

BUILDING RESILIENT CITIES

UNIVERSITY OF BIRMINGHAM

THE INSTITUTE FOR GLOBAL INNOVATION



Global urbanisation is predicted to continue, with estimates that by 2030, 60 per cent of the world's population will be living in cities. While cities can bring many benefits, as drivers of economic growth and by providing critical mass that enables services to be delivered efficiently, there are also challenges. Diverse and interlocking forces acting on cities provide opportunity, but may also subject the population, or sections of it, to distress. The causes may be environmental, technological, economic, social or political, and act over timescales of days to decades. A more resilient city should allow responses to these forces that can improve the lives of its inhabitants or limit the negative impacts.

At the Institute for Global Innovation, our researchers are focusing on how communities and individuals experience change or 'shocks'. We are exploring the responses at different levels of analysis: individual, community, city and national, across multiple sub-systems and

timescales; the acute (eg flooding) and the chronic (eg rapid population growth).

An interdisciplinary approach is enabling us to reassess the concept of resilience and its measurement as it is applied to cities undergoing transition. Using a conventional framing of resilience may not always be appropriate, especially in the context of Low- and Middle- Income Countries (LMICs). We are drawing on our existing research and partnerships to co-develop context-appropriate responses with local stakeholders in city regions, such as Nairobi, Sao Paulo, and Beirut, as well as our home, Birmingham.

The Resilient Cities theme draws on research expertise from across the university that covers infrastructure, air quality, physical and mental health, governance, public services and economics, applied in the UK and across the world.

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'Resilience has become a concept used frequently across many disciplines as well as becoming a 'buzzword' used by government, non-governmental and international agencies. A novel contribution to how it is conceptualised, and demonstration of its in-country application, has the potential to generate international impact in policy-making and academia'

Dr Jonathan Radcliffe.

AIR POLLUTION, NAIROBI

Nairobi's population is projected to nearly double by 2030, to seven million. The GDP is following a similar pattern. Ever-more cars fill the city's rapidly increasing road infrastructure. The result of these factors is decreasing quality of air. The Resilient Cities team is undertaking the Department for International Development- (DfID)-funded research project 'A Systems Approach to Air Pollution (ASAP) - East Africa'.

This multidisciplinary project brings together leading UK and East African researchers in air pollution, engineering, urban planning, economic geography, public health, social sciences and development studies to develop a framework for improved air quality management in three East African cities: Addis Ababa (Ethiopia), Kampala (Uganda) and Nairobi (Kenya). We are looking to provide policy relevant research that will lead to reductions in air pollution without harming economic development.



Air pollution contributes to 7 million early deaths annually with effects that span pre-birth to old age; including respiratory problems, low birth weight, perinatal mortality, stroke and cancer.

LOCAL INFRASTRUCTURE, MANAGING RISK AND URBAN RESILIENCE

Urban resilience is partly a reflection of the availability of local infrastructure. We are the first to explore the interplay between financialisation and local infrastructure in LMICs. The prevailing literature has thus far focused on developed market economies, yet the risks attached to providing

infrastructure in LMICs are much greater than in developed market economies. This results in a very different form of financialisation.

We are developing approaches to understanding the funding and financing of infrastructure in Low and Middle Income Countries (LMICs) with an initial focus on Brazil. We are identifying solutions to major infrastructure gaps that reflect difficulties in financing and funding infrastructure investments.

This IGI research is exploring alternative ways in which local infrastructure is provided by combining volunteer labour with other non-monetised inputs in LMICs. This alternative provision, through the creation of innovative local infrastructure business models, is known to enhance urban resilience.



INSTITUTIONAL BARRIERS AND ENABLERS TO CITY RESILIENCE

We are working with the University of São Paulo, undertaking research with four municipalities in Brazil to identify the factors that enhance or undermine resilience. By focusing on budgeting strategies and their effects on public services, as a proxy for municipal resilience more generally, we are developing a way to measure resilience in Brazil and other LMICs. Our ultimate goal is to design interventions that bolster the capacity of city institutions to withstand shocks, and even flourish in their wake.

We are following the cities through an entire budget cycle to better understand the impact of financial decisions on social housing and primary education in particular.

The Institute for Global Innovation at the University of Birmingham brings together diverse disciplines of research to develop and support multidisciplinary programmes that have impact at a global level. Our vision is: 'To inspire and deliver world-leading multidisciplinary research that addresses some of the world's most pressing challenges, affecting humanity at a global level.'