



Dar es Salaam Impact Story

Integrating Informal Settlements into Risk-Informed Urban Planning



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DOI:



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

Summary

In Mianzini, Tomorrow's Cities is empowering local communities to tackle long-term climate risks by rethinking land use and adopting sustainable urban development strategies.

Dar es Salaam, Tanzania's largest metropolis, is home to over 5 million people and is the second-fastest-growing city in the world. By 2035, its population is projected to reach 13.4 million. The city's rapid urbanisation, coupled with its coastal location, makes it highly vulnerable to climate hazards like flooding, sea-level rise, and landslides, particularly in its densely populated, low-income informal settlements. One such settlement, Mianzini, with 23,000 residents, was selected as a key site for Tomorrow's Cities deployment.

Tomorrow's Cities' activities helped local authorities and grassroots actors in Mianzini to recognise the long-term risks of climate hazards. Specifically, community groups reconsidered their land use strategies agreeing on adopting strategies like vertical development, increased housing density, and the need for improved infrastructure.

Several workshops were conducted to strengthen local capacity in risk-informed urban planning, training over 100 participants, including Ardhi University staff, local and national authorities, and community leaders.

Key municipal and national technical staff and policymakers endorsed the approach and the Tomorrow's Cities Decision Support Environment (TCDSE) as critical for urban planning. High-level engagements called for institutionalising the TCDSE in the national urban planning system.

Efforts are ongoing to integrate the TCDSE with Tanzania's Hybrid Land Tenure Process, led by the Ministry of Lands, Housing, and Human Settlements Development. This initiative aims to fill gaps in the current planning model, such as future risk projections and community engagement, while creating a more comprehensive urban planning framework. Additionally, Ardhi University is set to collaborate with academic institutions to review curricula and offer short courses to further disseminate the Tomorrow's Cities approach.



+100

Participants in Tomorrow's Cities workshops.

28

Community leaders and members involved in the project.



▲ Tomorrow's Cities launching ceremony

Introduction

Dar es Salaam's rapid growth is a double-edged sword, driving economic opportunities while intensifying the climate risks faced by its vulnerable informal settlements like Mianzini, where flooding and landslides threaten the city's future.

Dar es Salaam, nestled along the eastern coast of Tanzania and bordered by the Indian Ocean, has rapidly transformed into the country's most populous metropolis. With over 5 million residents, it is also the fifth largest city in Africa and holds the distinction of being the second-fastest-growing city globally. By 2035, its population is projected to soar to as much as 13.4 million. This explosive urban growth, while fuelling economic opportunities, has also heightened the city's vulnerability to a range of climate hazards, driven by its coastal proximity and tropical climate.

Dar es Salaam's exposure to hazards is particularly evident during the long rainy season from March to May, when the city faces severe flooding, exacerbated by rising sea levels. In addition to flooding, landslides and extreme temperatures present ongoing challenges. These hazards disproportionately affect the city's low-income, informal settlements, where 70% of residents live. Rapid urbanisation, coupled with deep social and economic inequalities, has left these areas with severe infrastructure deficits, including inadequate stormwater drainage systems, sanitation, and water supply.

Mianzini, a 23 000 people informal settlement in greater Dar Es Salaam, was selected for Tomorrow's Cities due to its evolving status as a peri-urban area undergoing significant transformation. This transformation is driven by the availability of affordable land, attracting in-migration and leading to a surge in housing development. Adding to this, development has occurred along a hilly terrain which, during the rainy season, sees its lower areas transforming into a small river prone to landslides along its banks.

These factors make it a key site for understanding the dynamics of urban growth in rapidly expanding cities like Dar es Salaam, where such informal areas play a critical role in accommodating population growth and shaping the city's future urban landscape.



▲ Mianzini informal settlement housing project

Dar Es Salaam



1393 sq. km
urban area



5 383 728
population



5.6%
pop. growth rate



8% per year
urban expansion



80% of land &
settlements are
informal



 Dar Es Salaam



Dar Es Salaam 



Mianzini was selected after discussions with the municipal director and mayor, following visits to several settlements, including Mianzini itself. It was considered appropriate for this research due to its history of flooding, landslides, and other disaster risks.

