Event Report

Resilient, Inclusive and Sustainable Cities

November 08 and 09, 2018, Leicester, UK

UNIVERSITY OF
LEICESTER

GCRF
Global Challenges Research Fund

*We share a vision of cities for all, referring to the equal use and
enjoyment of cities and human settlements, seeking to promote inclusivity and ensure
that all inhabitants, of present and future generations, without discrimination of any kind, are able to
inhabit and produce just, safe, healthy, accessible, affordable, resilient and sustainable cities and
human settlements to foster prosperity and quality of life for all.*

New Urban Agenda Habitat III, 2016s

Introduction

Background and Context

Through its work supported by the Global Challenges Research Fund (GCRF), the University of Leicester (UK) has identified resilient, inclusive and sustainable Cities (RISC) as an emerging priority theme for challenge-led interdisciplinary development research. To develop its work on this strategic research theme, in November 2018, the university hosted a two-day workshop, in collaboration with international partners.

The two-day workshop was attended by colleagues both from existing partner cities and from potential partner cities. The cities represented at the event were: Nairobi (Kenya), Dhaka (Bangladesh), Medellín (Colombia), Zomba (Malawi), Kigali (Rwanda), Johannesburg (South Africa) and Leicester (UK).

Event Description

Led by Professor Madara Ogot (Acting Deputy Vice-Chancellor, Research, Production and Extension, University of Nairobi) and Professor Paul van Gardingen (Deputy Pro-Vice Chancellor: Global Engagement, University of Leicester) the workshop explored key challenges faced by the seven cities represented, allowing participants to better understand the challenges faced by cities and the barriers to resilience, inclusivity and sustainability. The event included a showcase of work that is already underway across the cities represented to address the challenges identified. An overarching conceptual framework for the RISC theme was presented in order to gain a common understanding of what RISC means. Through a facilitated sandpit session, participants were able to work in partnership with relevant cities, to develop small interdisciplinary, collaborative project ideas to address the challenges identified. The project ideas were well-received and were consequently invited to apply for pump-prime funding to take forward the research ideas during the first half of 2019. The work under these small projects will contribute to the development of larger innovative and solutions-focused future research projects leading to applications for external funding.

Desired Outcomes

The event presented an opportunity to begin developing and enhancing partnerships to address some of the key global challenges relevant to cities and to explore some of the ways in which they may be able to become more resilient, inclusive and sustainable in the future.

From the event, various small projects will be funded and be operational during the first half of 2019. The projects will then contribute towards wining funding to support more substantive future research initiatives under the RISC theme.

The aim is that through collaborative working on RISC as an emerging priority theme for challenge-led interdisciplinary development research, the partnerships formed and their outputs will be able to inform the wider research agenda.

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Abbreviations

Acronym	Definition
FDI	Foreign Direct Investment
GCRF	Global Challenges Research Fund
GDP	Gross Domestic Product
RISC	Resilient, inclusive and sustainable cities
SDGs	Sustainable Development Goals

Framing Challenges to Resilient, Inclusive and Sustainable Cities

We share a vision of cities for all, referring to the equal use and enjoyment of cities and human settlements, seeking to promote inclusivity and ensure that all inhabitants, of present and future generations, without discrimination of any kind, are able to inhabit and produce just, safe, healthy, accessible, affordable, resilient and sustainable cities and human settlements to foster prosperity and quality of life for all.

New Urban Agenda Habitat III, 2016s

At a time when urban areas and populations are growing, having a shared vision of resilient, inclusive and sustainable cities (RISC) is important. The New Urban Agenda captures it well. Within this shared vision, gaining an understanding of why people across the globe move to cities as well as the specific problems acting as barriers to achieving RISC will be critical. It is clear, for example, that cities offer benefits in shared services and opportunities however, that these often come at the expense of the environment and other things. Cities are very complex systems involving infrastructure and form, governance and socio-economic dynamics.

Sustainability

Sustainability can be taken to be development that meets the needs of the present without compromising the ability of future generations to meet their own needs. Important in this is achieving a desirable state of sustainably, preventing the destruction of the conditions that support a city, and allowing a balance between development and the environment.

Sustainability cannot be confused with being self-sufficient. A city cannot be truly self-sufficient in this global age where goods consumed are produced elsewhere around the globe. With this global perspective, people may not be aware of the impacts of consumption within their own city on elsewhere in the world, including on other cities.

There are many aspects of sustainability including:

- environmental sustainability – i.e. the natural environment within which a city operates;
- economic sustainability – i.e. local taxes and government grants to sustain a good quality of life and allowing citizens can be self-reliant; and
- social sustainability – i.e. the complex human dimension – with three dimensions referred to as development, bridge and maintenance.

