

British Academy Cities and Infrastructure Programme

The British Academy has supported 13 research projects through its *Cities and Infrastructure Programme* which is part of the UK Government's £1.5 billion Global Challenges Research Fund. These awards begin in September 2017.

Reference: CI170378

PI: Dr Diane Archer, Senior Researcher, International Institute for Environment and Development

Co-Applicant: Professor Blessing Mberu, Head of Urbanisation and Well-Being Research Programme, African Population and Health Research Center

Title: Towards Inclusive Health Systems and Infrastructure Access: Enhancing the Well-Being of Refugees in East African Cities

Abstract: Although 60% of refugees and asylum-seekers live in cities rather than camps, studies rarely consider their challenges in accessing healthcare, shelter, and infrastructure. This new project will analyse urban refugees' health vulnerabilities, health-seeking practices, barriers to care, and access to water, sanitation, and other vital infrastructure. It recognises that urban refugees' well-being depends not only on healthcare, but also upon shelter and infrastructure. Via case studies of Kampala and Nairobi, it will offer South-South learning opportunities and lessons for other cities facing humanitarian crises. It will explore variations among urban refugees, shared challenges with residents of informal settlements, and ways to foster inclusion and well-being. This multidisciplinary study can inform future collaborations between public health and city planning officials; civil society; and humanitarian agencies. Its findings will encourage farsighted, inclusive responses that will better address urban humanitarian crises, benefiting both refugees and low-income host populations.

Reference: CI170432

PI: Dr Steve Cinderby, Senior Research Leader, Stockholm Environment Institute, University of York

Co-Applicant: Professor Michael Wilson, Associate Dean for Research, Professor of Drama, School of the Arts, English and Drama, Loughborough University

Title: Implementing Creative Methodological Innovations for Inclusive Sustainable Transport Planning (I-CMIIST).

Abstract: Typically half of East African cities' urban residents walk to work (60% Kampala daily commute trips are on foot), yet infrastructure provision for non-motorised transport remains mainly aspirational. Inclusion of vulnerable communities in the development of streetscape infrastructure to support their journeys is rare; but considering their livelihood and social interaction needs in planning is even less common. Addressing sustainable mobility for developing country cities is a key urbanisation challenge. Building upon a completed GCRF network grant that explored with artists, practitioners, planners and policy makers the potential benefits of using more creative methods to co-design urban infrastructure to enhance mobility, this project will compare the outcomes of deploying such approaches on: inclusion; co-benefits including unexpected improvised opportunities; and outcomes - with current standard planning practices. The project will evaluate the longer term learning legacy encouraged by this interdisciplinary action research on key decision makers to assess if belief changes have occurred.

Reference: CI170241

PI: Professor Robin Coningham, UNESCO Chair in Archaeological Ethics and Practice in Cultural Heritage, Durham University

Co-Applicants: Professor Ian Simpson, Professor of Biological and Environmental Sciences, University of Stirling; Dr Andrew Wilson, Senior Lecturer of Archaeological and Forensic Sciences, University of Bradford; Professor David Toll, Professor of Engineering, Durham University; Dr Paul Hughes, Assistant Professor of Engineering, Durham University; Dr Vasilis Sarhosis, Assistant Professor of Civil Engineering, Newcastle University; Dr Sean Wilkinson, Reader in Structural Engineering, Newcastle University

Title: Reducing Disaster Risk to Life and Livelihoods by Evaluating the Seismic Safety of Kathmandu's Historic Urban Infrastructure.

Abstract: Kathmandu's medieval cities and shrines are exceptional architectural and artistic achievements with traditions of seismic adaptation. They host urban infrastructure of tangible and intangible value and play vital roles of cohesion in the life of thousands and represent portals where the heavens touch earth and people commune with guiding deities. Generating 7.6% GDP through tourism, Kathmandu's iconic skyline was dramatically altered by the Gorkha Earthquake in 2015. Losses included 9,000 killed, 20,000 injured and the destruction of 500,000 homes. A total of 691 historic monuments across Nepal were damaged, of which 131 collapsed causing death and injury, with an associated 32% cancellation of tourist visits. This interdisciplinary North-South partnership contributes to SDG17 by co-producing and disseminating a methodology to assess, evaluate and improve the seismic safety of historic urban infrastructure within Kathmandu's World Heritage sites, reducing direct risk to life and livelihoods and damage of gains towards SDG11, while preserving Kathmandu's authenticity and traditions.