Dr. Alphonse Kyessi
Associate Research Professor
Ardhi University in Tanzania

Challenges

1

Climate Hazards and Urbanisation

Dar es Salaam's coastal location makes it particularly vulnerable to climate hazards such as intense flooding, sea-level rise, and landslides, especially during the rainy season from March to May. Rapid urbanisation and housing pressures have exacerbated the situation for low-income settlements, which often lack essential infrastructure like stormwater drains and proper sanitation, increasing their exposure to these risks. Approximately 8% of the city lies within low-elevation coastal zones, and in 2005, models projected that 30,000 people and USD 35 million in assets were at risk from a 100-year coastal flood event.

2

Inadequate Urban Services and Planning

Dar es Salaam's rapid population growth has outpaced the provision of adequate urban services. Nearly 80% of the population lives in flood-prone areas, many of which lack effective drainage, proper housing, and reliable access to sanitation. The rise of informal settlements stems directly from ineffective urban planning, with zoning and land governance failing to account for future risks like flooding and landslides. While the current Master Plan (2012–2032) broadly identifies flood-prone areas as hazardous, it lacks multi-hazard risk projections, limiting its effectiveness in long-term disaster risk mitigation.



▲ Peri urban area in Dar es Salaam

3

Institutional Coordination

The challenges in addressing disaster risks are further exacerbated by limited coordination among urban planning institutions. Engagement with grassroots organisations and community stakeholders has been minimal, leading to a disconnect between policy and practice. Recent initiatives, such as Tomorrow's Cities, have sought to bridge this gap by collaborating with key ministries and technical agencies, proposing the integration of multi-hazard modelling into urban planning. However, existing governance structures have been slow to adapt to these innovative approaches, delaying the institutionalisation of more resilient planning processes.

4

Socio-Economic Inequalities

Dar es Salaam's informal settlements, such as Mianzini in Temeke Municipality, are marked by significant socio-economic inequality. These areas are home to low-income residents who are disproportionately affected by climate hazards due to inadequate housing, poor infrastructure, and limited resources to adapt or relocate. Mianzini's peri-urban status, coupled with its location on hilly terrain prone to landslides, makes it particularly vulnerable. The absence of targeted planning for such communities highlights the need for more inclusive urban development strategies that prioritise the most at-risk populations.



We face numerous challenges as a coastal city. We are dealing with issues such as rising sea levels, climate change, heat waves, and frequent flooding due to inadequate infrastructure. Our sewage and stormwater systems, in particular, are insufficient to manage these growing risks.

