



Nairobi Impact Story

Pathways for risk-informed informal settlement upgrading



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Thank you for your continued commitment to our shared mission.

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DOI:



**Tomorrow's
CITIES**
Urban Risk in Transition

Summary

Over the past 5 years, Tomorrow's Cities has worked in Nairobi to foster risk-informed, equitable approaches to urban planning, particularly focused on upgrading informal settlements.

Early research in the informal settlement of Mukuru provided critical insights into natural hazard risks impacting local communities and highlighted the unique vulnerabilities within informal settlements. This foundational work informed the broader deployment of the Tomorrow's Cities Decision Support Environment (TCDSE) in Kibera - the largest informal settlement in Nairobi - where rapid changes were underway following its designation as a Special Planning Area (SPA).

In Kibera, Tomorrow's Cities prioritised integrating community voices into a participatory planning process that addressed specific urban challenges, such as land-use conflicts stemming from regularisation pressures and frequent flooding risks.

Collaborating with local and national stakeholders - including the Nairobi City County Government, Kenya Red Cross, Slum Dwellers International (SDI), Kounkuey Design Initiative (KDI), and UN-Habitat - the project conducted a series of co-production workshops.

These workshops engaged diverse groups (elders, youth, women, and business owners) to articulate local development visions, consolidate policies for urban change and Disaster Risk Reduction (DRR), and assess the potential impacts of various flood scenarios modelled by Tomorrow's Cities' science team. Action Planning workshops further consolidated these learnings, fostering discussions on replicability, scalability, and the key constraints and opportunities for policy adoption.

Key impacts of the project include:

- **Deep Co-Production and Community Learning:** Collaborative data collection on vulnerability and risk perception enabled marginalised communities to contribute to risk-informed development through bespoke future scenarios.
- **City-Level Partnerships and Policy Influence:** Leveraging the SPA designation for Kibera has strengthened the integration of DRR in policy conversations about informal settlement upgrading.
- **National Impact:** The TCDSE principles are being incorporated into the Building Climate Resilience for the Urban Poor (BCRUP) national programme.
- **Regional and International Collaboration:** Peer learning engagements between Nairobi, Nakuru (Kenya), and Dar es Salaam (Tanzania) have fostered regional exchange on resilient urban development.

▼ Next page: Nairobi



Introduction

Nairobi is a city of stark contrasts, where rapid urban growth and economic opportunity intersect with the realities of urban informality, particularly affecting its most vulnerable residents.

As one of Africa's principal economic hubs, Nairobi attracts considerable investment, particularly in housing and environmental projects. Yet, like many cities in the Global South, Nairobi faces the dual pressures of rapid urbanisation and rising disaster risks. The city's population grows at an annual rate of 4-5%, with nearly half of its residents living in densely populated informal settlements near rivers and flood-prone areas, which heightens their exposure to severe flooding, waterborne diseases, and fire hazards.

Kibera, Africa's largest informal settlement, exemplifies these challenges. With approximately 250,000 residents, it faces limited infrastructure and essential services, including water, sanitation, and healthcare. Many residents rely on informal service connections, further intensifying community risks. In 2020, Kibera was designated a Special Planning Area (SPA) to halt new developments and promote inclusive planning that reflects residents' needs and concerns.

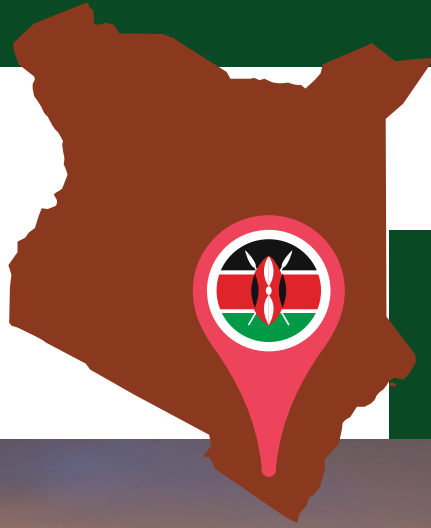
Tomorrow's Cities supported Kibera's urban development by introducing future-oriented, risk-informed urban planning to strengthen inclusive informal settlement upgrading processes.

