

## Global Challenges Initiative – Newsletter (December 2017)

***GCI is the University of Cambridge Strategic Research Initiative (SRI) for the United Nations' Sustainable Development Goals (SDGs)***

### **Upcoming GCI Opportunities**

[Co-creation for Global Challenges](#) The following events are part of the focus of Global Challenges Initiative in facilitating the dialogue and co-creation between Cambridge researchers and end-users in the developing world:

- [Workshop on User-Centred Design in Developing World Contexts – 10th January \(application deadline: 15th December\)](#). This workshop will introduce the principles of user-centred design and explore the specific challenges and opportunities that commonly arise when using this approach to co-create innovative responses to global challenges. The workshop is open to post-graduates and early career researchers, from different research backgrounds, interested in user-centred design for the benefit of the bottom half of the world's population. *To apply please send a CV (max. 2 pages) and a letter of motivation outlining your interest and how you hope to apply learnings from the workshop to Sophie Mower ([sophie.mower@centreforglobalequality.org](mailto:sophie.mower@centreforglobalequality.org)).*
- [Masterclass in Design Methods for Global Challenges – 11th January](#). This Masterclass will explore the similarities and differences between particular disciplinary approaches to co-creation with end-users in developing world contexts. One-to-one discussions between expert practitioners from different disciplinary and practitioner communities – namely participatory development research, public health-oriented co-creation methodologies, agile software development and human-computer interaction design – and established Cambridge researchers in fields within the EPSRC remit will be organized. To register for the event, please complete the [online form](#).

### **News**

Selection of news published in November:

- [Cambridge launches new biomedical collaboration across borders and disciplinary boundaries](#). A new collaboration between the University of Cambridge, Papworth Hospital NHS Foundation Trust and Sunway Medical Centre in Malaysia will see researchers and clinicians from the two countries working together across borders and disciplinary divides to tackle some of the world's major health challenges.
- [Cambridge expert jointly leads international push to reduce global burden of traumatic brain injury](#). Substantial reductions in the global burden of traumatic brain injury (TBI) could be achieved with improved policies for prevention, new directions for clinical care, and novel approaches to research according to The Lancet Neurology Commission on TBI, co-led by Professor David Menon from the Division of Anaesthesia.
- [South Pole's hot underbelly revealed: map shows how heat from deep within Earth creates 'hot spots' that speed up melting of the Antarctic ice sheet](#). A study led by British Antarctic Survey (BAS), mapped the amount of heat being released beneath the continent, using data primarily collected from magnetic measurements by aircraft. The resulting heat map is 30 to 50 per cent more accurate than previous studies. 'Hot spots' could add to drastic alterations already underway to the ice sheet.