Dr. Alphonse Kyessi
Associate Research Professor
Ardhi University in Tanzania

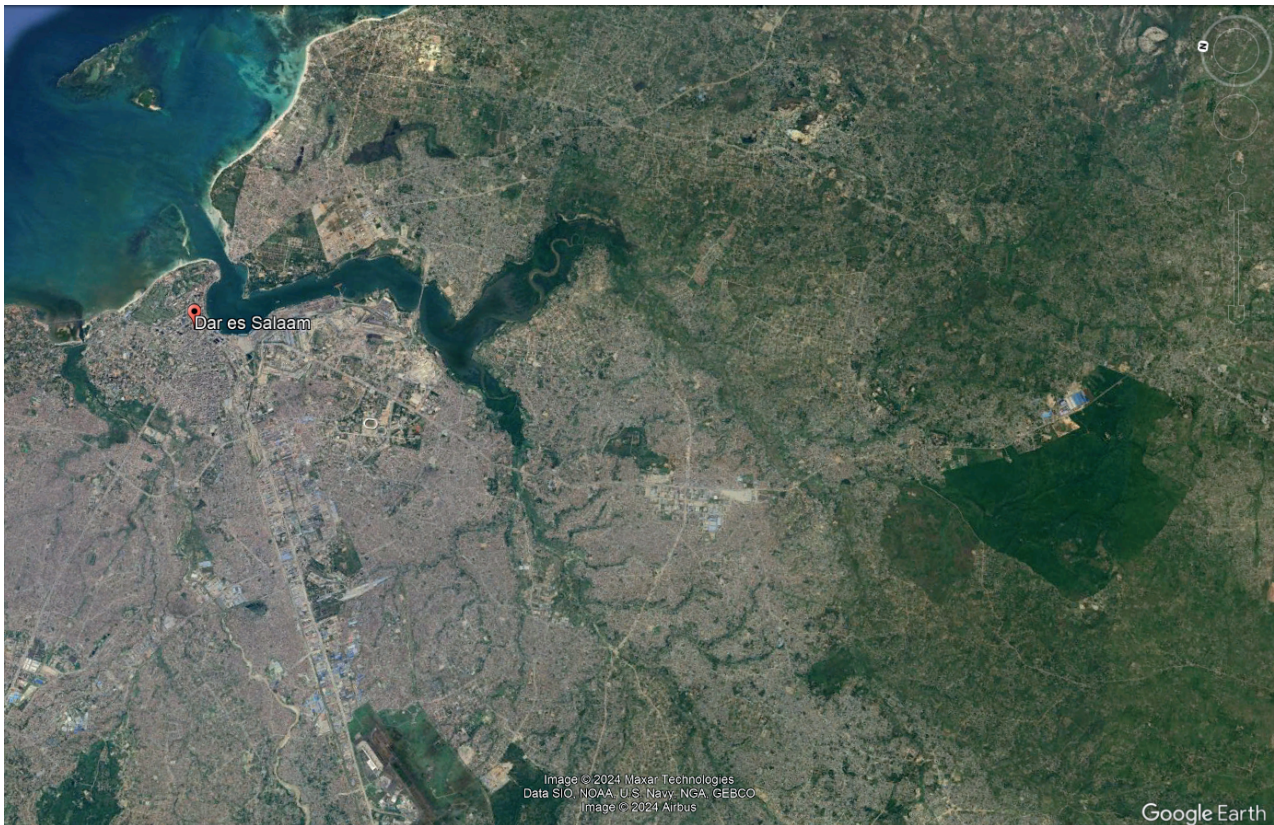


▲ Mianzini

1999



2023



▲ Urban expansion in Dar Es Salaam between 1999 and 2023

Next page: street in Mianzini, Dar Es Salaam ▼



Opportunities

Through Tomorrow's Cities engagement, and using Mianzini as a pilot case for impact, Dar es Salaam is seizing opportunities to enhance urban resilience in informal areas by fostering inclusive planning, integrating multi-hazard modelling, and driving progressive policy reform for vulnerable communities, ensuring that upcoming regularisation occurs in equitable ways.

1

Enhancing Urban Planning and Stakeholder Engagement

The lack of inclusive urban planning in Dar es Salaam, particularly the absence of stakeholder involvement in decision-making, presents a key opportunity. Tomorrow's Cities can facilitate more comprehensive planning processes by involving grassroots institutions and communities in discussions about land use and flood risk.



▲ Mianzini.



We should not resist informality, as it reflects the urban reality of Africa. However, we must be more proactive than reactive. It's essential to work with residents, engaging directly with the people rather than imposing top-down approaches. The TCDSE takes a bottom-up approach, demonstrating that by embracing residents' lives, practices, and local knowledge, we can develop plans that are more relevant and sensitive to the context.

Dr. Tatu Mtwangi Limbumba
Senior Research Fellow at Ardhi University.

2

Integrating Multi-Hazard Modelling into the Master Plan

The Dar es Salaam Master Plan (2012–2032) falls short in addressing long-term risks such as flooding and landslides, particularly in vulnerable areas like Mianzini. The TCDSE framework can be leveraged to model multi-hazard risks and recommend updates to the Master Plan. This would enable city planners

to integrate future climate projections into new zoning regulations and infrastructure planning, thereby reducing the vulnerability of Mianzini's residents to climate-induced disasters.