Reference: CI170047

PI: Dr Ayona Datta, Reader in Urban Futures, King's College London

Co-Applicants: Dr Don Slater, Associate Professor (Reader) of Sociology, London School of Economics; Dr Joanne Entwistle, Reader of Culture, Media and Creative Industries, King's College London; Dr Rakhi Tripathi, Associate Professor and Head, Centre for Digital Innovation, Fore School of Management, Delhi

Title: Disconnected Infrastructures and Violence Against Women (VAW): Innovating Digital Technologies in Low-Income Neighbourhoods to Produce Safer Indian Cities

Abstract: Continuous and widespread Violence Against Women (VAW) in urban India highlight the challenge of delivering SDGs 5 and 11 - gender equality and safe, sustainable, inclusive cities. In particular, women in low-income urban neighbourhoods face increased sexual and physical assaults during access to and use of connected infrastructures (eg. water, toilets, transport, walkways), which also highlight the challenge of delivering SDG 6 – clean water and sanitation to all. Combined with this is an acute information and skills gap in technology use amongst these women that impedes their knowledgeable and empowered engagement with social and material assemblages of urban infrastructures. This project will take a rights-based approach to the challenge: How to address VAW by improving women's knowledge of and safe access to urban infrastructure in the Indian city. The project will use innovations in digital technology and open source mapping, co-produced with

societal partners, to collect big data on infrastructural blindspots, and deep data on VAW through participatory mapping of infrastructure use.

Reference: CI170252

PI: Dr David Garbin, Senior Lecturer of Sociology, University of Kent

Co- Applicants: Dr Gareth Millington, Senior Lecturer of Sociology, University of York; Professor Simon Michael Coleman, Chancellor Jackman Professor of Religion, University of Toronto

Title: Religious Urbanisation and Infrastructural Lives in African Mega-Cities: Moral Economies of Development in Kinshasa and Lagos

Abstract: This interdisciplinary project addresses one of the most pressing challenges of contemporary African mega-cities: how to tackle social, moral, strategic and economic issues raised by often spectacular processes of religious urbanisation. Urbanisation and development are usually conceptualised through secular frameworks. No research to date has examined the socio-economic and development impact of extensive urban infrastructures provided by religious actors in African Sub-Saharan contexts. Taking as case studies Lagos and Kinshasa—the most populated and fastest growing cities in Sub-Saharan Africa—this project will explore how religious socio-spatial models and strategies engage with challenges of infrastructural development, urban social cohesion and inclusion, safety and sustainability. The project will provide recommendations aimed at promoting civic urban culture in context of growing inequalities and widespread informalisation of urban life in cities where religious actors play significant infrastructural roles.

Reference: CI170211

PI: Professor Katherine V. Gough, Professor of Human Geography, Loughborough University

Co-Applicants: Professor Paula Griffiths, Professor of Population Health, Loughborough University; Professor Robert Wilby, Professor of Hydroclimatology, Loughborough University; Professor Samuel Nii Ardey Codjoe, Director of the Regional Institute for Population Studies, University of Ghana; Professor Paul William Kojo Yankson, Professor of Geography and Resource Development, University of Ghana; Dr Sam Kayaga, Senior Lecturer of Civil and Building Engineering, Loughborough University; Dr Raymond Kasei, Senior Lecturer and Researcher of Climate Change and Food Security, University for Development Studies

Title: Vulnerability to Extreme Weather Events in Cities: Implications for Infrastructure and Livelihoods (VEWEC)

Abstract: Many cities in the global South are increasingly experiencing extreme weather events, which are having devastating impacts on infrastructure and human lives. VEWEC brings together an expert, interdisciplinary team to investigate the impacts of flooding and extreme heat on urban infrastructure, and the resultant consequences for the livelihoods of poor urban residents in Ghana. The main aims are to: refine methods for mapping ‘hotspots’ of vulnerability and predicting flooding and extreme heat in cities by drawing on existing climate data; examine the impact of flooding and extreme heat on water, electricity and health services; analyse the impact of reduced service levels during extreme weather events on the income-generating activities of the urban poor; co-produce adaptive strategies to extreme weather events with residents, service providers and policymakers. The cities of Accra and Tamale, with their differing climates, urban form and size, infrastructure and governance systems, will provide contrasting cases within one national context.

