

## Knowledge Frontiers: International Interdisciplinary Research Projects 2018

**Reference:** KF2\100158

**PI:** Dr Nicholas Branch, University of Reading

**Co-Applicants:** Dr Alex Arnall, University of Reading; Professor Andrew Wade, University of Reading; Dr Alexander Herrera Wassilowski, Universidad de los Andes; Dr Kevin Lane, Universidad de Buenos Aires; Dr Frank Meddens, Independent Scholar; Dr Bill Sillar, University College London

**Value:** £49,950

**Title:** Adaptive capacity of farming communities to climate change in the Peruvian Andes (ACCESS)

**Abstract:** The impact of climate change on water availability, agro-pastoral systems and local communities remains poorly understood in the Peruvian Andes. This is a highly controversial issue given that Peru is vulnerable to the effects of climate variability and extreme weather (e.g. El Nino). This is already having a significant impact on agricultural productivity. This project aims to gain a better understanding of the challenges faced by communities living with climate change, and the opportunities afforded through appropriate adaptive strategies. To plan climate change adaptation strategies, a fully integrated study drawing upon methodologies developed in social science, archaeology and hydrology will be undertaken. There will be a focus on a region in Northern Peru (Ancash), where the impact of water stress is already being felt by communities. The main output will be a framework, integrating socio-economics with water resource data, for use by communities and institutes in Peru and internationally.

**Reference:** KF2\100179

**PI:** Dr Sarah Hartley, University of Exeter

**Co-Applicants:** Dr Robert Smith, University of Edinburgh; Dr Katie Ledingham, University of Exeter; Dr Adam Kokotovich, North Carolina State University; Dr Charles B. Rwabukwali, Makerere University; Dr Ben Raymond, University of Exeter; Dr Tibebe Habtewold, Imperial College London

**Value:** £49,585

**Title:** Co-developing risk assessment across disciplines and borders: gene drive mosquito field trials in Uganda

**Abstract:** Despite demands from Europe, USA and Africa for risk assessment of emerging technologies to be more inclusive, risk decisions remain highly contested, narrowly scientific and expert led. Risk assessment is a critical step in technology development yet very little is known about how to 'open' it up to stakeholders. The unique risks of gene drive technology make it an excellent example of this thorny problem, presenting a 'constitutional moment' to rethink international biotechnology governance. The research team addresses this problem through a case study of gene drive mosquitoes in Uganda to eradicate malaria, a disease with significant health and economic costs. The team of social and natural scientists from the UK, USA and Uganda will develop new ways of thinking about and approaching risk assessment in collaboration with Ugandan stakeholders. Together, traditional roles and distributions of expertise will be reconsidered and Ugandans will be encouraged to take ownership of the oversight of the technology.

**Reference:** KF2\100175

**PI:** Dr Keith Hyams, University of Warwick

**Co-Applicant:** Professor James Ford, University of Leeds; Dr Gilbert Siame, University of Zambia; Professor Richard Lilford, University of Warwick; Dr Oyinlola Oyebode, University of Warwick

**Value:** £50,000

**Title:** Tackling climate-related health risks in urban slums: an interdisciplinary analysis of the challenge of integrating local and scientific knowledges

**Abstract:** Many urban populations in the Global South live in slums with poor access to sanitation and clean drinking water. Changes to the local and global climate threaten to exacerbate these health risks; flooding increases exposure to infectious diseases, while droughts threaten food supplies. Avoiding climate related mortality and morbidity requires input from climate researchers, medical scientists, and local populations alike. While recent research demonstrates that local stakeholders hold important experiential knowledge about their socio-economic and environmental circumstances, integrating this knowledge into health-related climate adaptation strategies is not straightforward due to epistemic and socio-economic inequalities. Tackling these challenges, this project develops the

first systematic, comprehensive, and empirically informed framework for integrating differentiated knowledge in the context of climate-related health risks in slums through philosophical analysis of the concept of expertise, empirical research on traditional ecological knowledge, and medical knowledge of urban slum health.