Nairobi's governance landscape is complex, with various actors—private investors, urban planners, and regulators—often operating under overlapping agendas. This fragmented structure, driven by competing interests in land use and ownership, frequently limits the participation of informal settlement communities in planning processes and creates divergent pathways for the city's future, potentially entrenching risks for vulnerable communities.

Tomorrow's Cities offers opportunities for direct community engagement in planning, supporting a more inclusive, resilient urban future for informal settlements through state-of-the-art tools and interdisciplinary approaches to urban planning and disaster risk reduction




▲ Nairobi



Nairobi

 **696 sq. km**
metro urban area in 2022

 **12%** of land occupied
by informal settlements

 **60-70%** of residents live
in informal settlements

 **4 906 355**
population 2025 (projected)

 **4-5%** average annual
population growth rate

▲ Nairobi



I now understand that we need a proper plan for Kibera, which takes into consideration factors such as hazards, especially floods, and vulnerability.

Kibera resident



▲ Tomorrow's Cities workshop

Challenges

These governance challenges were identified by various stakeholder groups in Nairobi:

1

Unclear Mandates for Long-Term Future Planning

There needs to be more clarity regarding which organisations and sectors will spearhead long-term planning processes informed by scientific evidence.

2

Disconnected Planning Silos

Nairobi's practice landscape is fragmented, with different sectors (housing, transport, environment) having varying approaches to incorporating tools for addressing multihazard risk and climate change.



▲ Tomorrow's Cities meetings with Nairobi stakeholders

3

Little Investment in Innovation

Institutions still rely on conventional strategic planning tools. The city must strive to be at the cutting edge of decision-making by embracing innovative approaches and technologies.

◀ Tomorrow's Cities immersive risk assessment platform (Webapp)



4

Informality and Entrenched Inequalities

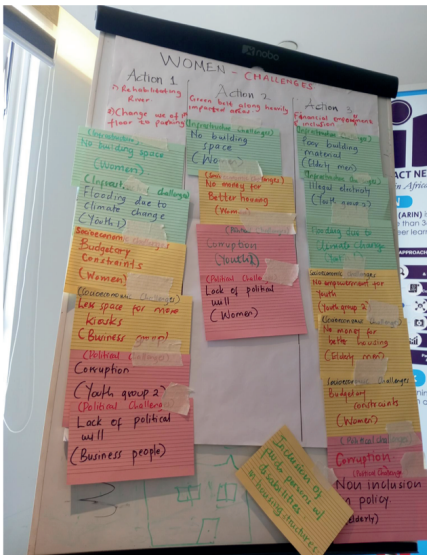
Poor and vulnerable residents are often tasked with 'being resilient.' Just long-term planning must address how institutions create and perpetuate informality and inequalities, which are key factors in urban risk.

5

Lack of Vision and Leadership

Despite institutional fragmentation and resource challenges, in Kenya, many believe that 'planning failures' stem from a lack of vision. There is a need for a shared commitment to transform urban realities through unified goals and strong, progressive leadership.

▼ Kibera



◀ Institutional challenges for risk reduction mentioned during workshop with Kibera community

Opportunities

Conversations with communities and authorities also led to the identification of key opportunities for change:

1

Developing Shared Visions and Leaderships to Drive Change

Communities should be at the heart of visioning development. Visions should be key instruments for ensuring accountability from decision makers.



▲ Tomorrow's Cities workshops

2

Risk and Climate Change as Tools to Unlock Collaborations

To achieve comprehensive urban planning that effectively integrates risk management into its practices, the city must rely more on civil society organisations, which excel at connecting with communities.

3

New Guidelines for Data and Information Sharing

Data should be a key mechanism for integrating key departments related to risk reduction and urban planning.

4

Investments in Technology and Capacity Building

This includes equipment and software for collecting and processing critical data for high-quality risk assessments, competitive compensation for city officials to attract, train and retain talent, and a dedicated budget to address climate change-related issues.



▲ Tomorrow's Cities workshops

Kibera

The largest informal settlement in Nairobi, Kibera exemplifies the inequalities that Tomorrow's Cities aims to address and served as a testing ground for our inclusive, equity-oriented approach to risk reduction.

Kibera was designated a 'Special Planning Area' (SPA) by the County Government of Nairobi in 2020. This planning tool for informal settlement upgrading creates opportunities for increased community participation and comprehensive infrastructural development.

