



Urban Africa Risk Knowledge

Urban Africa: Risk Knowledge – A Research Agenda

Policy pointers

- Sub-Saharan Africa's population is urbanising, but so too is urban risk. Smaller urban centres will become an increasingly important priority area for risk reduction given their demographic importance, rapid growth, high poverty levels, and weak urban governance.
- Detailed local data on losses and damages are required to understand the nature and scale of urban risk, and how urbanisation is shaping its social and spatial distribution. New methodologies, such as DesInventar, need to be scaled-out to inform urban risk reduction policy tailored to local needs and priorities (see Box 3).
- It is critical to address urban risk across a spectrum, encompassing everyday hazards and small disasters ('extensive risk') and large disasters ('intensive risk'). Reducing extensive and intensive risk requires coordinated approaches involving urban planning and environmental management, public health, disaster management, and climate change adaptation.
- Urban risk reduction policy is required to tackle access to safe water and sanitation, solid waste collection, safe and secure land for housing, information on risk and its reduction, inclusive decision-making processes and planning procedures, among other factors that mediate between hazard outcomes and dynamic risk governance processes.

Summary

Sub-Saharan Africa's rapid urbanisation presents an enormous opportunity to plan and manage more resilient and sustainable towns and cities. Decision-makers and risk managers at all levels are rising to the challenge. But they need better information on urban risk and its reduction and more action at the local level. There is a need to bring together the public health and disaster risk management fields to tackle the spectrum of different risks. *Urban Africa: Risk Knowledge* (Urban ARK), based in nine cities across sub-Saharan Africa, aims to break cycles of urban risk accumulation by bringing together science and policy actors in the production of knowledge and action – an approach we call 'co-production'. New risk reduction innovations are being developed, providing our partners with a real chance to ensure that sub-Saharan Africa's increasingly urban future is more resilient and sustainable.

Harnessing urbanisation for risk reduction in sub-Saharan Africa

Sub-Saharan Africa's population is increasingly urban, but also increasingly vulnerable to urban disasters of all types and sizes. By 2040, more people will live in urban than in rural areas, amounting to 854 million urban dwellersⁱ. Yet development actors and researchers have been slow to target the 'urban', while the capacity to plan and manage rapid urban growth has been widely lacking in many African towns and cities. This is leading to processes of risk accumulation that pose serious threats to poverty reduction and sustainable developmentⁱⁱ.

Despite its many challenges, it would be a mistake to view urbanisation as a problem. Stakeholders of all kinds – governments, development agencies, civil society, and community organisations – increasingly embrace the opportunity that Africa's urban trajectory presents for the transition to a more resilient and sustainable future, even in the face of widespread poverty and climate change.

African urbanism is distinctive in many ways, and is heterogeneous. Key elements might be identified: a fragmented planning regime and disarticulated land-use, large and growing informal sectors and informal modes of governing, projectised formal development that creates islands of regularisation; customary decision-making and great inequalities in command over science and knowledge in policy and investment decisions. A major concern is how sub-Saharan African urbanisation might be a force for reducing risk, hazard exposure and vulnerability rather than drive risk accumulation and its spatial and socially uneven distribution. This is complicated by the fact that risk management is a cross-cutting issue; its practice is intertwined within everyday decision-making, cultural preferences and experiences of often deteriorated environments.

Addressing urban data gaps

Major data gaps limit our understanding of the nature and scale of urban losses and damages, and how urbanisation is influencing social and spatial

distribution of urban risks. Most data on disaster losses and everyday health outcomes are aggregated at the national scale. This obscures important differences in the distribution of impacts from different hazards in urban centres and how losses differ across different sizes of urban areas, locations and between genders, ages and human abilitiesⁱⁱⁱ.

At the same time, major disaster databases tend to exclude smaller, everyday hazards – ranging from infectious diseases to road traffic injuries and localised floods – despite the significant cumulative impacts they have on the lives and livelihoods of urban dwellers, in particular the urban poor^{iv}. It is important to broaden analysis to encompass the full range of hazards affecting the inhabitants of African towns and cities and be encouraged to capture key social characteristics, most importantly, gender.

Understanding urban trajectories shaping risk

Available data allows us to make some tentative generalisations about urban trajectories shaping risk in contemporary African towns and cities. Firstly, smaller urban centres (< 500,000 inhabitants) contain nearly half of sub-Saharan Africa's urban population, and are expected to accommodate a large share of all future urban growth^v, driven by natural growth and in-migration. Cities with less than 1 million inhabitants that are also the fastest growing, signifying persistent growth in smaller urban centres^{vi}. But many small and medium urban centres lack the capacity to plan urban growth, manage risk, and adapt to emerging hazards^{vii}. This means that many of the future challenges for risk reduction will be concentrated outside the largest cities, which have attracted most attention.

