



Tomorrow's **CITIES**

Urban Risk in Transition



Acknowledgments

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Thank you for your continued commitment to our shared mission.

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



TRANSFORMING TOMORROW'S CITIES

Tomorrow's Cities is a global Community of Practice dedicated to reducing future urban disaster risk with focus on marginalized communities.

Why Tomorrow's Cities?

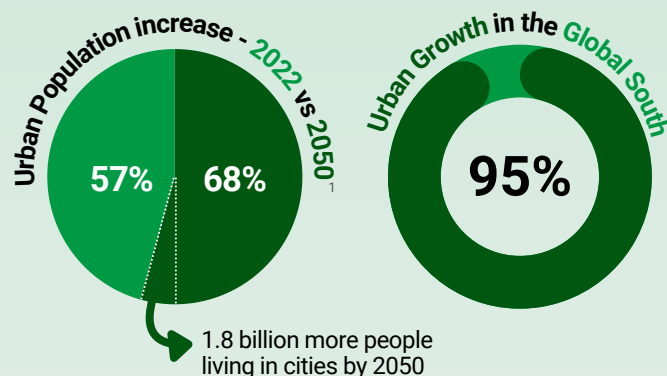
Tomorrow's Cities addresses the urgent need to break disaster risk cycles and open **new policy spaces for the shaping of future cities**. This brings inclusion, scientific foresight and policy opportunities to cities coping with rapid growth and natural hazard risks including those of climate change.

Tomorrow's Cities can support risk sensitive planning in your city by:

- ▶ Generating Action Plans to improve institutional capability, taking proactive steps to mitigate risks associated with urban growth.
- ▶ Conducting multi-hazard risk and climate change analyses for future development using state-of-the-art science and best available data.
- ▶ Assessing the future consequences of urban development decisions, including a broad array of possible impacts from natural hazards.
- ▶ Supporting an integrated approach to urban planning by bringing together local actors and policy makers from across different agencies/sectors.
- ▶ Raising public awareness and engagement in the decisions and trade-offs between urban growth, planning, risk and resilience.
- ▶ Strengthening technical capacity within local, city, and national agencies to sustain lessons learned towards the future.
- ▶ Web-based, open-access visualization and analysis tools available without specific software or technical knowledge.

URBANISATION, A GLOBAL CHALLENGE

RAPID URBANISATION - 2024-2050



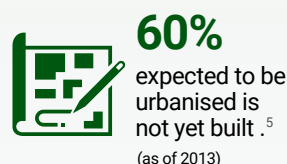
DISASTER RISK 2024-2050



MARGINALISED COMMUNITIES



TIME LIMITED OPPORTUNITY TO CHANGE THE FUTURE



1. World Urbanization Prospectus, UN (2018)
2. World Economic Forum (2024). Quantifying the Impact of Climate Change on Human Health
3. World Bank (2009). Density and Disasters Economics of Urban Hazard Risk.
4. World Bank. (2010). Natural Hazards, UnNatural Disasters: The Economics of Effective Prevention.
5. UNDRR (2015)
6. UNDRR (2013). The geography of poverty, disasters and climate extremes in 2030.
6. UN 2014

TOMORROW'S CITIES GLOBAL IMPACT

In each city our approach adapts to account for specific challenges and opportunities. Impact is already noticeable in the nine cities that have been part of Tomorrow's Cities.



Nablus

Integration of disaster risk estimates in the next review of the Strategic Development and Investment Plan.



Istanbul

Improved disaster-risk public awareness and building standards under a fragmented governance context.