The term development here addresses the basic needs of social capital, justice and equity. If basic needs are not met other needs are ignored. The term bridge addresses, where basic have been met, the behavioural change that is necessary to achieve environmental sustainability. And, maintenance relates to, as changes come, the socio-cultural characteristics that a society chooses to maintain (e.g. traditions, practices and places of historic and cultural importance).

In seeking sustainability, there is often conflict: people's needs are often in conflict with the environment and people's wants are often different to their needs. In addressing challenges within the complex city-system, there needs to be careful consideration as to where the efforts in addressing the challenges may potentially create a conflict between the economic, environmental

and social sustainability dimensions and likewise between the development, bridge and maintenance dimensions highlighted above.

Inclusivity

An inclusive city can be perceived as one in which everyone is enabled and empowered to fully participate in all aspects of society including in all social, economic and political opportunities.

To ensure inclusivity, there are three main dimensions:

- Spatial inclusion – i.e. access to land, housing and infrastructure
- Social inclusion – i.e. ensure people's rights and participation in society
- Economic inclusion – i.e. ensuring equitable access to opportunities for all

Strong governance systems are required to drive real change and address inequality in cities. The systems must view sustainability and inclusivity within cities as inextricably linked – i.e. if a city is not inclusive it cannot be sustainable.

In considering which areas require research within the appropriate city sub-system and/or inclusivity dimension, to address the identified cities challenges, the research questions must also answer:

- What is the current situation – e.g. the baseline?
- Where is it heading – i.e. what happens with a business-as-usual scenario?
- Where do we want it to be – i.e. what is the achievable 'better' state?
- How do we get there – i.e. what is the solution and how do we ensure a participatory process with those requiring help?

Resilience

A resilient city might be considered one that has staying power and one that has transformative-resilience – i.e. flexibility and adaptability. It may also be one which can withstand and recover from multiple shocks and stresses

In considering resilience, three questions stand out:

- What is the desired characteristic or trait?
- What are the pathways/mechanisms to resilience?
- What do we want to be resilient from?

An appropriate manner to phrase resilience aspirations might be:
- [City/community] shall have/be [characteristic trait] to [pathways/mechanisms to resilience] in the face of [from] along [element/dimension/framework]
- The [characteristic trait] and the [pathways/mechanisms to resilience] is often the desired state and what the research needs to be able to identify/develop possible solutions

Resilience considers that development can bring about a new state within a city whereby there is no risk of regression or bouncing back to the previous state. In this view, however, it is crucial that there is a clear understanding of who decides what the original state is, who determines the desired or undesired state and for whom, what, when and where resilience is required.

Key questions are:

- who determines what is desirable?
- what exactly are we building resilience into – which sectors, what's the focus?

- when/timescales – is the focus rapid-onset disturbances or slow-onset changes, short or long-term resilience, the resilience of current or future generations?
- where – where are the spatial boundaries of the city system? Is the resilience of some areas prioritised over others? Does building resilience in the identified area(s) affect the resilience of elsewhere?
- why – what are the motivations to becoming resilient? What would the impact be – is it worth the effort to build in the resilience?

Looking Towards RISC

The journey to achieving resilient, inclusive and sustainable cities is a long-term one. It requires persistence, strong resolve and endurance. It is important at this time to establish that current research is on the right track within the journey. There are lots of assessment tools and research frameworks in existence but most of them do not address the issue of making it clear that current research is on the right track and that research questions and topics are adequate to answer the real questions in addressing challenges surrounding RISC.

Some further questions and topics to consider in the journey to achieving RISC are:

- Climate change – how do we build in responses to climate change impacts (e.g. natural disasters and extreme events) in being resilient?
- Adaptation – how do we approach resilience of a moving target and keep on redefining key performance units and ultimate goals in terms of resilience?
- Inclusivity and co-dependency – how do we ensure inclusivity in research design to ensure that we look at the whole system and the co-dependencies of one sector on another?
- Management and decision making – most commonly this is in the hands of city officials. Although there is now a drive to change this it is becoming difficult to challenge the paradigm so that people accept that it's being done for the good of everyone. How do you convince people that there is a genuine paradigm shift and get them to come work together?
- Communication – communication of complex problems for non-academics is crucial and there must be efforts to simplify the message and enable change-implementers.

Cities Challenges

Introduction

With rapid urbanisation increasing globally, the timeliness of resilient, inclusive and sustainable cities as a strategic research theme needs no emphasis. Resilience, inclusivity and sustainability have long been features of cities. At this time, society is at a critical turning point globally, with the city as an entity under threat. In considering the key challenges outlined for the various cities below, it is helpful to consider cities along three lines – in terms of singularity, comparability and praxis.

