnam. The Hub's unique natural-cultural heritage emphasis provides an excellent opportunity for communities, researchers and policymakers to work together towards sustainable development in Vietnam, by co-creating livelihood solutions based on the tangible and intangible cultural values of our delta landscape."

Dr Nga Dao, Department of Social Science, York University, Canada

KEY FACTS

£15.3M

13 partner countries

39 partner organisations

Lead organisation: Newcastle University

Principal Investigator: Dr Andrew Large





One Ocean Hub

We are entirely reliant upon the ocean but over-exploitation, competing uses, pollution and climate change are pushing ocean ecosystems towards a tipping point. This Hub will bridge current disconnects across law, science and policy to empower local communities, women and youth to co-develop research and solutions. The aim is to predict, harness and share equitably environmental, socioeconomic and cultural benefits from ocean conservation and sustainable use. The Hub will also identify hidden trade-offs between more easily monetized fishing or mining activities and less-understood values of the ocean's deep cultural role, function in the carbon cycle, and potential in medical innovation.

"

We are delighted to work collaboratively across disciplines with other committed organisations towards achieving the Sustainable Development Goals. This Hub will provide support in complex issues at national and regional level within a respectful partnership and will help secure the health and wellbeing of the ocean and vulnerable communities for generations to come. "

Dr Ann Cheryl, Vice Dean Learning and Teaching, University of the South Pacific

KEY FACTS

£18.2M

11 partner countries

56 partner organisations

Lead organisation: University of Strathclyde

Principal Investigator: Professor Elisa Morgera





Thank you





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