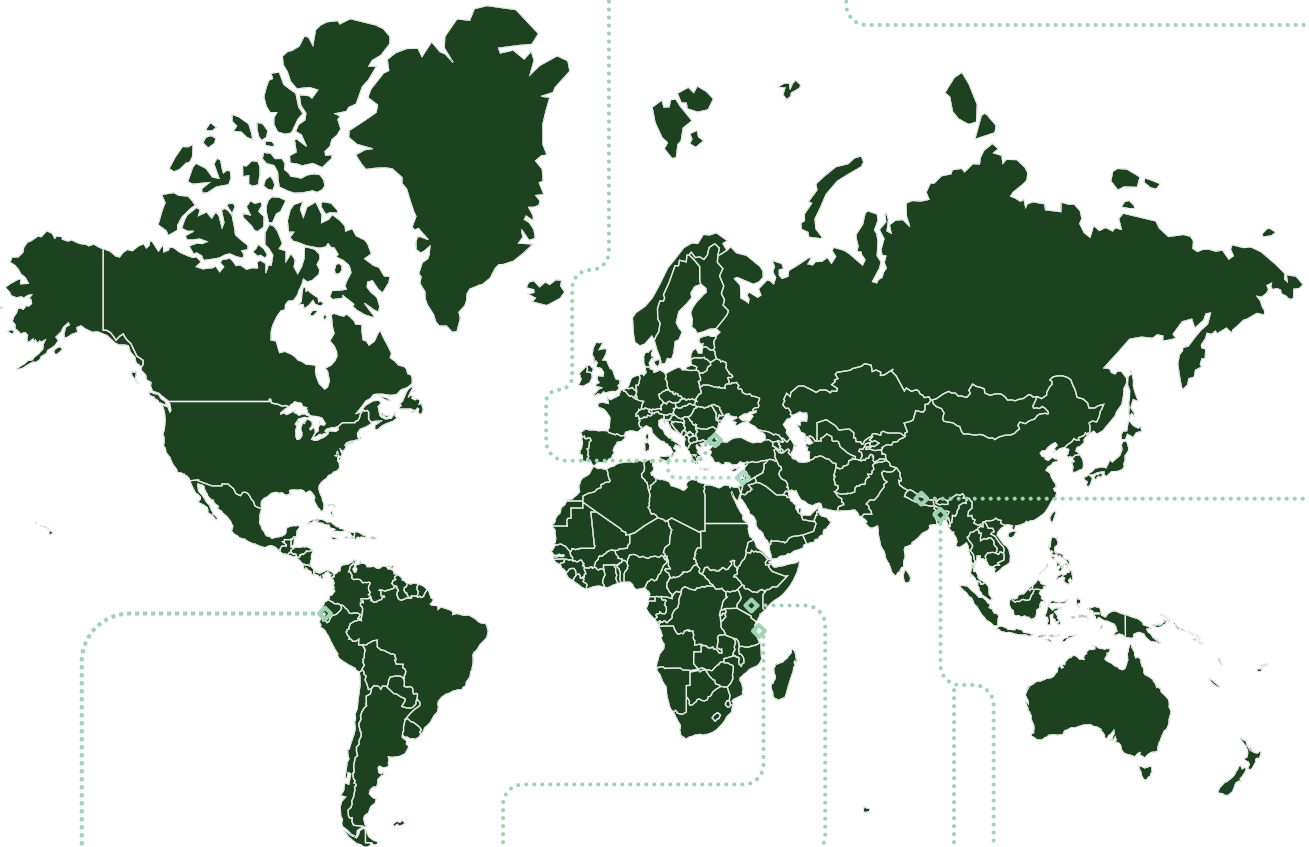
Kathmandu

Incorporation of inclusive hazard and risk assessment strategies into national risk management policy.



Rapti

Adoption of a risk-sensitive and more inclusive approach in planning a new regional capital.



Quito

Use of memory, emotion and artistic approaches to talk about disaster risk and engage communities.



Dar Es Salaam

Fostering inclusive change in peri-urban areas of a sprawling city through community, local, and national collaboration.



Nairobi

Improvement of consolidated informal housing settlements through community engagement.



Cox's Bazaar

Inclusion of local and gendered priorities in a tourism-led urban development Master Plan.