Singularity highlights each city as having its own characteristics and challenges, its own context and history and drives the researcher to consider how particular problems take their forms in particular city contexts. Comparability invites researchers to consider how to compare diverse entities and to think about cities in terms of their differences but also in terms of how they are comparable and the concepts and methods used in comparability studies. Praxis is the bringing together of knowledge and practice. In considering the challenges of each city, researchers are prompted to consider how to relate knowledge to practice and to examine what history can tell them about a particular problem.

Kigali (Rwanda): Key Challenges

The city of Kigali's position, surrounded by hilly terrain, steep slopes and wetland areas, presents the city with many challenges. Natural disasters resulting from flooding and landslides coupled with population densification and rapid urbanisation leave the city vulnerable. Kigali is one of the fastest growing cities in Africa and a lack of pubic green spaces, the proliferation of urban informality and the spread of disease are key problems exacerbated by the city's vulnerability to natural disasters.

Although there are various national level policies, plans and regulations for disaster risk reduction in Kigali at this time (including the Rwanda National Urbanization Policy, Vision 202, the 2013 Kigali City Master Plan and the Economic Development and Poverty Reduction Strategy) there is still a need for effective methods and strategies for analysing changing risk and for planning to become more resilient and sustainable. As well as this, increased community engagement is required.

Natural disasters, including flash floods, landslides and mudflows, impact largely on the population of Kigali particularly in terms of health (e.g. spread of disease, injury and death), in social and economic dimensions (e.g. through destroying crops, housing and transport infrastructure) and in erosion of natural systems (such as arable land). Climate change contributes to the severity of natural disasters in the city with temperature increases and extreme rainfall affecting hydrological systems.

Stakeholder-intervention at this time is mainly post-disaster as opposed to in risk and hazard assessment and planning. Actions already adopted by city of Kigali include building drainage systems, guarding green areas and increasing resilience at an individual house-level. As well as this there is a city wide initiative that runs community projects whereby city residents contribute by planting trees and working on drainage systems, for example.

These actions are, however, not enough and many gaps remain in terms of disaster risk reduction. A more holistic approach to stakeholder-involvement, with less duplication of responsibilities and more community engagement is required as well as clear framework for how flooding could be reduced.

At this time, ecological data is lacking and there is inadequate capacity of stakeholders and funds to conduct risk assessments. There is, therefore, a need to gather data for decision makers to use. Potential areas in need of evidenced-based research are: improved hydro-meteorological forecasting of flash floods; community engagement based decision support systems for flood risk resilience; and analysing changing risk and planning alternative solutions to natural hazards in urban informality.

In taking a solutions-focussed view, engineering and ecological measures should be considered, along with the best measures, methods and approaches which are the most cost effective to the city.

For more details see: the City's Challenges Initial Assessment Forms | Presentation Slides

Nairobi (Kenya): Key Challenges

Nairobi is a metropolitan region that goes beyond the boundary of the city. While the city's population is estimated to be around 4 million people, the wider metropolitan area has an estimated population of around 6 million people. Since the 1970s, there has been an explosion in the spatial expansion of the city. Nairobi has had various master plans, the last one being published in 1973. At this time, the next master plan is in draft.

Nairobi has experienced urban sprawl with approximately 32% of the city being residential. A large part of these residential areas are inhabited by low density, upper-class, car-dependent communities, while much smaller areas are high density, poorly serviced informal settlements that are inhabited by 60% of the urban population.

Nairobi's challenges largely stem from problems resulting from a high population growth rate that has overtaken planning and service provision. Key challenges are:

- an acute housing deficit with slum growth and slum densification;
- traffic congestion and resulting outdoor air pollution;
- household energy deficiencies resulting in biomass energy sources and resulting indoor air pollution;
- poor healthcare provision; and
- complex socio-economic and political challenges such as high crimes rates, political unrest and threats of terrorist activities.

While Nairobi has many challenges, they also present as opportunities. Nairobi has a youthful, diverse and dynamic population which presents the city with an opportunity to innovate in addressing its challenges. Opportunities may be sought in the following areas:

- adaptive city planning: flexibility to adapt and manage the existing informal socio-technical infrastructure;
- stakeholder engagement: including citizens, experts and policymakers in co-design;
- transdisciplinary research: co-production of new knowledge on urbanisation; and
- investment in business – taking advantage of Nairobi's reputation as an investment hub in the region.

For more details see: the City's Challenges Initial Assessment Forms | Presentation Slides

Johannesburg (South Africa): Key Challenges

Johannesburg experiences challenges similar to those found in most cities across the world – for example, increasing crime, food insecurity, climate change, migration, inequality and competition. Solutions to these challenges are not confined within administrative boundaries of cities. Therefore to achieve resilient, inclusive and sustainable cities, there is a need to better understand the empirical relationship between what happens 'within' cities and what happens 'between' cities. Future city planning will increasingly depend on a better understanding of the ties that bind cities at local, regional and global scales.