**Reference:** KF2\100010

**PI:** Dr Charlotte Lemanski, University of Cambridge

**Co-Applicant:** Dr Jiska de Groot, University of Cape Town; Dr Ruchi Choudhary, University of Cambridge; Dr Minna Sunikka-Blank, University of Cambridge, Professor Jaideep Prabhu, University of Cambridge

**Value:** £49,999.37

**Title:** Learning between stakeholders: energy innovation for low-cost housing in the Western Cape, South Africa

**Abstract:** This project responds to the dual global challenges of: 1) reducing carbon emissions, and 2) meeting the needs of rapidly expanding urban populations in the Global South. The project will facilitate meaningful learning engagements and knowledge sharing between diverse stakeholders (public, private, community, NGOs) involved in designing, funding, delivering and using energy efficiency interventions in low-income urban housing settlements. The primary empirical focus is the Western Cape, South Africa. There are four aims: firstly, to facilitate meaningful learning engagements between diverse stakeholders involved in low-income urban housing; secondly, to enhance policy capacity and propose practical strategies that combine the needs of diverse stakeholders in energy innovation for low-cost housing; thirdly, to deliver knowledge exchange between academics, policymakers, and practitioners, and; fourthly, to implement a new interdisciplinary approach drawing from engineering, architecture, human geography and business studies to formulate more effective policies to deliver sustainable urban settlements in the Global South.

**Reference:** KF2\100197

**PI:** Professor Luciana Martins, Birkbeck, University of London

**Co-Applicants:** Professor Mark Nesbitt, Royal Botanic Gardens, Kew; Dr William Milliken, Royal Botanic Gardens, Kew; Dr Viviane Stern da Fonseca Krueel, Ministry of the Environment of Brazil/Botanical Garden of Rio de Janeiro; Aloisio Cabalzar, Instituto Socioambiental

**Value:** £49,970

**Title:** Digital repatriation of biocultural collections: connecting scientific and indigenous communities of knowledge in Amazonia

**Abstract:** Sustainable use of plant resources within the Amazon rainforest is a key priority both for human livelihoods and the maintenance of forest biodiversity. Indigenous peoples of Northwest Amazonia practice effective and sophisticated forms of land management, but these practices are under threat from migration, increasing mobility and loss of inter-generational knowledge transmission. Valuable information relevant to this challenge is contained in biocultural collections held both within and outside Brazil. Unlocking this potential requires an integrated, equitable approach to collections research and the capacity to share information with a wide range of end users. This project brings together an international and interdisciplinary team of indigenous and non-indigenous researchers to develop a digital portal of biocultural collections. Advancing methods of co-curatorship, including the making of new objects, the project will develop protocols for access of these biocultural heritage materials, which will be documented in a targeted policy report.

**Reference:** IC2\100044

**PI:** Dr Helena Ann Mitchell, Open University

**Co-Applicant:** Dr Andrea Berardi, Open University; Dr Tania Hart, De Montfort University; Dr Gareth Davies, Open University; Dr Mark Gaved, Open University; Dr Deirdree Jafferally, Ministry of Indigenous Peoples' Affairs, Government of Guyana

**Value:** £49,685

**Title:** Co-producing a community-based mental health improvement programme in Guyana through inter-disciplinary participatory action research

**Abstract:** Over one billion people globally struggle with issues related to mental health, including depression, substance abuse and self-harm. Lack of research in implementation and policy change is further impeded by stigma, capacity shortages, and fragmented service delivery. With three case studies in Guyana, the aim of this project is to research the effectiveness of a mental health capacity building and intervention programme appropriate for low resource settings that combines insights from the social, information technology and environmental sciences. The research will identify, record and share successful local practices that have evolved to cope with challenging cultural, organisational and environmental conditions, and devise mechanisms to promote these through policy change. Building on The Open University's global leadership role in distance learning, the key outcome is to establish a BSc Degree in Mental Health Nursing in Guyana, which has gained enthusiastic support from the Guyanese government, the higher education sector, and civic society.