Chattogram

Ensuring inclusive urban development in a megacity marked by rapid industrialisation and change.

TOMORROW'S CITIES TAKING ACTION

Through our network of partners, we are working alongside communities and local authorities to shape policy and reduce disaster risk in future cities.



NABLUS, PALESTINE

STRENGTHENING LOCALLY-LED DEVELOPMENT THROUGH MULTI STAKEHOLDER GOVERNANCE

With An-Najah National University and the Nablus Municipality, Tomorrow's Cities is consolidating an understanding of **earthquake and flood risk in areas designated for urban expansion**. Local youth, women, civil society leads and residents from high-rises in low income areas shared their experiences

and priorities to inform the planning process. Data, methods and learnings gained from these engagements are currently being integrated into planning for climate change adaptation and earthquake risk resilience policy at the local and national levels.



ISTANBUL, TURKEY

REVISING STRATEGIES FOR IMPROVED EARTHQUAKE RESILIENCE

In collaboration with the Büyükçekmece District authorities, Tomorrow's Cities and Boğaziçi University led efforts to **revise development strategies focused on earthquake risk assessments** of a peri-urban area of Istanbul. Results are being shared with Marmara Municipalities Union

the Metropolitan Municipality and United Cities & Local Governments Middle East, towards the replicability and upscaling of solutions. An open exhibition enhanced public awareness of earthquake risk for more than 25,000 inhabitants.



KHOKANA, KATHMANDU, NEPAL

PROTECTING CULTURAL HERITAGE & INFORMING NATIONAL RISK MANAGEMENT POLICY

Greenfield development can create tensions among communities, planners and developers, as it entails choosing **what to change or protect towards the future**, including cultural heritage. As Tomorrow's Cities partners, the Nepal National Society for Earthquake Technology and the

Southasia Institute of Advanced Studies **assisted in illustrating earthquake, flood and landslide risks** associated with development choices, and facilitated negotiations involving local leaders. Insights are being incorporated into Nepal's national risk policy by the Disaster Risk Management Agency.



RAPTI, NEPAL

INCLUSIVE PLANNING FOR A NEW CAPITAL

As a planned new region spanning across three local municipalities, Rapti's development necessitates **inclusive community engagement and evidence-based solutions**. Tomorrow's Cities framework deployment was led by the Provincial

Development Authority of Lumbini, and integrated future visions of indigenous and marginalised groups into the existing Master Plan. Comprehensive flood risk assessments are contributing to institutional learning and sustainable change.



QUITO, ECUADOR

USING ART AND CULTURE TO DISCUSS RISK AND PROPOSE NATURE-BASED SOLUTIONS

In partnership with the community of Santa Rosa de Pomasqui, Tomorrow's Cities partners led by the University of San Francisco de Quito mapped landslide risk and developed plans that highlighted **the role of nature based solutions for risk reduction**.

Two public exhibitions hosted by the Quito Architecture Museum and the Yaku Water Museum, attracted hundreds of visitors and were key to disseminate local knowledge and scientific evidence.



DAR ES SALAAM, TANZANIA

MUNICIPAL CAPACITY BUILDING & STRENGTHENING OF LOCAL LEADERSHIPS

Within the rapidly growing Dar es Salaam, **climate change and urban growth** are increasing concerns for planners and authorities, with **flash floods and landslides** becoming common hazards. Together with Temeke Municipality and Ardhi University, Tomorrow's Cities is working to build

capacities so that practitioners and local community leaders can exchange knowledge and plan with a future-oriented perspective. Community-led plans emphasise spatial and policy choices that stem from experiences related to age, gender and housing security differences.





NAIROBI, KENYA

UPGRADING INFORMAL SETTLEMENTS IN A RISK-INFORMED WAY

Kenya's dynamic policy environment opens opportunities to address flood and fire risks through urban development planning in informal settlements. As Tomorrow's Cities partners, Nairobi City County and Africa Research and Impact Network

collaborated in building capacity and facilitating community-led planning workshops in Kibera; the country's largest informal settlement. The approach celebrated insights of local residents for the consolidation of policy commitments.