Capital investments between cities form a key part of their economic growth, resilience and integration in the global economy and leads to two essential challenges – that is, competition for city investments, and the inclusiveness of city investments.

Competition
In the context of developing counties, cities receive small amounts of capital investment and have little public spending. The impacts from a lack of investments are very significant in terms of development of resilient, inclusive and sustainable cities.

Foreign Direct Investment (FDI) generates a large share of global Gross Domestic Products (GDP), particularly within developed cities. It is therefore an important catalyst of urban economic development. However, developing cities receive a small share of global FDI, which is worrisome considering that these cities do not have access to sufficient local public or private capital. To build

economic resilience, a city needs to compete fiercely for investment, which requires factual knowledge of who a city's competitors are, which sectors it is competing in, the social, economic, environmental and spatial determinants that attract FDI, and local, regional and national marketing and investment promotion policies.

As not all cities compete equally, it will be important going forward to consider how best to disentangle the areas of investment that each city is driving for and how to measure the network of competiveness across cities. With appropriate software it is possible to disentangle who a city's global competitors are. It will be possible to see the sectoral diversity and cities that have similar investment profiles are therefore to identify specific competitor cities, which might not be in same region or continent.

Inclusiveness
Multinational firms are driven by profitmaking and most governments are driven by short-term gains and a general disregard for the types of investment attracted. This drives income inequality across the globe, as well as environmental pressures and challenges. Future FDI policy needs to address socio-economic and environmental inclusiveness. One possible avenue in addressing problems of inequality and inclusiveness could be through coordinated partnerships with other cities, with a focus on developing smart investment policies, recognising that investment is likely to be captured in city centres where the wealthiest of the population lives – thus driving inequality in the urban environment.

It is how we the address the complexity of the economic urban system through integrated analysis and policy development, that will ultimately lead to resilient, inclusive and sustainable cities.

For more details see: the City's Challenges Initial Assessment Forms | Presentation Slides

Leicester (UK): Key Challenges

The city of Leicester has a very diverse population which brings with it the need for strong multiagency partnerships with a shared focus in maintaining a social balance. One key agency in this is Leicestershire Police. They police a population of 1 million people in an area of 2500 square miles. The force typically deals with the type of things to be expected of any police force, such as crimes, robberies and various other offences, policing large community events, response to disaster and ensuring public safety.

As well as this, however, Leicestershire Police deals with social problems related to migration vulnerability including dealing with vulnerable adults and children and those at risk in the community.

In dealing with this, the force's work is very much aligned with social service and support agencies as well as with education initiatives. Public and community engagement are key to the policing mission.

The force is exposed to many pressures one of the most significant being budget cuts. Combined with the growing population of the city of Leicester this brings challenges in terms of resourcing for the police force. The growing population results in fewer officers per resident. The demand for and complexity of reporting as well as the changing nature of crime, with a shift to digital crime, add to the pressures within the force.

As budgets have decreased, multi-agency partner demand has increased and the importance of partnerships and understanding each other's challenges as well as working together to address them is paramount.

The challenge of online crime and crime from other countries is in who is responsible for policing those crimes. This is a global challenge.

Diversity and inclusion is very important to the force. In terms of staffing the force aims to increase representation in their workforce across under represented areas. Having a diverse workforce contributes to the success of the force's public and community engagement.

For more details see: Presentation Slides

Dhaka (Bangladesh): Key Challenges

Dhaka has a population of 15 million people, in an area of only 306 square kilometres. The city is experiencing rapid urbanisation as a result of rural to urban migration and is expected to have a population of 25 million by the year 2025. Bangladesh as a whole is seeing an urban population growth of 7% annually. Many factors contribute to the movement of people to cities within the country including poverty, environmental degradation and climate change.

Dhaka is characterised by unplanned development, inadequate urban infrastructures and facilities, traffic congestion, low standards of living, environmental degradation, poor governance, lack of interagency coordination and growing climate change impacts on the city's population, economy and society.

The key challenges for the city of Dhaka are:

- rapid growth of population due to huge in-migration (0.5–0.7 million people annually)
- urban poverty and slum development
- traffic congestion and road accidents
- air and water pollution
- lack of spaces and greenery
- acute housing problems and lack of pro-poor and climate resilient housing
- lack of energy and power supply
- inadequate health services, poor water and sanitation facilities
- lack of institutional integration
- poor urban governance
- growing disaster risks
- climate change impacts

There is growing urban poverty in the city of Dhaka with an economic transition seeing the growth of urban slums, increasing traffic congestion, pressures on the already strained urban infrastructure, and increasing pollution and environmental degradation.

The challenges of the city represent significant health impacts for the population including from air and water pollution. Diseases related to climate change and urban mismanagement are also emerging as a growing concern.

All of these key problems and challenges have serious negative impacts on society, the economy, human settlement, the environment and the natural systems of Dhaka city.