3

Supporting the Land Tenure Programme with Risk Data

The World Bank-funded Land Tenure Programme, implemented by the Ministry of Lands, Housing and Human Settlements Development, provides an ideal entry point for Tomorrow's Cities to embed its approach. By aligning multi-hazard risk analysis with land suitability assessments, Tomorrow's Cities can help ensure that land-use decisions are informed by a comprehensive understanding of disaster risks.

4

Promoting Policy Reform for Vulnerable Settlements

By collaborating with key ministries and agencies, the project can advocate for a hybrid planning tool that institutionalises disaster risk management across the country. This would enhance disaster preparedness not only in Mianzini but also in other high-risk informal settlements throughout Dar es Salaam.



There is an ongoing land regularisation hybrid process that involves data collection and analysis, but it does not account for future risks. This is where the TCDSE can be integrated, and we have agreed to hold discussions on how to incorporate it into the existing framework.

Dr. Alphonse Kyessi
Associate Research Professor
Ardhi University in Tanzania

5

Building Local Capacity for Risk Management

The engagement of technical staff and policy makers in workshops highlights an opportunity to strengthen local capacity for disaster risk management. Tomorrow's Cities can continue to build on this foundation by providing further training and resources for urban planners and local authorities.



 Mianzini

Mianzini

Frequent flooding and landslides compound the harsh realities of life in Mianzini, where rapid urbanisation outpaces critical infrastructure.

Mianzini, an informal settlement within Temeke Municipality in Dar es Salaam, Tanzania, is home to approximately 23,000 residents. This peri-urban area is undergoing rapid, unregulated development due to the availability of affordable land, which has attracted significant in-migration and led to dense housing growth.

Covering around 7 square kilometers, the settlement is predominantly inhabited by low-income residents who face significant challenges due to inadequate urban services, such as limited access to sanitation, stormwater drainage, and waste management systems.

Situated on hilly terrain, Mianzini is particularly vulnerable to environmental hazards like flooding and landslides, risks that are heightened by its lack of infrastructure.

The settlement was heavily affected by the 1997-1998 El Niño rains, which caused widespread flooding and property damage. Frequent exposure to such risks exacerbates the already difficult socio-economic conditions for residents.

Despite these vulnerabilities, Mianzini continues to evolve rapidly, driven by ongoing urbanisation and migration, which further complicates the settlement's planning and infrastructure needs.



▲ Mianzini

Next page: severe rain in Mianzini





SHINA MAPINDUZI
SHINA LA WAKELEKETWA
SHINA LA MACHINJIONI
KUSINI
REFUNGULIWA TAR: 19-10-2020
NA MGOMBEA HEJUNCE
NOUGU, ABDULLAH (KATIPE)

TCDSE Implementation

In Mianzini, the Tomorrow's Cities Decision Support Environment (TCDSE) integrated both bottom-up and top-down strategies.

Community input was central to shaping the outputs— such as visions and urban scenarios for modelling – while strategic and continuous engagement with local, metropolitan, and national authorities further enhanced the potential for policy uptake.



Future Visioning in Mianzini ▲

8

Temeke Municipality staff members involved in the TCDSE deployment.

11

Ardhi University members involved in the TCDSE deployment.

7

Head of departments from national and regional government engaged in policy discussions.

28

community leaders and members directly involved in deployments.

+100

participants engaged in the capacity strengthening programme



▲ Tomorrow's Cities workshop in Mianzini.

The approach employed a combination of top-down and bottom-up strategies to ensure both political support and community engagement:

Top-down

This involved multiple visits and discussions with technical and political staff from the Temeke Municipal Council. These efforts aimed to build rapport and secure the backing of municipal leaders, which was essential for the long-term success and adoption of the process.

Bottom-up

The focus was on inclusivity, engaging a wide range of social groups within the community. Local leaders identified these groups, which were then validated during a community meeting.

Participants included youth, the elderly, residents from flood-prone areas, and local leaders, as well as selected municipal staff. Special attention was given to women, who often face disproportionate challenges during hazard-related crises. During a community meeting held prior to the deployment of the TCDSE, residents shared their personal experiences with flooding and landslides, revealing how each group was uniquely affected. It also became clear that tenants, often overlooked in such efforts, were an important group to consider for future planning.