- [Simple water test could prevent crippling bone disease.](#) A simple colour-changing test to detect fluoride in drinking water, devised by researchers at the University of Bath, could in the future prevent the crippling bone disease, skeletal fluorosis, in developing countries such as India and Tanzania.
- [Cambridge research associate among winners at the AHRC Research in Film Awards 2017.](#) Beth Singler (Faraday Institute for Science and Religion) won the 2017 AHRC Best Research Film of the Year for her short "Pain in the Machine", a film examining the potential impact on robots and AI that would come with their feeling pain. Hers is one of five films to have been awarded prizes in 2017.
- [Modelling ways to control Maize Lethal Necrosis \(MLN\) in Sub-Saharan Africa.](#) Researchers, including Cambridge lecturer Dr Nik Cuniffe, have used mathematical modelling to develop techniques to combat two co-infecting viruses causing maize lethal necrosis (MLN) in Kenya. Dr Cuniffe says that the study's objective was to test whether mathematical modelling could be used to make practical recommendations for disease control.
- [Tackling antibiotic resistance: researchers slash survey costs with satellites.](#) Researchers at the Centre for Tropical Medicine and Global Health (University of Oxford) are gathering data on the use of antibiotics in remote villages in rural Thailand and Laos using satellite images that are freely available online.
- [NIH study identifies new targets for anti-malaria drugs.](#) The deadliest malaria parasite needs two proteins to infect red blood cells and exit the cells after it multiplies, a finding that may provide researchers with potential new targets for drug development, according to researchers funded by the National Institutes of Health. The study appears in a recent issue of Science.
- [Study identifies likely scenarios for global spread of devastating crop disease.](#) New research conducted by a team of scientists of the University of Cambridge, the UK Met Office and CIMMYT reveals for the first time the most likely months and routes for the spread of new strains of airborne 'wheat stem rust' that may endanger global food security by ravaging wheat production across Africa, the Middle East, Asia and the wider world.
- [Cambridge report highlights opportunities and risks associated with synthetic biology and bioengineering.](#) Human genome editing, 3D-printed replacement organs and artificial photosynthesis – the field of bioengineering offers great promise for tackling the major challenges that face our society. But as a new article from the Centre for the Study of Existential Risk highlights, these developments provide both opportunities and risks in the short and long term.
- [Miniature robots could cut pesticide use on farms in future.](#) Robots could also reduce food waste and help harvest crops, but they may not be commercially available for some years to come, say experts.
- [Test tells Zika and Dengue infections apart.](#) A fast and cost-effective test developed by an international team of researchers could make it easier to diagnose the Zika and dengue viruses. The test uses a strip of chromatography paper similar to that used in rapid pregnancy tests. The strip is immersed in a solution containing a small amount of blood from the infected person, and results are ready in 15 minutes.
- [EbolaCheck: Breakthrough in Diagnosis.](#) EbolaCheck, funded by the Elrha R2HC programme, is mobile, requires just a drop of blood to carry out the test (700 times less than previously needed), and only takes 70 minutes to complete. This means the test is safer to carry out and doesn't require specialist staff – significantly reducing the cost of diagnosis.
- [Rebuild by Design: Insights for building forward with resilience.](#) In October 2012, Hurricane Sandy made landfall on the New Jersey coastline and swept into the New York City Metropolitan Region as a tropical storm. Instead of building back to the status quo, which had been the standard operating procedure in the United States, Rebuild by Design was an experiment in building "forward" to what communities will need for the future.

- [Challenge to cities to shape the future of drones](#). Government agency Innovate UK has teamed up with London technology charity Nesta to explore five suggestions at how drones could operate in urban environments.
- [Call for Nominations: Steering Committee members for Knowledge-Action Network on Water-Energy-Food Nexus \(deadline: 20th January 2018\)](#). Future Earth is seeking nominations for members to join the Steering Committee of this research collaboration. Terms will begin in February 2018, and the deadline for nominations is 20 January 2018.
- [Global Sustainable Development Report 2019: Call for Inputs \(deadline: 1st December 2017\)](#). The independent group of scientists who are preparing the 2019 edition of the GSDR has requested inputs from scientific and non-scientific communities on four categories of research.
- [Climate goal in peril as science points to 3 degree warming](#). As developing countries push the implementation of the 2015 Paris Agreement, scientists and leaders at the UN-led climate talks underway in Germany say the world will fail to meet the key goal of limiting global average temperature rise to well under two degrees Celsius above pre-industrial levels.
- [5 recommendations for a research partnership that works for all involved](#). Academics are under pressure to show “impact” in their research, while NGOs are under pressure to rigorously evidence their work. These two pressures have led to partnerships between the two groups becoming increasingly popular in the last few years. Exploring these partnerships, a group of INGO and university staff have produced Rethinking Research Partnerships discussion guide and toolkit.
- [Should we discipline interdisciplinarity?](#) A recent study published in Nature looked at how we could overcome the challenges of embedding interdisciplinarity in the academic mainstream if relevant expertise were defined and recognised as a new discipline.
- [Universities must work flexibly for arts and humanities research](#). A new report recommends that universities respect the expertise of partners in creative and cultural sectors, if they want collaborative arts and humanities research to have greater value.
- [The 2017 Global Nutrition Report - Nourishing the SDGs](#). Reflections by Laurence Haddad, Executive Director of the Global Alliance for Improved Nutrition (GAIN).
- [UN report on challenges to African data communities tackling the SDGs and Africa's Agenda 2063](#). Limited capacity, investment and collaboration are among the challenges facing data communities working towards the Sustainable Development Goals (SDGs) and Africa's Agenda 2063, according to the inaugural Africa Data Revolution Report (ADRR).
- [COP23: Concrete commitments to action on climate issues](#). The common message from all sides at the COP23 conference was that action to get on track towards the objectives of the Paris Climate Change Agreement - and to ultimately achieve the 2030 Agenda Sustainable Development Goals - is urgent, and drastic action is needed to drive climate action further and faster ahead. Below is a summary of the key commitments from this year's conference.
- [Climate finance failing on forest protection](#). Climate Focus report shows climate finance, while efficient in sectors such as renewable energy, is not effective in protecting increasingly threatened forests or the rights of their inhabitants.
- [Realizing Agenda 2030: Not just more, but better financing needed to succeed](#). How do the global goals crowd in international financing and inform domestic priorities? A new AidData report assesses the historical baseline for funding to the SDGs
- [Research with children and young people](#). A guide drawing on a recent synthesis of research outputs focusing on children and young people from the ESRC-DFID Joint Fund for Poverty Alleviation highlights research that directly engaged young people, through peer research and participatory practice for example, or looked at the factors that enable (or indeed inhibit) their ability to influence what happens in their lives.
- [Climate change, migration and displacement: the need for a risk-informed and coherent approach](#). A report published by Shaping Policy for Development presents an overview of the current evidence base on the complex relationships between climate change and human mobility.