Secondly, mega-cities will remain important priorities for risk reduction given their strategic economic importance and the large number of people and assets they concentrate. But at present, there are only two mega-cities in sub-Saharan Africa: Lagos (Nigeria) and Kinshasa (Democratic Republic of Congo). While three additional mega-cities – Dar es Salaam (Tanzania), Johannesburg (South Africa) and Luanda (Angola) –

are expected to emerge by 2030, they are not growing especially fast^{viii}.

Thirdly, as the population urbanises, so too is poverty^{ix}. The urban poor are among the most vulnerable since they tend to live in informal settlements located in hazard-prone areas without quality housing and risk-reducing services (such as safe water and sanitation, drainage and sewerage, solid waste collection, emergency services, and health care)^x. Consequently, the urban poor tend to disproportionately suffer not only from disasters, but also from biological pathogens in the air, water, food, and soil^{xi}. Much more needs to be understood about the practices of communities that are working to reduce risk as part of their on-going efforts to access secure land for housing and basic services.

Urban Africa: Risk Knowledge (Urban ARK)

Urban ARK is a three-year programme of research and capacity building that aims to respond to the above challenges. Urban ARK is led by 12 policy and academic organisations from across sub-Saharan Africa with international partnerships in the United Kingdom. The work is concentrated in four core cities – each presenting different development and hazard contexts: Ibadan (Nigeria), Karonga (Malawi), Nairobi (Kenya) and Niamey (Niger). Research is also being undertaken in Freetown (Sierra Leone), Dar es Salaam (Tanzania), Mombasa (Kenya), Dakar (Senegal) and Addis Ababa (Ethiopia).

The cities offer broad regional coverage, a range of city population sizes, governance challenges, and

in-land and coastal locations. City-based research teams and local stakeholders – including urban planners, community groups and businesses – take a lead in defining key gaps in data, understanding risk, building capacity, and responding.

Conceptualising risk across a spectrum

Urban ARK sets itself apart from other research projects by conceptualising risk across a spectrum, encompassing everyday, small and large events. This is important in light of evidence showing that the cumulative impacts of what are termed ‘extensive risks’ – including every hazards (such as infectious and parasitic disease, and road traffic injuries) and small disasters (such as localised landslides and floods) – are considerably greater than those of what are termed ‘intensive risks’ – including larger, less frequent disaster events (such as tropical storms, earthquakes, and floods) (Table 1)^{xii}. The boundary between environmental health, everyday and catastrophic risk and loss are difficult to determine and overlap in the context of sub-Saharan African towns and cities. The risk spectrum opens up opportunities to better understand:

- The relative importance of different hazards (biological, environmental, and man-made) in terms of losses and impacts
- The specific forms that vulnerability takes among different people (such as women, infants and children, and the elderly) in relation to different hazards
- The interactions between multiple hazards, including cascading failures
- The underlying drivers of risk linked to poverty, poorly planned and managed urban growth, and changes in climate

Table 1: The spectrum of risk

Nature of event	Everyday hazards	Small disasters	Large disasters
Frequency	Everyday	Frequent (often seasonal)	Generally infrequent
Typical hazards	Diseases, road traffic injuries	Localised floods/landslides	Earthquakes, storms, floods
Scale	Small (1-3 persons killed, 1-9 injured)	Moderate (3-9 killed, 10 or more injured)	Large (10 or more killed, 100 or more seriously injured)
Total impacts on premature mortality and injury	Main cause	Probably significant/under-estimated	Catastrophic in certain places and times, but relatively low
Type of risk		Extensive	Intensive

Adapted from Bull-Kamanga et al. (2003) From everyday hazards to disasters: the accumulation of risk in urban areas. *Environment & Urbanization*, 15(1): 193-204.

Box 1: Key terms and definitionsⁱⁱⁱ used by Urban ARK

Risk: The likelihood of future loss and damage. This is composed of hazard, exposure and vulnerability

Hazard: The potential for harm caused by a natural or human-induced event

Exposure: The presence of people; livelihoods; environmental services and resources; infrastructure; or economic, social, or cultural assets in places that could be adversely affected.

Vulnerability: The propensity or predisposition to be adversely affected.

Disaster: A situation or event, which overwhelms local capacity, necessitating a request to national or international level for external assistance.

Resilience: The ability of a system and its component parts to anticipate, absorb, accommodate, or recover from the effects of a hazardous event in a timely and efficient manner, including through ensuring the preservation, restoration, or improvement of its essential basic structures and functions, without preventing capacity for transformation.