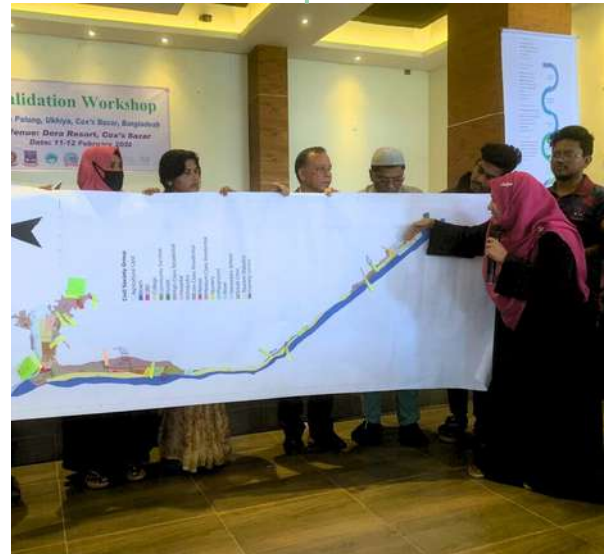


COX'S BAZAR, BANGLADESH

EQUITABLE & LOW-RISK TOURISM-LED DEVELOPMENT

The coastal city of Cox's Bazaar is undergoing significant transformation - **from smallholder agriculture to high-density tourism-led development.** Considering risk from cyclones, storm surge, landslides and climate change, the Tomorrow's Cities team

from Dhaka University is supporting the inclusion of local perspectives, including those of women and indigenous and landless groups, in the development phase of the Cox's Bazar City Authority Master Plan.



CHATTOGRAM, BANGLADESH

SECURING LIVELIHOODS AND EQUITABLE GROWTH IN A CHANGING RURAL AREA

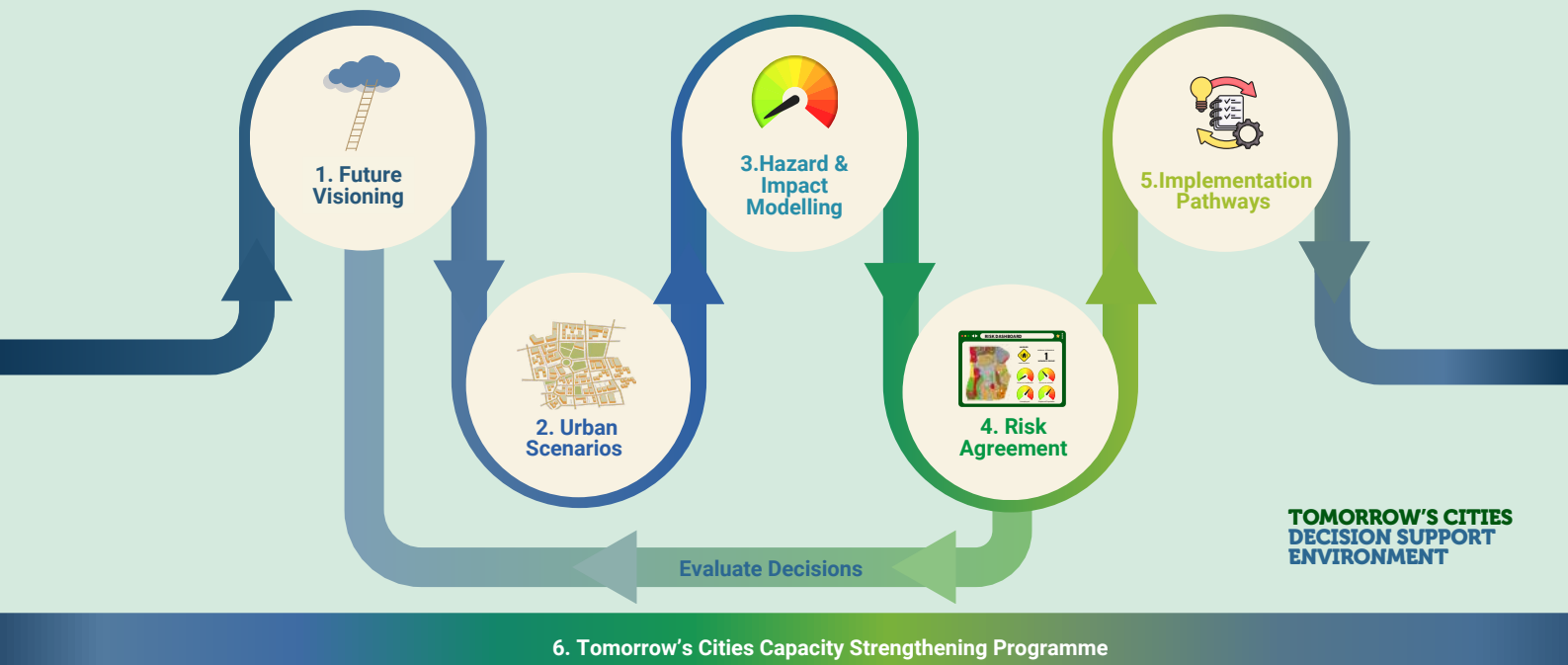
Chattogram is a megacity in southeast Bangladesh facing a variety of hazard challenges, **including cyclones, floods and earthquake risk.** Alongside Chattogram University and authorities, Tomorrow's Cities is contributing to the **equitable, risk-informed urban**