Key Knowledge Gaps

There has to date been a lack of studies on climate change impacts and the vulnerability of poor communities. Therefore, a deeper understanding of the impacts of climate change and the consequences on society, economy and ecosystems is required.

A better understanding of the following areas is also required in order to ensure that cities are inclusive, safe and resilient:

- the nature of and trends of the problems behind the key city challenges
- opportunities and options under the Sustainable Development Goals (SDGs) regimes
- integration of climate change adaptation and disaster risk reduction under the Sendai and Paris Agreements
- policy and sectoral responses: technology and innovation for water, sanitation and health, energy efficiency and resilient housing etc.
- institutional integration, participation and governance
- community actions and institutional measures

Key Areas for Research and Research Questions

Specific areas for research, innovation and advocacy in the future include:

- affordable, pro-poor and climate resilient housing and habitats
- improvement of traffic systems
- sustainable water supply, sanitation and energy
- human health and well being
- greenery and city space
- climate change adaptation & DRR
- social and cultural heritage
- how to expand the urban services to the rural areas in a planned and environment friendly way
- equity, inculcation and justice; and
- responsible citizenship

The following suggested research topics apply to Dhaka under the three main themes of resilience, inclusiveness and sustainability.

Resilience: inclusive and safe water, sanitation and health risk management; heat stress and health risk management of the poor, women, children and elderly people; improve resilience to small and medium enterprise and growing service sector; synergy among the Sendai Framework and Paris Agreement with a focus on energy, industry, transports and service sector in Dhaka for adaptation and disaster risk reduction, mitigation and pollution control and resources and energy efficiency

Inclusiveness: inclusion of poor, women, professionals and marginal groups in adaptation planning and implementation; inclusion of community based organisations and local/social leaders in city planning and implementation; and, multi-stakeholder engagement in implementation of the new UN Urban Agenda for 2030.

Sustainability: how to increase ownership, participation and partnership of all actors and stakeholders; improving governance, integration and responsive institutions; and, exploring the interface of the economic, social and environmental imperatives in the resilient cities

Integrated planning involving multi-agencies both from urban and from rural areas is required when considering the rural–urban continuum and the flow of people to cities from rural areas. Agencies of rural and urban areas need to work together and to integrate their approaches to planning as opposed to considering cities in isolation. In this, governance is critical for ensuring that cities are resilient, inclusive and sustainable.

For more details see: the City's Challenges Initial Assessment Forms | Presentation Slides

Medellín (Colombia): Key Challenges

Medellín is one of the most unequal cities in Latin America. This is exacerbated by significant socioeconomic differences in urban mobility networks meaning that urban mobility is not the same for all citizens and that there are differences according to a person's socioeconomic strata.

Some of the problems experienced in the city of Medellín include:
- extreme social segregation and lack of social inclusion
- classist mentality
- lack of transparency
- lack of civil participation in urban planning
- lack of direct and transparent dialogue between the general population and decision-making institutions
- limited understanding of participation

In considering the challenges outlined above, planning with a people-oriented logic is essential (as opposed to planning from a commerce and business perspective). People-oriented planning can contribute to the transformation of a city towards a more people-oriented environment which:
- considers human needs and the complex network of affects, relations, and practices within a city
- produces positive health effects
- results in a built environment that leads to more light, air, ventilation, access to services, public safety, pleasant aesthetic surroundings
- reduces reliance on car transport
- allows better ecological design of the build environment bringing about a reduction in the need for air-conditioning and excessive usage of electricity

Including diverse stakeholders in urban planning, with strong community involvement, transparent city planning and construction initiatives (avoiding the bias of commerce and business) based on flexible and active dialogue between the city's administration, business and people from all socioeconomic backgrounds, the city will be able to support people from all areas of society and will become need-oriented as opposed to income-oriented. There is a need to focus on changing mentalities and approaches to innovation and the decentralisation of the voices and dialogue involved in city planning.

The below questions are relevant in working towards a more resilient, inclusive and sustainable city:
- how do patterns in urban mobility of people of different socioeconomic classes affect the inclusivity of the city?
- what policies/scenarios in urban mobility patterns might improve the sustainability, resilience, and inclusivity of a city?
- how do we overcome socioeconomic segregation found in daily mobility?

In order to address some of the problems around urban mobility networks, a focus on data and digital technologies will be crucial. Gathering open and real-time data and having citizen participation in data collection will be important tools in informing approaches and models that allow cities to work towards reducing traffic congestion and associated pollution.

There is a need to understand better the economic impact of high air pollution in terms of respiratory illness, for example, and how it impacts on business and economic development, as well as the economic development profile of the city at a wider level.