Bringing together policy, practice and science partners

Urban ARK is building an evidence-base that stakeholders (local, national and international) can use to build capacity for urban risk reduction in the project town and cities, and beyond. Urban ARK responds to three key challenges hampering current efforts to enhance sustainable development by integrating risk reduction into urban development processes:

1. **A lack of detailed disaggregated data** on the social, spatial and temporal distribution of losses and impacts on socio-economic and environmental

conditions that influence vulnerability and resilience. Data is especially lacking for low-income and informal settlements.

2. **A lack of systematic analysis** of the ways in which processes of urbanisation, systems of urban planning and governance, and changes in climatic means and extremes are influencing the social, spatial and temporal distribution of existing and future risk in contemporary African towns and cities.
3. **Inadequate human capacity and coordination** among those at risk, including communities, governments

(national and local), civil society, and the private sector.

Urban ARK's approach to addressing these challenges is to build capacity through the co-production of knowledge and policy aimed at stakeholders at all levels. Furthermore, targeted actions are particularly aimed at the local government level, since this is where decisions about land management, service provision, and planning are often taken. Indeed, much of the responsibility for providing risk-reducing infrastructure and safe and secure land for housing falls to local governments.

Our work is guided by four inter-linked programmes of work (Box 2). These programmes bring together development practitioners, epidemiologists, natural hazard scientists, climatologists, disaster risk managers, sociologists, and urban planners into a coordinated programme of work. Importantly, by viewing everyday health and disaster risks as two ends of an overlapping spectrum of risk, this framework opens up new opportunities for coordination across disciplinary boundaries across established traditions in disaster management, development planning and public health, all of which are concerned with common issues surrounding the environment, development and governance.

Box 2: Urban ARK's four inter-linked programmes of work

1. **Vulnerability assessment:** Through deploying vulnerability and loss assessment methodologies, focus is on assessing hazards and underlying socio-economic and environmental conditions of vulnerability. In Ibadan, projects teams are working to develop the DesInventar methodology. Other methodologies involve epidemiology, community participation, and child and gender-sensitive approaches.
2. **Hazards assessment:** Assesses (a) multi-hazard relationships and their impact on infrastructure networks and land-use, including the production of new digitised land-use maps, and (b) climate downscaling for urban planning and decision-making.
3. **Root cause analysis and historical governance trajectories:** Investigates (a) the dynamic historical processes of urbanisation and governance in sub-Saharan Africa that shape contemporary expressions of hazards, vulnerability and risk management capacity, in response to both everyday hazards and disasters, and (b) the factors shaping the emergence and contribution of mediating or intermediate actors around urban development and risk reduction, with a focus on the governance space between local community actors and organisation of local government.
4. **Urban development, planning and governance:** Investigates relationships between urban risk and its production and reduction through an examination of (a) current and recent investments in infrastructure, construction and planning (b) urban planning policy and regulatory frameworks (c) the underlying power dynamics between stakeholders that guide urban development, including organised grass-roots and local governance networks, government, private sector and others.

An example of an innovative methodology we are seeking to improve is DesInventar, a database that captures the impacts of smaller, everyday hazards at the sub-national scale (Box 3). DesInventar has yet to collect data detailed enough and adequate in scope to make accurate conclusions or

generalisations about the distribution of urban hazard impacts. We see this as an opportunity to improve this methodology to help inform urban risk reduction policy tailored to local needs and priorities.

Box 3: Scaling-out DesInventar in sub-Saharan Africa

DesInventar is a collection of databases, which currently covers 15 countries in sub-Saharan Africa: Comoros, Djibouti, Ethiopia, Kenya, Madagascar, Mali, Mozambique, Morocco, Mauritius, Niger, Togo, Tunisia, Senegal, Sierra Leone, Seychelles, Uganda and Tanzania (Zanzibar only). The impacts of local events are recorded in national databases, providing detailed data on losses that can be combined to provide a more accurate and detailed picture of urban risk when disaggregated to the district level.

Addressing dynamic processes and cross-cutting themes

The Urban ARK programme of work entails an overarching focus on addressing factors that mediate the relationship between hazard

outcomes (everyday, small and large) and dynamic processes of risk governance. These factors form entry points for risk reduction policy and include access to:

- safe water and sanitation
- solid waste management
- safe and secure land for housing
- public health
- knowledge about risk and its reduction
- social conflict
- representative and inclusive decision-making processes and planning procedures.

Several cross-cutting themes are embedded in the overall programme (Box 4). We argue that gender and other social identities play important roles in determining who is at risk, and why. In addressing these questions, we consider other cross-cutting themes. These include extensive risk in underpinning vulnerability to large-scale disaster events; and conflict and violence in intensifying the vulnerability of poor and insecure groups during and after disaster events. A further major underpinning theme across the programme is the role played by poverty in shaping vulnerability, especially among those living in ill-served, insecure and hazard-prone informal settlements.

Box 1: Cross-cutting themes

Extensive risk can lead to the continuous erosion of people’s health, assets and income, thereby reducing their capacity to cope with larger-scale events, to recover, and to take action to reduce future risk.