**Reference:** KF2\100075

**PI:** Professor Francisca Mutapi, University of Edinburgh

**Co-Applicants:** Professor Takafira Mduluz, University of Zimbabwe; Professor Moses Chimbari, University of Kwazulu Natal; Professor Johannes John-Langba, University of Kwazulu Natal; Dr Geoff Banda, University of Edinburgh

**Value:** £50,000

**Title:** WASH Practices: situational and behavioral analyses to inform policy and practice

**Abstract:** Access to adequate water, sanitation and hygiene (WASH) is critical in the prevention of neglected tropical diseases including trachoma, soil-transmitted helminths, and schistosomiasis. These diseases affect more than 1.5 billion people, with a significant proportion being in sub-Saharan Africa. The diseases may cause blindness, disfigurement, permanent disability or death. Apart from poor provision of adequate WASH facilities, existing toilets and boreholes are underutilised to prevent/reduce contamination of environment and domestic water sources. There is paucity of studies on social, cultural and behavioral aspects that constrain toilet/borehole adoption/use in rural Africa. This project proposes a knowledge, attitudes, practices and behaviors (KAPB) comparative study in South Africa and Zimbabwe to identify a) factors leading people to prioritise/not prioritise latrine and borehole construction and b) causes and determinants of non-use of toilets and boreholes. These factors/causes will be related to the spatial distribution of latrines/boreholes to inform stakeholders on engagement strategies for WASH uptake/adoption.

**Reference:** KF2\100033

**PI:** Dr Tanya O'Garra, Middlesex University

**Co-Applicant:** Dr Morena Mills, Imperial College London; Alifereti Tawake, Locally-Managed Marine Area Network International; Dr Sangeeta Mangubhai, Fiji Country Programme, Wildlife Conservation Society

**Value:** £49,400

**Title:** Strengthening knowledge co-production in locally managed marine areas: a Fijian case study

**Abstract:** Community-based co-management is hailed as the solution to natural resource decline experienced by rural communities worldwide. It involves decentralised resource management which responds to social and conservation goals. The Locally Managed Marine Area (LMMA) network in Fiji is one of the most extensive networks of community-based co-management sites in the world. The LMMA process involves the collaborative generation and dissemination of knowledge and decision tools on marine resource management between scientists, NGOs, fishing communities and government officials. After 14 years of existence, the Fiji LMMA network is seeking to identify lessons learned, to provide guidance to stakeholders about inputs and organisational processes that generate knowledge and decisions that deliver sustainable resource use and management. To address this question, this project seeks to evaluate the impact of knowledge co-production on the success or failure of LMMAs in delivering social and ecological benefits, and to identify contextual factors that are conducive to success.

**Reference:** KF2\100123

**PI:** Professor Caroline Wilkinson, Liverpool John Moores University

**Co-Applicant:** Professor Cristina Cattaneo, University of Milano; Professor Matilde Arnay de la Rosa, University of La Laguna, Tenerife; Dr Emilio Gonzalez Reimers, University of La Laguna, Tenerife

**Value:** £49,994

**Title:** Migrant disaster victim identification (MDVI)

**Abstract:** This project aims to develop a network, process, policy and digital resource for the identification of deceased people who attempted to cross from the West Coast of Africa to Europe and will pilot this study in the Canary Islands. There are many unidentified/uncollated migrant remains in Canarian cemeteries, dating from the first arrivals from North Africa 24 years ago up to the present day. Any method and database designed for migrant identification needs to be different from current active DVI procedures due to the challenging nature of identification from poor and war-torn origin countries where personal/biological information may be absent and where relatives do not know whether the missing person is alive or dead. This research will develop a network of key European and African experts and identification agencies in order to co-design a practical methodology for the identification of the deceased from past, present, and future migrant disasters.