- [Global Challenges Initiative celebrates its launch as a Strategic Research Initiative of the University of Cambridge](#). Key contributors of the Global Challenges Initiative (GCI) celebrated the launch of the Strategic Research Initiative (SRI) on the 6th November.
- [Antibiotic Awareness Week: Research council scientists collaborate in fight against AMR](#). 13 - 19 November marked the World Health Organization's (WHO) Antibiotic Awareness Week. Since its inception in November 2015, the global health authority uses the annual campaign to remind health officials and the public around the world about the looming threat of antimicrobial resistance – or AMR.
- [New centre for sustainable aquaculture aims to unlock solutions to global food security](#). The Collaborative Centre for Sustainable Aquaculture Futures was launched in late October by Environment Secretary Michael Gove, with the ambition of bringing together world-leading scientists to ensure the key challenges facing sustainable growth of the aquaculture industry are better understood, both at home and internationally.
- [Crunch time for food security](#). Feelings often run high where insects are concerned, with many people even squeamish to look at them, let alone touch or swallow them. And yet insects present a huge nutritional opportunity as an increasing global population seeks sustainable sources of food and feed.
- [IIED: The future of humanitarian crises is urban](#). Humanitarian crises, manifest through displacement and disasters, are increasingly striking urban settings. And with more than 50 per cent of the world's population now living in urban areas, there are many lives at stake. The IIED has published an extensive, engaging article presenting their synthesised research results.
- [Carbon capture: universities and industry work together to tackle emissions](#). An international collaboration between universities and industry will further develop carbon capture and storage technology – one of the best hopes for drastically reducing carbon emissions – so that it can be deployed in a wider range of sites around the world.
- [New Secretary of State for International Development](#). Prime Minister Theresa May has appointed the Rt Hon. Penny Mordaunt as International Development Secretary.
- [The Royal Society and The Wellcome Trust seek views on research collaboration post-Brexit](#). Both the UK and EU have been positive and ambitious about working together on research and innovation after Brexit. Together with the Wellcome Trust, the Royal Society has launched the Future Partnership Project, asking individuals and organisations from across the UK and EU for their recommendations about how future research and innovation partnerships should work in practice.
- [RCUK publishes early reflections on FP9](#). Horizon 2020 is the biggest EU Research and Innovation programme ever with nearly €80 billion of funding available over between 2014 and 2020. We have reached the midterm of Horizon 2020, it may still be several years until its successor starts but the work on shaping ninth research framework programme “FP9” has started in Brussels.
- [International Development Committee is launching an inquiry into the definition and administration of ODA, and is accepting written submissions](#). The International Development Committee is conducting an inquiry on the definition and administration of UK Official Development Assistance (ODA).
- [Statistics on international development: how is aid being spent?](#) The UK government has published its annual statistics on international development spending, showing that the UK provided £13.381bn of official development assistance (ODA) in 2016. The ratio of ODA to Gross National Income (GNI) for 2016 was 0.7%, meaning the International Development Act's target has been met.
- [COP23 kicked off with strong calls to hold to Paris Agreement path](#). This year's UN Climate Change Conference kicked off in Bonn on 6th November with strong, unified calls to hold to the path of the Paris Climate Change Agreement. The opening of the conference takes place against this year's background of destructive hurricanes, fires, floods, droughts, melting ice and impacts on agriculture which threaten food security.
- [World Science Day for Peace and Development celebrated on 10th November, with this year's theme of Science for Global Understanding](#). Celebrated every 10 November, World Science

Day for Peace and Development highlights the significant role of science in society and the need to engage the wider public in debates on emerging scientific issues. It also underlines the importance and relevance of science in our daily lives.