At the moment there is work ongoing to develop tools to assess how to improve decision-making and simulation of public policies. Simulations are being development to look at pollution and the impact in the valley in which Medellin is situated but also at the very local level within the city. Traffic contributes to 90% of the problems in air quality in the city. As a lot of the city's economic activity takes place on the streets, there is a strong interest in the impacts of proof air quality at the level of 1.4 meters where people are most active but also as higher up in the valley.

In relation to economic development the following key considerations and questions should be asked:
- how to generate innovative strategies to increase the skills and knowledge of young people in the city in terms of new technologies?
- what capacity building infrastructures does the city require? (such as high-speed
- networks, augmented reality training centres)
- how can we activate smart mobility as a public strategy of inclusion and social cohesion?
- how can the city promote entrepreneurial strategies that lead to greater results in innovation and allow greater inclusivity?

For more details see: the City's Challenges Initial Assessment Forms | Presentation Slides

Zomba (Malawi): Key Challenges

Zomba is the fourth largest city in Malawi, covering an area of 39 square kilometres and with a population of around 88,314. The annual population growth rate is 3% and the current population density is 2264 people per square kilometre. 65% of the population lives in unplanned areas of the city. The city is positioned below the Zomba plateau, which it the city's lifeline in terms of water and firewood supplies.

Drivers of the challenges experienced in Zomba are similar to those of much larger cities across the world and include: rapid urbanisation with rapid urban growth as a result of rural–urban migration, the informal economy as a major provider of livelihoods in the city, climate change, issues around energy and the high dependence on biomass sources (e.g. charcoal).

At this time, the city is changing in character. There are challenges in managing this and in considering how, as the population size grows, the city plans growth in terms of the physical space available.

Key challenges for the city of Zomba are:
- deforestation: this will be exacerbated as the population grows and will impact both water supply and water management
- climate change: the increasing adverse effects of climate change is an emerging issue. Flooding is increasing which, in informal settlements where people do not adhere to planning standards, leaves people vulnerable as a result of river reserve areas being ignored, damage to housing, increases in vector borne diseases such as malaria and schistosomiasis and health risks among urban poor populations associated with damage to property and services
- lack of governance: problems are created as a result of apathy, lack of civic engagement, poor adherence to by-laws, low citizen participation in civic activities and weak enforcement mechanisms
- a proliferation of unplanned areas
- low uptake of innovative solutions in the city – this is a problem particularly in the service provision.

Although at this time data is lacking to support evidence-based solutions to the drivers of these challenges, some innovation approaches around solar street lighting, white space technology

providing low-cost internet connection, solar energy beyond city street lighting and waste management would be a useful use of resources.

The challenges experienced in the city of Zomba are complex and inter-related. Emerging issues are impacting on these already complex problems. Although Zomba is a relatively small city the issues and drivers in it are the same as those seen in megacities. While the scale of the urban environment differs the problems are comparable. This presents Zomba with a unique position in that with careful planning and lesson-learning from other cities, it should be possible to avoid some of the scenarios experienced by larger such as Nairobi, for example.

For more details see: the City's Challenges Initial Assessment Forms | Presentation Slides

Summary of Key Cities Challenges

Five keys themes emerged from across all of the study cities:
- mobility;
- infrastructure;
- governance; and
- information and information management

Key Challenge	Summary
Mobility	The theme of mobility relates to capital/financial resources within a city but, in many cases, in terms of people. It is important look at city in relation to its outlying areas and the rural–urban continuum that sees people increasingly migrating to urban areas. The challenge of a megacity is in breaking down the notion a bounded city and establishing where city ends and begins.
Infrastructure	Increasing population density puts a strain on the already pressured infrastructure of cities. Challenges relate to sanitation, housing and transport systems.
Inequality	The prevalence of inequality within cities is highlighted by the lack of infrastructure
Governance	This challenge is central to many cities. There is a proliferation of a range of urban agencies, with overlapping jurisdictions which results in a lack of governance. This exacerbates the present day challenges in the everyday working life of a city but also in terms of crises brought about through disaster and climate change impacts. Strong governance is required.
Information and information management	How can information evolve within a city? There is dense local knowledge and local culture and careful consider is needed in terms of how that knowledge can be used in informing the future and as well as new technologies to support development of resilient, inclusive and sustainable cities.

The challenge for researchers going forward is in pinning down the precise research problematics that define what researchers are trying to understand in terms of RISC and in gaining a clear picture of what they are trying to explain. Developing frameworks of knowledge will be important in understanding how things have been explained to date as well as gaps in knowledge. And, there must be a clear pathway in terms of what research and knowledge generated does.

The Global Challenges Research Fund – Cities and Sustainable Infrastructure

The Global Challenges Research Fund is linked to the UK Aid Strategy. The UK Aid Strategy has a four-pronged approach to aid in terms of tackling: global peace, security and governance; strengthening resilience and responses to crises; promoting global prosperity; and, in tackling extreme poverty and helping the world's most vulnerable and least resourced people.