development of Bairag - a rural area close to water bodies which currently attracts diverse residents and livelihoods. Engaged groups include farmers/fishermen, landless individuals and landowners. Their insights will feed **new risk-informed urban plans.**

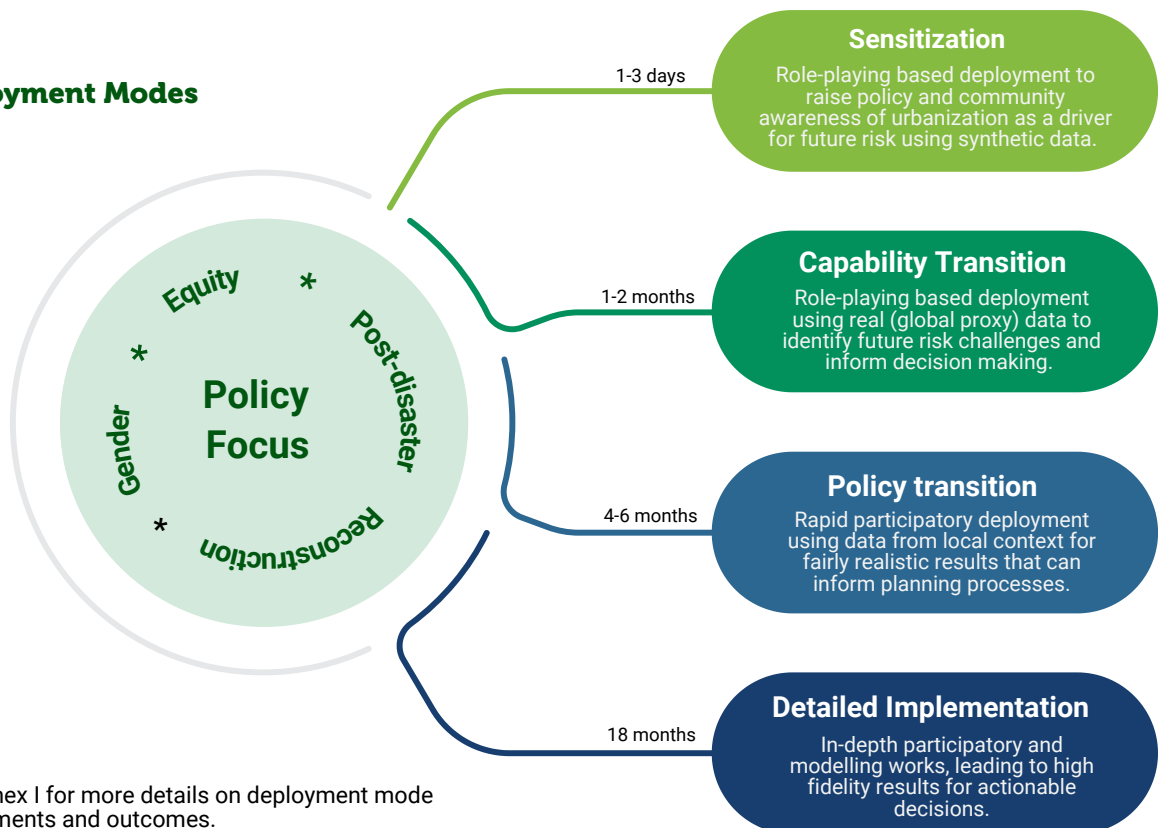
TOMORROW'S CITIES DECISION SUPPORT ENVIRONMENT