Please visit GCI's [news page](#) for more news.

## **Funding**

Global challenges - related funding calls closing in December:

<b>Deadline</b>	<b>Call</b>	<b>Description</b>
7 <sup>th</sup> December 2017	<a href="#">AHRC Cultural Heritage and Rapid Urbanisation in India</a>	The Arts and Humanities Research Council (AHRC) and the Indian Council for Historical Research (ICHR) have announced a joint call for research proposals addressing the theme of 'Cultural Heritage and Rapid Urbanisation in India'.
7 <sup>th</sup> December 2017	<a href="#">EPSRC: Materials for low-carbon hydrogen production</a>	The Engineering and Physical Sciences Resource Council (EPSRC) Centre of Advanced Materials for Integrated Energy Systems, CAM-IES, and the Hydrogen and Fuel Cell Research Hub, H2FC SUPERGEN, are seeking proposals from academic staff at UK universities, and associated research institutions (eligible to receive EPSRC funding), in the area of materials for hydrogen production.
12 <sup>th</sup> December 2017	<a href="#">Newton Fund WCSSP SE Asia - Tropical Error Covariances for Data Assimilation</a>	The Weather and Climate Science for Service Partnership Southeast Asia (WCSSP SE Asia) is seeking submission on the investigation of the dynamic, flow-dependent relationships implicit within convective-scale tropical error structures and their interactions with larger scales (e.g. Tropical Cyclones, Cold surges, etc).
14 <sup>th</sup> December 2017	<a href="#">APEX Interdisciplinary Research Awards</a>	The British Academy, Royal Academy of Engineering, and the Royal Society (the Academies) have partnered with the Leverhulme Trust to present the Academies Partnership in Supporting Excellence in Cross-disciplinary research award (APEX). This is intended to support innovative, strongly interdisciplinary research from established independent researchers.
19 <sup>th</sup> December 2017	<a href="#">Royal Society Research Grants</a>	This scheme provides 'seed corn' funding for new projects of timeliness and promise. The objective of the scheme is to increase the availability of specialised equipment and essential consumable materials, and to support essential field research.

20 <sup>th</sup> December 2017	<a href="#">British Academy / Newton Mobility Grants</a>	The British Academy is seeking applications for its Newton Mobility Grants to provide support for international researchers based in a country covered by the Newton Fund to establish and develop collaboration with UK researchers around a specific jointly defined research project.
20 <sup>th</sup> December 2017	<a href="#">British Academy / Newton Advanced Fellowships</a>	Newton Advanced Fellowships provide early to mid-career international researchers who already have a track record with an opportunity to develop their research strengths and capabilities, and those of their group or network, through training, collaboration and visits with a partner in the UK.

The [funding page](#) of the GCI is updated regularly with these and other funding opportunities – pre-call announcements, open calls, responsive calls and awards –related to global challenges.

## **Events**

Selection of global challenges - related events in December:

- [Tracing the Relationship between Inequality, Crime and Punishment: Space, Time and Politics](#) – **7th December 2017, 09:30-17:00, British Academy, 10-11 Carlton House Terrace, London.** Building on recent comparative and historical research on the institutional, cultural and political-economic factors shaping crime and punishment, this conference aims to advance understanding of whether, and if so how and why, social and economic inequality influences levels and types of crime and punishment, and conversely the impact of different levels and types of crime and punishment on various forms of inequality.
- [On Babies and Bathwater: Decolonising International Development Studies](#) – **7th December 2017, 17:00-18:30, IDS Convening Space, University of Sussex Library, Library Road, Brighton.** Given the decades-old decolonial and post-development critiques of the international development project, slating it as ultimately a deeply colonial enterprise. As a field of research, and also very much as a highly popular pedagogical project, how is it that International Development Studies is still a thing? The Institute of Development Studies hosts an evening talk on this challenging topic.
- [Plan Z: Science for the end of the world](#) – **7th December 2017, 19:00-21:30, The Royal Institution, 21 Albemarle Street, London.** What role does science have to play in our ultimate contingency plans?
- [Book launch: Heat, greed and human need: climate change, capitalism and sustainable wellbeing by Professor Ian Gough](#) – **8th December, 18:30-20:00, Shaw Library, London School of Economics, London.** This book builds an essential bridge between climate change and social policy. Combining ethics and human need theory with political economy and climate science, it offers a long-term, interdisciplinary analysis of the prospects for sustainable development and social justice. Beyond ‘green growth’ (which assumes an unprecedented rise in the emissions efficiency of production) it envisages two further policy stages vital for rich countries: a progressive ‘recomposition’ of consumption, and a post-growth ceiling on demand.
- [Conference and Book Launch: Ground Down by Growth: Tribe, Caste, Class and Inequality in 21st Century](#) – **9th December 2017, 10:00-19:30, SOAS University of London, Djam Lecture Theatre, Main Building, London.** A one day public conference and book launch featuring



some of India's leading public intellectuals and civil rights activists commenting on the inequalities faced by Dalits and Adivasis and their resistance.

- [Technology for Development Graduate Sandpit](#) – **application deadline: 11th December 2017, event: 15th January 2018, 09:00-17:00, Maxwell Centre.** The Sandpit aims to bring together Graduate and Early Career Researchers in Cambridge to form small inter-disciplinary teams to generate and develop new technology-based ideas that could provide effective and affordable solutions to challenges faced in the developing world.
- [MRC Cancer Research and Global Health Workshop](#) – **application deadline: 12th December 2017, event: 22nd January 2018, 09:00-17:00, BEIS Conference Centre, 1 Victoria Street, London.**
- [Royal Society of Chemistry – Annual air quality conference](#) – **13th-14th December 2017.** 2017 has seen issues relating to poor air quality which continues to remain high on the public and political agendas. While there is general consensus on the benefits of reducing ambient concentrations of nitrogen dioxide, ozone and particulate matter, there are many open questions about the priorities for maximum health benefits, the changing sources of these pollutants, and the best ways to reduce exposure to the public. All these questions need to be addressed using reliable evidence.
- [Biomedical Early Career Research Christmas Networking Event](#) – **13th December 2017, 17:00-19:00, Downing College, Howard Drawing Room, University of Cambridge.** Join the University of Cambridge's Infectious Disease Interdisciplinary Research Centre our Christmas networking event and meet researchers interested in infectious disease/immunology and global health from across all six Schools of the University of Cambridge and affiliated institutes. All PhD students and postdoctoral research network members are welcome.
- [RCUK GCRF Open Talk – University of Cambridge](#) – **15th December 2017, 14:00-15:00, Lecture Room 9, Mill Lane Lecture Rooms, University of Cambridge.** Professor Andrew Thompson, AHRC Chief Executive and RCUK Chief Executive Champion for GCRF (Global Challenges Research Fund) will visit the University of Cambridge on 15th December 2017.
- [Workshop on User-Centred Design in Developing World Contexts](#) – **application deadline: 15th December 2017, event: 10th January 2018, 09:00-17:00, Maxwell Centre.** This workshop will introduce the principles of user-centred design and explore the specific challenges and opportunities that commonly arise when using this approach to co-create innovative responses to global challenges.
- [Balancing the climate equation: How to remove carbon from the atmosphere](#) – **16th December 2017, 19:00-20:30, The Royal Institution of Great Britain, 21 Albemarle Street, London.** There's a lot of focus on limiting the amount of greenhouse gas that we add to the air, but could we look at the other side of the equation and start to subtract? Join leading UK climate scientists at this Royal Institution event, as they discuss how forests, soils and mines can be used to trap greenhouse gases. The speakers are all involved in the research council funded Greenhouse Gas Removal research programme.
- [Meeting on Dynamical Coupling in the Terrestrial Atmosphere](#) – **18th December 2017, 10:30-15:30, The Royal Astronomical Society, London.** This meeting is a joint meeting between The Royal Astronomical Society and the Royal Meteorological Society.

The [events page](#) of the GCI is updated regularly with these and other events related to global challenges.