GCRF is £1.5 billion fund (ending in 2012) that forms part of a wider collection of funds including the Ross Fund, the Newton Fund, The Fleming Fund, for example. It also fits under the umbrella of the SDGs and the integrated and interrelated nature of those. GCRF has a range of partners including the UK's research councils and the UK Space Agency, who support the transdisciplinary nature of the Fund.

The GCRF has three main objectives:

- to address challenges through research
- to focus on strengthening capability for research and innovation
- to be agile in response to emerging situations

Key criteria for funding under the Fund are: generating research excellence (breaking disciplinary silos), being ODA-compliant, creating equitable and enduring partnerships between the UK and developing countries and having an impact-focused and problem-and-solution focused approach.

GCRF is looking for equitable partnerships whereby research teams work together to identify research gaps and needs, to co-create research questions and solutions, test those solutions and build research capacity in the UK and in developing countries to carry out development research. It is very much expected that research teams will work outside of academia in ways that are meaningful and central to how the research is conceptualised and delivered. This will contribute to the production of impactful research that is necessary. The challenges in partnerships are that it's difficult to work across time and space. GCRF is keen, therefore, that research teams innovative in creating innovative and equitable partnerships where there is co-learning and a process of self-discovery rather than the simple transfer of knowledge.

The Fund's ambition is to create portfolios of work that address the SDGs to:

- disseminate, combine, and scale up excellent research and excellent impact
- have real impact on SDGs, at scale
- set benchmarks for best practice in research for development
- make sure that GCRF is more than the 'sum of its parts'

The GCRF is funding 465 projects with relevance to urban issues including issues relating to the urban economy, urban environment, urban governance, urban society, urban innovation and urban infrastructure. Across the portfolio is a mass connectivity of issues and the Fund hopes to continue to support integrated, engaged research in more areas than currently covered – for example, more research in African nations.

The city as a complex urban system is driving a lot of urban thought at this time. Urban locations represent a concentration of opportunities, jobs and services as well as hubs of knowledge and culture. Failure is ever present within the urban system, however, with the propensity to fail even

with historical knowledge – for example, we see lots of cities where the built environment is gendered, unequal, segregated and racialised. By looking at current infrastructure stock it's possible to conclude that planning, governance, materials, design, resilience, where and when construction and building takes place, how buildings are used and maintained as well as an understanding of human–infrastructure interactions will be crucial. In the next 40 years we will need to build as much infrastructure as have built in the last 1000 years.

Researchers are urged to tap into some of the already existing networks with an urban focus. There are many networks with varied interests including in gender, peace, security, governance and climate change, for example. Any research carried out must be legible to local change-makers, local cultures and local histories.

Small Research Project Proposal Ideas

From the discussion during the event, various small project proposal ideas were established, working with small interdisciplinary teams, which were invited to submit full proposals with a view to them being funded and becoming operational for the first half of 2019. The expectation is that these small pump priming projects will contribute in the future towards wining funding to support more substantive research initiatives under the theme of resilient, inclusive and sustainable cities.

The small project proposal ideas that emerged from the event were:

1. Management of green and blue space to improve wellbeing in the face of increasing pressures
2. Inclusive health system for resilient healthy city
3. Becoming Urban – Untold Stories
4. Inclusion of Migrants in Sustainable Cities
5. Multidisciplinary exploration of Child mental health - Dhaka
6. The Vital City Network
7. Narratives for improving our environment

Proposed Project Topic/Title	Brief Details
1. **Management of green and blue space to improve wellbeing in the face of increasing pressures**	**Aim:** in an urban context, examine interactions between people, urban green and blue space and wellbeing. Consider stresses (people and environment, climate change, for example) on the urban environment and improving interactions between people and urban green spaces as part of the solution. **Challenges:** no or poor quality green space, pressure for land, poor governance, benefits of green and blue space not understood/appreciated. **Desired outcomes:** improved green space, ensure decision-makers are better informed of benefits of urban green and blue space to improve wellbeing. **Methods:** rapid assessment through a desk-based study of the need for green space in four study cities – Dhaka, Kigali, Medellín, Leicester. Mapping, using Earth observation, of population density rates of change over time. Gather demand metrics. Review of structural and governance constraints. Review of current green and blue space and its quality, quantity and location. Use storylines/narratives/community engagement as a way of communicating the research. **Likely Level of funding required:** *c.* £8000–£10,000