Lessons from the Tomorrow's Cities approach provide a chance to undertake risk-

informed projects in Kibera, shaped by the visions of various local groups, including youth, women, business people, and elders.



The future Kibera should be safe from hazards, inclusive, and supportive of livelihoods, security, jobs, social cohesion, and quality infrastructural amenities.

Vision from one of Kibera's groups



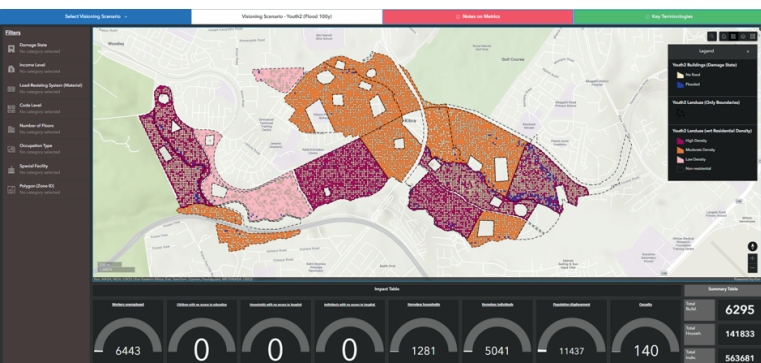


TCDSE Implementation



▲ Tomorrow's Cities Workshop

The work in Nairobi followed the key stages of the Tomorrow's Cities framework: City Scoping, Future Visioning, Urban Scenarios, Hazard and Impact Modelling, and Risk Agreement. During the final stage, Implementation Pathways, stakeholders discussed opportunities for replication, upscaling, and additional funding for this work, as well as possibilities for cross-sectoral and multi-level collaborations.



▲ Risk Assessment for future urban scenario for Kibera

150

Community-based organisations mapped in Nairobi

400

residents surveyed in Mukuru to identify key risks in informal settlements

32

residents and leaderships engaged in co-production workshops in Mukuru

72

residents and leaderships engaged in co-production workshops in Kibera

Key Partners



Africa Research & Impact Network (ARIN)

ARIN is an organisation and impact platform that brings together a network of scholars and policymakers across Africa. It spearheaded the Tomorrow's Cities project in Nairobi, producing a series of champions for its methodology.

Kounkuey Design Initiative (KDI)

A non-profit organisation focused on transforming impoverished communities, KDI was instrumental in establishing early connections in Kibera and engaging local leadership to better frame challenges and identify impact opportunities. KDI also contributed to policy conversations that supported the project's impact.



Kenya Red Cross

The International Federation of Red Cross and Red Crescent Societies is the world's largest humanitarian network. In Kenya, it is a key disaster management actor. Members of the organisation participated directly in training sessions and in implementing the TCDSE in Kibera.

UN-Habitat

UN-Habitat promotes the development of socially and environmentally sustainable cities. Headquartered in Nairobi, it has significant influence in Kenya. UN-Habitat supported the later stages of Tomorrow's Cities by co-convening policy workshops and collaborating in peer learning activities between Nairobi and Nakuru.



Impact

Tomorrow's Cities transformed community voices into actionable urban scenarios for Kibera, influencing city-level planning, national programmes, and regional collaborations. Through these new linkages the project set new standards for resilient, inclusive urban planning for informal settlements.

1

Deep Co-Production and Community Learning

Tomorrow's Cities collaborated with local groups in Mukuru and Kibera to capture community perspectives and priorities around risk. The project implemented the Tomorrow's Cities Decision Support Environment (TCDSE) in Kibera, transforming residents' aspirations for their settlement's future into urban scenarios tested against multiple hazards. This deep co-production process empowered

residents, enabling them to voice their needs and create evidence-based priorities for planning and policy. The flood modelling work by the science team provided a robust foundation for these discussions.

2

City-Level Partnerships and Policy Influence

The Tomorrow's Cities team presented the bespoke urban scenarios created with Kibera residents to a range of city-level stakeholders. Unlike traditional participatory planning, these scenarios generated meaningful discussions around policy options, reflecting the varied needs of different social groups and highlighting the implications of these choices. This approach strengthened the Special Planning Area process in Kibera, with broader influence across Nairobi's urban planning initiatives.