Gender among other social identities (of age, income/class, ethnicity, etc.) are significant variables in determining who within an urban population is most at risk, and why. Adopting a gender perspective requires issues of difference and diversity to be considered across all work programmes – not as a separate ‘sector’.

Conflict and violence can intensify the vulnerability of particular groups of people, but can also arise in the aftermath of a disaster, when competition over scarce resources can aggravate existing tensions in communities.

Poverty: The multitude of deprivations that characterise urban poverty render those living ill-served and insecure informal settlements among the most vulnerable when exposed to

biological and environmental hazards (everyday, small and large).

Co-production and impact to ensure that the knowledge generated by Urban ARK is legitimate and accessible in its conception, generation, dissemination and application.

The role of urbanisation in transforming the risk-development nexus

Major international policy frameworks including the New Urban Agenda, Sustainable Development Goals as well as the Sendai Framework for Action are explicit about the centrality of urban resilience for sustainable development. As the Sustainable Development Goals state: “Disaster risk reduction (DRR) is an integral part of social and economic development, and is essential if development is to be sustainable for the future.” (UN 2015).

Urban ARK responds to and furthers the objectives of international policy agendas through its focus on capacity building, evidence based planning and policy making amongst implementing agencies, including community groups within the Urban ARK target cities, and on strengthening the sub-Saharan African policy and academic landscape for resilience and disaster risk management. Further examples of impact include:

- Linking disaster risk reduction with urban poverty reduction and development planning
- Protecting progressive development gains from climate change and poorly planned and managed urban growth
- Addressing the proximate and root cause of risk linked to poverty, poorly planned and managed urbanisation, and limited capacity, especially at the local government
- Harnessing the synergies between disaster risk reduction and urban health promotion through the creation of healthier and more resilient urban living environments, especially for the urban poor

Donald Brown, Cassidy Johnson (University College London, Development Planning Unit)

Hayley Leck, Mark Pelling (King's College London)

References/endnotes

-
- ⁱ UNDESA. (2015) World Urbanization Prospects, 2014 Revision. New York: United Nations.
- ⁱⁱ Adelekan et al. (2015) Disaster risk and its reduction: an agenda for urban Africa. *IDPR*, 37(1): 33-43.
- ⁱⁱⁱ Osuteye, E, et al. (2016) The data gap: An analysis of data availability on disaster losses in African Cities. UrbanARK Background Paper. Working Paper # 11.
- ^{iv} Pelling, M, and Wisner, B. (2009) Disaster Risk Reduction: Cases from Urban Africa. London: Earthscan.
- ^v Satterthwaite D. (2016) Small and intermediate urban centres in sub-Saharan Africa. Background Paper, No. 6 Prepared for the international research project on Urban Africa Risk Knowledge (UrbanARK). London.
- ^{vi} McGranahan G and Satterthwaite D. (2014) Urbanisation concepts and trends. Working Paper, June 2014. London: IIED.
- ^{vii} Wisner B et al. (2015) Small Cities and Towns in Africa: Insights into Adaptation Challenges and Potentials. In: Pauleit S, et al. (eds) Urban Vulnerability and Climate Change in Africa. London and New York: Springer.
- ^{viii} See footnote vi
- ^{ix} Mitlin D and Satterthwaite D. (2013) Urban Poverty in the Global South: Scale and Nature, London: Earthscan.
- ^x Dodman, D, et al. (2013) Understanding the nature and scale of urban risk in low- and middle-income countries and its implications for humanitarian preparedness, planning and response. Human Settlements Discussion Paper Series, Climate Change and Cities 4. London: IIED.
- ^{xi} Hardoy JE, et al. (2001) Environmental Problems in an Urbanizing World, London: Earthscan.
- ^{xii} UNISDR. (2009) Risk and Poverty in a Changing Climate: The 2009 Global Assessment Report on Disaster Risk Reduction. UNISDR: Geneva.
- ^{xiii} IPCC. (2012) Managing the Risks of Extreme Events and Disasters to Advance Climate Change adaptation. Special Report of the Intergovernmental Panel on Climate Change (IPCC). New York: Cambridge University Press.

Urban Africa: Risk Knowledge (Urban ARK) is a three-year programme of research and capacity building that seeks to open up an applied research and policy agenda for risk management in urban sub-Saharan Africa. Urban ARK is led by 12 policy and academic organisations from across sub-Saharan Africa with international partnerships in the United Kingdom.

Contact:

Professor Mark Pelling
Urban ARK Principal Investigator
King's College London
mark.pelling@kcl.ac.uk
www.urbanark.org



The contents of this Policy Brief reflect the views of the authors only and not necessarily those of the research donors, the UK Department for International Development or the Economic and Social Research Council.