We believe the TCDSC can integrate with the land suitability analysis currently part of regularisation efforts. While this analysis considers existing risks, it lacks future hazard projections. The TCDSE process can fill this gap and significantly enhance long-term resilience.

Dr. Tatu Mtwangi Limbumba
Senior Research Fellow at Ardhi University

Future TCDSE deployments

1

Update Maps for Best Community Input

In future deployments or similar initiatives, securing access to up-to-date base maps will be essential to facilitate both the planning process and meaningful community engagement. In Dar es Salaam, the absence of current maps (the latest from 1992) required the team to rely on satellite imagery and Google Earth, adding unnecessary complexity. By prioritising the use of accurate and detailed maps from the outset, future iterations can better capture geographical nuances, streamline the process, and provide a stronger foundation for incorporating valuable community input into urban planning.

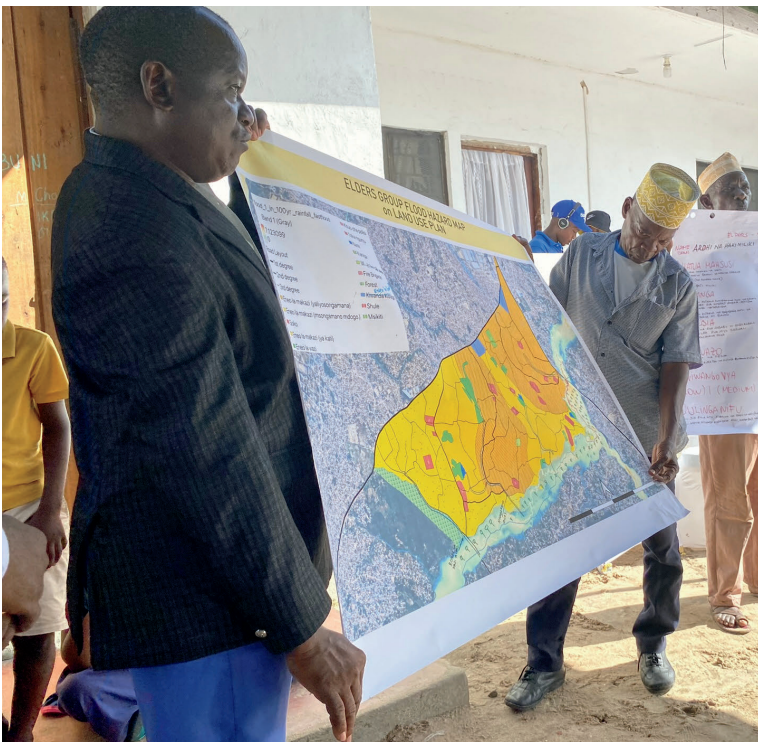


▲ Tomorrow's Cities workshop in Mianzini

2

Securing Time and Resources for Comprehensive Community Engagement

To strengthen community involvement in future deployments, dedicating ample time and resources will be essential. Ensuring that participants have adequate support to understand and contribute to activities such as maps/plans creation and impact metrics will lead to deeper and more meaningful participatory engagements. By planning for extended interaction periods and offering tailored guidance, future versions of this method can empower communities to play a central role throughout the process, enhancing the overall success of the project.



▲ Tomorrow's Cities workshop in Mianzini

Stakeholders



Temeke Municipal Council

Responsible for urban planning and developing master plans within the city. Engagement with the municipality has been extensive, including regular meetings and involving several engineers from their planning department in the deployment of the TCDSE across various work packages.

Mianzini Local Leaders

Collaborates with local institutions to enhance their disaster risk management capacities and sets regulations focused on disaster risk reduction.

Community Groups

- Youth group representatives
- Elderly group representatives
- Residents living in flood-prone areas
- Municipal staff
- Women across all social groups
- Tenants within the community



Different groups from Mianzini in workshop

Impact

Tomorrow's Cities empowered grassroots actors to understand both present and future risks. This shift in mindset has enabled Mianzini community members, particularly women, to recognise the importance of planning ahead and make decisions that will benefit future generations.