Reference: CI170285

PI: Dr Charlotte Lemanski, Senior Lecturer of Geography, University of Cambridge

Co-Applicants: Dr Ruchi Choudhary, Reader of Architectural Engineering, University of Cambridge; Dr Minna Sunikka-Blank, Senior Lecturer of Architecture, University of Cambridge; Dr Jaideep Prabhu, Professor of Marketing and Jawaharlal Nehru Professor of Indian Business, University of Cambridge; Dr Jiska de Groot, Group Leader of Energy, Poverty and Development, University of Cape Town; Dr Amir Bazaz, Senior Consultant of Practice, Indian Institute for Human Settlements Bangalore

Title: Energy Innovation for Low-Cost Housing in India and South Africa: Strategies for Interdisciplinary and Cross-Institutional Dialogue

Abstract: This research explores how low-income communities, private energy entrepreneurs, and government (at various scales) work in contestation and collaboration to devise and deliver affordable domestic energy that meets the long-term needs and aspirations of low-income households in two rapidly urbanising cities, Bangalore (India) and Cape Town (South Africa). The primary focus is on the role of the three key stakeholders, investigating how government and industry plan and implement energy innovation in government subsidised housing, and the role of low-income households' needs and aspirations in this process. The research has two overarching aims: firstly, to implement an interdisciplinary approach that delivers learning across the physical and social sciences; and secondly, to propose strategies that enable divergent stakeholders and institutions to work collaboratively in producing and implementing innovative energy solutions that are technically-, financially- and culturally-appropriate for government-subsidised housing (in terms of both people and product).

Reference: CI170095

PI: Professor Henrietta Moore, Director of the Institute for Global Prosperity, University College London

Co-Applicants: Dr Nikolay Mintchev, Research Associate of Global Prosperity, University College London; Professor Nick Tyler, Chadwick Professor of Civil Engineering, University College London; Dr Camillo Boano, Senior Lecturer of Development Planning, University College London; Dr Andrea Rigon, Lecturer of Development Planning, University College London; Professor Nasser Yassin, Professor of Public Policy and International Affairs, American University of Beirut

Title: Public Services and Vulnerability in the Lebanese Context of Large-Scale Displacement

Abstract: This project aims to improve the design, quality and inclusiveness of public services in Lebanon in areas with large numbers of Syrian refugees. The arrival of over a million Syrians in Lebanon since 2011 has put enormous strain on economies and services, particularly in poor areas in cities such as Beirut, Zahlé and Tripoli. Current approaches to planning in Lebanon are based on a top-down approach which does not reflect the changing circumstances of communities and which has forced increased reliance on an informal sector that is approaching its absorbing limit. In contrast to a top-down approach, this project begins by identifying the multiple forms of vulnerability, resilience and agency of both refugees and Lebanese hosts, and the ways in which people's experiences are structured by inequalities embedded in infrastructure and service provision. The project focuses on small research areas to produce fine-grained qualitative and

ethnographic data in order to understand how people's concrete experiences link to larger policies and inequalities at the municipal and national levels.

Reference: CI170271

PI: Professor Michael Osborne, Professor of Adult and Lifelong Learning, University of Glasgow

Co-Applicants: Dr Lavinia Hirsu, Lecturer in Applied Linguistics, University of Glasgow; Dr Katarzyna Borkowska, Lecturer in Education, University of Glasgow; Dr Muir Houston, Senior Lecturer of Education, University of Glasgow; Dr Neil Burnside, Lord Kelvin Adam Smith Research Fellow of Engineering, University of Glasgow

Title: Strengthening Urban Engagement of Universities in Asia and Africa (SUEUAA)

Abstract: This proposal addresses a core problem in emerging economies of strengthening the urban engagement role of universities, and ways in which they contribute to developing sustainable cities in the context of the major social, cultural, environmental and economic challenges facing the global South. It uses a set of well-proven benchmarking tools as its principal method, and seeks to strengthen the capacity of universities to contribute to city resilience towards natural and human-made disasters. Examples of urban engagement include supporting the development of physical infrastructure, ecological sustainability, and social inclusion (including of migrants). It calls upon contributions from science and engineering, the arts, environmental sciences, social sciences and business studies. It assesses the extent to which universities in 6 countries (Iran, Iraq, the Philippines, South Africa, Tanzania and Zimbabwe) respond to demands of society, and how through dialogue with city stakeholders this can be enhanced and produce impact on policy; it uses a collaborative team from the UK and emerging economies.