Tomorrow's Cities Decision Support Environment (TCDSE) is a comprehensive, **evidence-based**, framework and toolkit designed to shape future cities that use **inclusive decision making processes for equitable disaster risk reduction**. The TCDSE consists of five distinct components and a capacity strengthening programme.

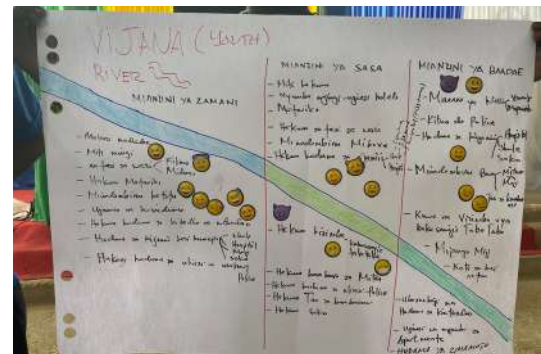
Deployed in full, it provides world-class, cutting edge, **natural hazard risk assessment (including that of climate change)** using physics-based methodologies to inform decision-making towards **people-centred future urban development**. The TCDSE enables city actors to understand how decisions made today can reduce disaster risk tomorrow.



Deployment Modes



See Annex I for more details on deployment mode requirements and outcomes.



Different Future Visioning exercises

1. FUTURE VISIONING

Future Visioning is a creative and interactive engagement approach that enables urban planners and decision-makers to grasp the **aspirations** of different social and community groups. These groups include those who express aspects of **social vulnerability and marginalization** from decision-making processes, or that represent diverse perspectives on the past, present and future. Emphasis on gender (women’s group), intergenerational justice (elders and youth) and socio-spatial inequalities (tenants, migrants) are common.

The core objective of this TCDSE component is to amplify marginalized voices for more inclusive and equitable urban futures.

Desire futures are articulated as urban assets and as different urban plans and policy options. As a co-production approach, Future Visioning opens spaces for participants to act as decision makers, discussing priorities and trade-offs, so that diverse knowledges and experiences are incorporated.

Methods & Activities

In most cities, Future Visioning is facilitated through a two-day workshop, in which participants engage in storytelling, co-mapping, and co-design methods. Subsequently, a validation workshop is conducted as part of the Urban Scenarios stage, where groups’ proposals are reviewed and refined.

Future Visioning amplifies marginalized voices and captures the aspirations of different social groups. It shows that different desirable futures are possible.



Participants discussing visions in Rapti, Nepal.

In preparation for Future Visioning, cities conduct a rapid socio-spatial analysis to **identify relevant inequalities** within an area. This informs the selection of representative social/community groups (women, migrants, youth, tenants), and potentially institutional actors, to be included in the process and generate visions.