▼ Institutional stakeholders analysing Kibera scenarios

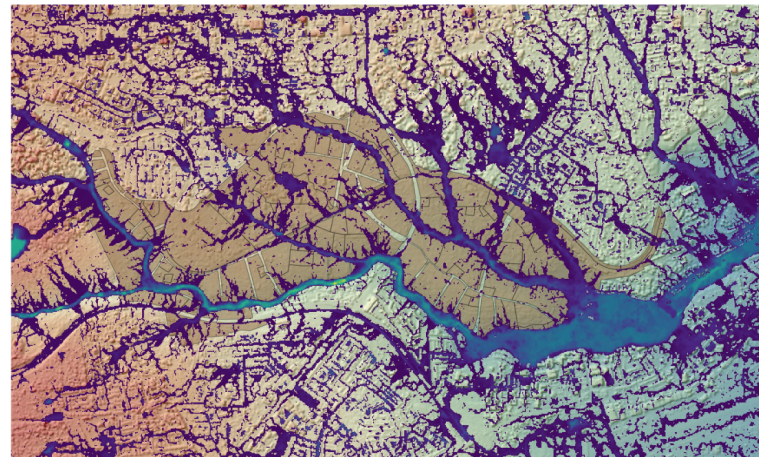


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National Impact

The work of Tomorrow's Cities in Nairobi attracted national-level attention, especially within the Building Climate Resilience for the Urban Poor (BCRUP) programme. ARIN led collaborative "writeshops" with BCRUP representatives to embed Tomorrow's Cities' principles and methodologies into the programme's design, creating a pathway for influencing planning strategies for informal settlements across the nation.

Kibera 1-100 year flood map



▲ Flood modelling for Kibera



▲ Tomorrow's Cities workshop with policy makers and authorities

5

Regional & International Collaborations

Nairobi's early involvement with Tomorrow's Cities set the stage for broader influence in Kenya and Tanzania. As advocates of the TCDSE approach, the Nairobi team spearheaded peer-learning initiatives in Nakuru (Kenya) and Dar es Salaam

(Tanzania), enhancing regional networks and fostering collaborative relationships grounded in Tomorrow's Cities' methods and values.

In Short

The work to support future-oriented and inclusive risk reduction in Nairobi continues with a series of follow-up bilateral conversations with key stakeholders to provide details and direction for the identified future pathways.

Tomorrow's Cities has partnered with communities and government institutions in Nairobi to promote equitable urban planning that addresses local risks, particularly in informal settlements. Starting in Mukuru and later expanding to Kibera, the project has focused on understanding the specific challenges faced by residents in vulnerable areas and designing solutions that are both locally informed and sustainable.

The Kibera work took on particular importance after it was designated a Special Planning Area (SPA), intensifying the need for integrated planning to manage issues like frequent flooding and land-use tensions.

A core component of the initiative has been embedding community voices in the planning process. Under the leadership of the Africa Research & Impact Network (ARIN), and through collaborations with the Nairobi City County Government, Kenya Red Cross, Slum Dwellers International (SDI), Kounkuey Design Initiative (KDI), and others, Tomorrow's Cities facilitated workshops that brought together diverse groups, including elders, youth, and local business owners. These sessions helped clarify the community's development goals and define disaster risk reduction priorities, while Tomorrow's Cities' science team provided detailed flood scenarios to inform

planning decisions. Discussions on policy adoption, scalability, and resource allocation further advanced the potential for city-wide application.

The project continues to drive forward locally-led, inclusive risk reduction initiatives through several focused efforts:

Sharing Lessons with Policymakers

Documents like this Impact Story and other Reports synthesise project findings and will help address existing institutional and data gaps, supporting institutional efforts to build a comprehensive urban resilience framework for informal settlements.

Upscaling Impact in Nairobi

Collaborations with Nairobi City County aim to incorporate data, tools, and lessons from Kibera into broader urban planning strategies that prioritise risk reduction across the city.

Expanding Science-Based Risk Reduction

Based on the work in Nairobi, Tomorrow's Cities is working with UN-Habitat to adapt its methodologies for other contexts in Kenya and the Global South, fostering a broader adoption of science-driven urban resilience.

Supporting Other Locally Led Initiatives

Efforts are underway to form a collaborative group coordinated by ARIN.

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UK Research
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