1

Institutional and Policy Impact

Key municipal and national technical staff, along with policymakers, unanimously endorsed the Tomorrow's Cities' approach and tool as critical for urban planning, urging swift institutionalisation in the country's urban planning system.



▲ Mianzini

2

Revised Land Use Planning

By highlighting the potential impacts of land use, spatial interventions, and policies, the TCDSE deployment encouraged communities to reassess their visions and decisions, building a future more resilient to floods and landslides. This involved discussing the trade-offs inherent in strategies such as vertical development, increasing housing density, and adjusting infrastructure and basic services to accommodate population growth while protecting environmentally vulnerable areas.



We recognise that we are planning for the future, 30 years ahead. While we may not personally see the benefits, I don't want my children and grandchildren to face the same challenges I'm dealing with now in Mianzini.

Participant from the women's group.

3

Collaborative Engagement in Decision-Making

Tomorrow's Cities facilitated meaningful collaboration among various stakeholders in land use planning, including community groups, municipal officials, and national policymakers. This collaborative engagement empowered all actors to actively influence decisions about land use and development in their settlements. For example, in Mianzini, three community groups, after seeing the results of the multi-hazard modelling, unanimously agreed to revise their initial land use plan to improve resilience against floods and landslides.



Tomorrow's Cities has empowered the community in Mianzini to take a more proactive role in addressing flooding issues. It helped the residents become more aware of the risks they face during rainy seasons, particularly flooding, and has provided them with the knowledge and tools to take actions that can mitigate the impacts of these problems.

Dr. Guido UHINGA
Lecturer at Ardhi University in Tanzania

4

Integration of the TCDSE with Tanzania's Hybrid Land Tenure Process

As of 2024, conversations with Tanzania's central government authorities are underway to integrate the TCDSE with the ongoing hybrid engagement led by the Ministry of Lands, Housing, and Human Settlements Development (MLHHSD). This future plan aims to address gaps in the current model, such as the lack of future visioning, risk projections, and community engagement, with the goal of creating a more comprehensive and resilient approach to urban planning and disaster risk management.

5

Capacity Building and Technical Support

Ardhi University will collaborate with other institutions, including the Institute of Planning in Dodoma, and the Ardhi Institutes in Morogoro and Tabora, to ensure that municipal staff have the necessary expertise and resources to adopt and implement the TCDSE tools effectively. Ardhi University will also support academic and research institutions to review and integrate the Tomorrow's Cities approach into undergraduate and postgraduate curricula for urban planning. Plans to adapt and offer a short course on the Tomorrow's Cities approach are also underway to further disseminate knowledge and practical application.

In Short

By empowering local communities, illuminating links between decision making and risk, and fostering collaboration across sectors and governance levels, Tomorrow's Cities is helping to reshape urban planning in Dar es Salaam, with a stronger focus on risk-informed development in informal areas.

Tomorrow's Cities has made a profound impact on urban development and disaster risk management in Dar es Salaam by building local awareness and capacity through a combination of bottom-up and top-down approaches that value both local knowledges and scientific inputs. Over 100 participants - including university staff, government officials, and community leaders - have gained practical skills in risk-informed urban planning through workshops and training sessions.

Looking ahead, the focus is on embedding the TCDSE approach more explicitly within Tanzania's urban planning framework. This includes working closely with the Ministry of Lands, refining long-term disaster risk projections, and enhancing participation from communities and stakeholders in formal planning processes.

Additionally, this co-production approach to risk-informed planning has bridged a longstanding gap between local communities and policymakers, leading to stronger institutional support for risk-informed planning at both municipal and national levels.



There is an opportunity to anchor this approach onto the ongoing regularisation process in informal settlements, where hazards are already being considered during planning. We believe a hybrid model could be developed, combining principles from the Tomorrow's Cities method with the current regularisation practices, allowing for a more comprehensive and resilient approach.

Dr. Tatu Mtwangi Limbumba
Senior Research Fellow at Ardhi University

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2024

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UK Research
and Innovation



GCRF
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