Interviews and focus group discussions can be conducted to sensitize participants to the work ahead or to delve deeper into their motivations for envisioning the future.

Other supplementary methods (drama sessions, transect walks) can be integrated to enrich the experience if time allows.

Outputs & Outcomes

At the end of Future Visioning, cities produce:

- ▶ A collective understanding of diverse, and different, desired futures for the city.
- ▶ A sense of a 'desired travel trajectory' for the city and neighbourhood, including statements on past, present and future
- ▶ An insight into elements to preserve for the future, what to protect against hazards, and what to change.

Concrete outputs encompass:

- ▶ Individual & collective storylines that mention desires and hazard events.
- ▶ Visioning statements.
- ▶ A categorized list of desired assets, including critical themes such as housing, macro infrastructure and facilities, environmental aspects, etc.
- ▶ Analysis of commonalities and conflicts among desired assets.
- ▶ Sketched land use plans for the future, projected 30 to 50 years.
- ▶ Three policy priorities with context-specific design considerations.

Future Visioning fosters marginalized groups' ownership of the future, cultivates new relationships, and harnesses local knowledges for inclusive planning solutions.

What do cities get from Future Visioning?

- ▶ A sense of ownership over the future by persistently marginalised groups.
- ▶ New relationships. Groups understand each other's preferences, fostering productive dialogues and negotiations.
- ▶ Clarity on commonalities and differences among diverse group visions.
- ▶ Knowledge stemming from the most hazard-vulnerable communities.



Future Visioning in Nablus, Palestine.

The Tomorrow's Cities Future Visioning methodology is unique in its design and was created to kickstart a process of urban shaping for disaster risk reduction that is inclusive, meaningful for communities, and helpful for decision makers.

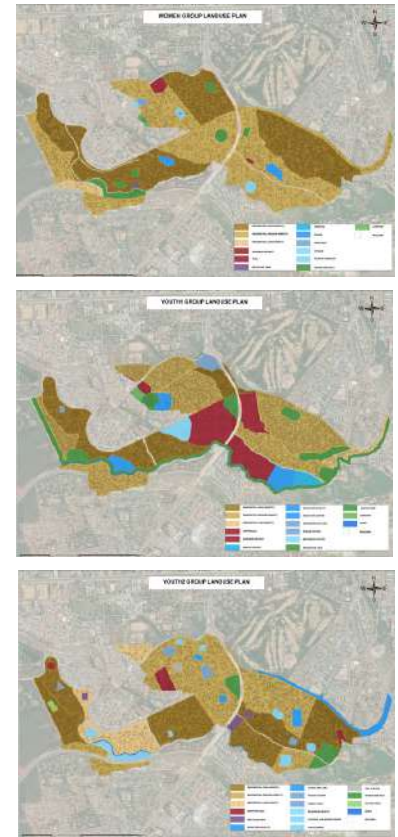
Ideally, it is deployed in tandem with the Urban Scenarios component, so that visions can transition slowly from broad aspirations to concrete technical solutions.

Yet, Future Visioning can also work as a stand-alone component that informs policy and create disaster risk reduction solutions that are ambitious and purposeful.

**If we can
imagine a
better future,
we can build it
together.
Concrete
options from
Future
Visioning can
directly feed
policy.**



Validation of urban scenarios



2. URBAN SCENARIOS

The Urban Scenarios component entails a **technical translation of Future Visions** elaborated by each group, into digitally-framed land-use plans and policies. This component innovates by creating a **hybrid approach** that integrates community-based ideas and science-guided information.

Land-use plans incorporate the disaster risk reduction policies selected by participants and are enhanced by **future exposure datasets generated by technical teams**. These encompass attributes of both the physical and social environment of the envisioned future city. This approach creates detailed and contextualized versions of desired and plausible futures.