Reference: CI170338

PI: Dr Harry Smith, Associate Professor of Energy, Geoscience, Infrastructure and Society, Heriot-Watt University

Co-Applicants: Dr Gabriela Maluf Medero, Associate Professor of Infrastructure and Environment, Heriot-Watt University; Dr Maria Soledad Garcia Ferrari, Senior Lecturer of Architecture and Landscape Architecture, Edinburgh College of Art / University of Edinburgh; Professor Françoise Coupe, Emeritus Professor of Habitat, Facultad de Arquitectura, Universidad Nacional de Colombia sede Medellín; Professor Alex Abiko, Professor of Construction, Universidade de Sao Paulo

Title: Co-Production of Landslide Risk Management Strategies Through Development of Community-Based Infrastructure in Latin American Cities

Abstract: The project aims to explore the scope for upscaling and transnational transfer of participatory landslide risk-reducing strategies for informal settlements in Latin America. Drawing on lessons from a pilot experience in a single small informal settlement in Medellín, Colombia, the project will roll out and evaluate the use of community-based participatory monitoring and mitigation of landslide risk across the city in Medellín, as well as in another city within a different Latin American country – São Paulo in Brazil. The overall aim is to develop bottom-up approaches to dealing with landslide risks in cities around the global South, in a way that optimises the collaboration between communities and relevant governmental bodies, as well as the collaborative use of 'soft' and 'hard' infrastructures.

Reference: CI170237

PI: Professor Jonathan Spencer, Regius Professor of South Asian Language, University of Edinburgh

Co-Applicants: Dr Ammara Maqsood, ESRC Future Research Leaders Fellow/Junior Research Fellow of Social and Cultural Anthropology, University of Oxford

Title: Rebuilding Kinship and Care after Dislocation in Urban South Asia: Colombo and Lahore Compared

Abstract: The project is a multi-disciplinary study of the consequences of dislocation for poor communities in Lahore (Pakistan) and Colombo (Sri Lanka). In both cases, families living in low-income settlements have been forcibly relocated in the name of development. This study will focus on the underexplored implications of relocation for everyday relations of kinship and care, which are vitally important for the resilience of poor communities in Asia. Anthropological research on networks of kinship will be complemented by planning expertise to produce maps of displacement. The project is based on many years' experience of research in the two cities and the team will draw on a wide pool of collaborators at different points in the research. In particular, the team will use evidence in engagements with local activists, art practitioners, lawyers, architects and planners, and policymakers. Within both settings, the project will develop new approaches to the built environment that minimise the negative effects of dominant infrastructure and displacement interventions on community resilience.

Reference: CI170172

PI: Professor John Twigg, Principal Research Fellow of Risk and Resilience, Overseas Development Institute

Co-Applicants: Dr Susanne Sargeant, Senior Scientist of Earthquake Seismology, British Geological Survey; Professor Tiziana Rossetto, Professor in Earthquake Engineering and Director of EPICentre, Civil, Environmental and Geomatic Engineering, University College London

Title: Safer Self-Recovery: Promoting Resilient Urban Reconstruction after Disasters

Abstract: Most urban families in developing countries recover from disasters using their own resources, knowledge and initiative ('self-recovery'). Yet, self-recovery is poorly understood; there is a lack of evidence on how to best support it, particularly in urban environments. This project examines self-recovery processes with a focus on the safety and durability of self-built homes after rapid-onset disasters in marginal and informal urban settlements. Findings will inform design of guidelines and tools for urban governments, policy makers and the international humanitarian shelter sector to better promote and support self-recovery, leading to more resilient recovery and reconstruction. There is almost no research on self-recovery from the perspective of affected families. This project addresses this knowledge gap and develops a model for supporting affected people to make informed decisions about their own recovery and future resilience.

Reference: CI170251

PI: Dr Antonis Vradis, Lecturer and Vice-Chancellor's Research Fellow of Geography, Loughborough University

Co-Applicants: Dr Oonagh Markey, Vice Chancellor's Research Fellow of Sport, Exercise and Health Sciences, Loughborough University; Professor Richard Pithouse, Associate Professor for the Humanities, Rhodes University

Title: NutriCities: Building Urban Resilience Through Grassroots Nutritional Infrastructures

Abstract: Food security is one of the key markers of global inequality, rightly featured as a key UN Sustainable Development Goal. Individuals with poor nutritional access increasingly concentrate in the rapidly expanding cities of the global South. They overcome barriers in growing, sharing and consuming sufficient and safe food by building their own Grassroots Nutritional Infrastructures (GNIs), which are nevertheless overlooked in policy. NutriCities will conduct an interdisciplinary ethnography of GNIs in the Mare favela complex (Rio de Janeiro, Brazil) and will employ a multiple-scale research model grounded in human nutrition, human geography and political science. Research findings will be shared and compared with grassroots infrastructures in Durban, South Africa, aiming to 1) measure the impact of GNIs on urban population well-being; 2) develop an interdisciplinary model to research social infrastructures that enhance urban resilience; and 3) provide a model for grassroots-informed policy interventions at the urban, regional and national level.