2. Inclusive health system for resilient healthy city	**Aim:** examine how cities contribute to health, in particular in relation to the prevalence and spread of TB and Diabetes and how an urban environment exacerbates the spread of these two diseases. **Challenges:** in an environment where there is poor quality housing and poor planning, health systems are not responsive. There is a lack of health system and science knowledge in planning which drives the spread of diseases within cities. **Desired outcomes:** ensure that practitioners are engaged and have the necessary tools to design and monitor a healthy city. In the longer-term, the hope is that this small project will contribute to the development of a training module for practitioners, approaches to improve existing housing as well as planning, development of a monitoring tool, and ultimately, a reduction of disease among vulnerable groups. **Methods:** conduct a systematic review of the built environment factors that contribute to disease prevalence. Recruit a post-doc to conduct the review and to prepare an academic publication from it. Conduct a knowledge, attitude and practice study of public health officials responsible for planning and approving new buildings. From this provide a report and a policy brief.
3. Becoming Urban – Untold Stories	**Aim:** to gain an understanding of the social and cultural needs of urban migrants and to ensure that alternative and marginalised voices are heard in the urban narrative **Challenges:** rapid urbanisation, poverty, lack of social capital/legal status, non-inclusive policy processes. **Desired outcomes:** short-term – create a network of academics and practitioners to facilitate the voices through a workshop to be hosted in Nairobi; long-term – seek GCRF funding to better understand the social and cultural needs of migrant communities in Cairo, Delhi, Leicester, Nairobi and Zomba. To use research findings to influence policy-makers and opinion-formers. Methods: Pre-workshop: use a research assistant to conduct some preliminary research and to compile a report of existing good practice; host a three day workshop to include a public exhibition and presentations, a

		methodology and good practice workshop and site visits; a project planning and proposal writing session. Proposed partners to be involved are: the British Council, the British Institute of East Africa, Centre for the Public Understanding of History, Slum Dwellers International, local governments and UN-Habitat. **Likely Level of funding required:** *c.* £10,000
4.	**Inclusion of Migrants in Sustainable Cities**	**Aim:** use Dhaka and Lilongwe as case studies in examining how best to influence city authorities in including migrants in their planning and governance of a RISC. **Challenges:** migration to cities presents many challenges including marginalisation, resource constraints and governance limitations. **Desired outcomes:** contribution to the literature in the neglected field of sustainable cities and migration. Inclusion by city authorities of migrants in their planning for and governance of RISC. **Methods:** this small project will conduct a desk-based study and some field research – giving voices to migrants to help identify the challenges specific to Dhaka and Lilongwe. A stakeholder mapping exercise will be conducted by two assistants. The project will create a toolbox on guidance to include migrants in the governance process. A situation analysis will be prepared by the two research assistants on both cities, Dhaka and Lilongwe. The project will develop future research grant applications. **Likely Level of funding required:** *c.* £6000–£7000
5.	**Multidisciplinary exploration of Child mental health - Dhaka**	**Aim:** to explore how best to work towards having child mental health integrated in to urban development and planning **Challenges:** child mental health problems vary in accordance with level of social adversity. Disadvantaged children have a higher prevalence of mental health issues. There are impacts on both child and parental mental health which lead to wider social adversities. This increases pressure on cities in areas of inclusivity, security, criminality, terrorism and productivity. **Desired outcome:** have child mental health recognised in urban development.

	Methods: create an evidence-driven action plan. The project will conduct a situation analysis in Dhaka based on exiting literature, a stakeholder mapping exercise, host a workshop feeding in to mapping spatial variability of children and service provision. The project will take an interdisciplinary approach. **Likely Level of funding required:** *c.* £6000
6. **The Vital City Network**	**Aim:** to understand the driving forces of potential access to resources within a city, to identify existing models and to propose a framework that can integrate driving forces and models **Challenges:** a city is typically seen in isolation from any other city in the same region and internationally, as well as from the surrounding rural areas. The dimensions within the city are also often seen in isolation from each other. City planning tends to focus on the city in isolation from the networks that provide resources for its vitality and sustainability and tends to focus on prescribed solutions that are unable to account for potential access to resources. Equity is required not in terms of access but as in terms of potential access. **Desired outcomes:** to understand the driving forces of potential access to resources, to identify existing models and to propose a framework that can integrate driving forces and models. **Methods:** will produce big datasets (from Colombia, South Africa and the UK) that can apply to the framework. Will bring multiple stakeholders together to develop the framework and to identify of driving forces.
7. **Narratives for improving our environment**	**Aim:** understand value systems in local contexts with the aim of contributing to bringing about positive environmental change. **Challenges:** sometimes governance and public opinion overlap to create positive change. This happens when people are lined up, there is a clear policy, and there is will to bring about change. Sometimes, however, public supports needs to be generated. **Desired outcomes:** the identification of different motivations for different groups and a clear map of value systems leading to a strong evidence base in how best to bring about positive environmental change.

	Methods: map value systems in local contexts and generate an evidence base. Host a workshop in Medellín. Produce a LIAS working paper on narratives for bringing about environmental change.

List of Resources

[Provocation Paper](#)

[Cities Challenges Forms](#)

Presentations from Cities