Methods & Activities

The Urban Scenarios component of the TCDSE consists of three stages: Land Use Planning, Future Exposure Modelling, and Validation.

The Land Use Planning stage consists of digitising and georeferencing community-designed plans. These products, along with the chosen priority policies - are analysed against current regulations and trends. Minor modifications are made to preserve visions as much as possible while also ensuring that they are feasible and realistic.

Urban Scenarios turn desirable futures into tangible and plausible options. Participants inputs are translated into technical and digital products.



Validation of Urban Scenarios in Dar Es Salaam.

In Validation Workshops, groups challenge technical interpretations, discuss planning trade-offs and assess the equity consequences of decisions.



Future Exposure Modelling involves generating detailed representations of physical and social environments, such as future buildings and future populations/households that utilise those buildings. Tomorrow's Cities does this through bespoke algorithms that draw on a series of trends and projections.

Validation Workshops are spaces to unpack and discuss the modifications made during the compliance and policy analysis stage, and the Future Exposure Modelling data produced (along with the assumptions they entail).

Participants are invited to confirm or change technical interpretations. They also discuss critical trade-offs (what to prioritise in light of future constraints) and equity (how space and amenities are distributed across groups).

Outputs

- ▶ A digital and georeferenced Land-Use Plan that represents the visions of each community group.
- ▶ A detailed representation of the future urban context (future exposure) with physical and social components.
- ▶ A set of policies aimed at disaster risk reduction which are compatible with our multihazard modelling platform (see next).



3. HAZARD & IMPACT MODELLING

Tomorrow's Cities Hazard and Impact Modelling contributes to the design of more effective disaster risk reduction policies by addressing hazard impacts that **extend beyond physical infrastructure** and are directly relevant to the affected communities.

In the TCDSE the impact assessment of a natural hazard event **extends beyond assessing** damage to infrastructure (buildings, water supply), and measuring impact in terms of financial losses, to encompass the intricate interconnections between the physical and social systems that underpin a city.

For instance, data such as the number of casualties, injuries, displacements and loss of

access to health and education for **individuals from different socioeconomic groups and genders** are calculated.

Modelling in Tomorrow's Cities is also **focused on future risk** as defined by the communities themselves during the participatory approaches used in the previous components.

This novel strategy contrasts to current approaches to disaster risk modelling, which primarily concentrate on present-day risk, use metrics that are not people-centred, and predominantly emphasize economic impact over other dimensions of life.

In the TCDSE, assessment of the impact of a natural hazard event encompasses the intricate interconnections between the physical and social systems that underpin a city.

Methods & Activities

Hazard and Impact Modelling can vary significantly across different cities, contingent upon the capabilities, expertise, and skills of urban planners and risk managers, as well as the accessibility of data and observations related to hazard events.

Hazard Modelling begins with local teams **identifying natural hazards** that are relevant for a specific location by leveraging historical records, engaging stakeholders, conducting field surveys, and utilizing other available sources. This inventory serves to **create specific hazard scenarios** for each identified hazard, which may entail the largest plausible event or a selected representative future event.

Peak Ground Acceleration



Calculated intensity of ground shaking.



Flood event simulations that will later feed the calculation of impacts within each urban scenario.

Hazard modelling in the TCDSE considers location specific events and leverages a multitude of data.

Tomorrow's Cities research team has devised efficient methodologies for selecting and adapting scenarios to **account for future climate conditions**. For instance, how the largest plausible flood event might escalate in magnitude based on current climate projections.

Following this, computational models are employed to

simulate these events on the proposed Urban Scenarios (as outlined in the previous component). This enables the **computation of hazard event characteristics/properties**, which contribute to both physical and social impacts. There's flexibility in this process – city teams can utilize familiar models, or they may opt to enlist consultants.

Equipped with this information, **Impact Modelling** starts. The work involves using state-of-the-art engineering tools to assess the effects of hazards on physical infrastructure, such as buildings and bridges, to quantify the damage caused by hazards of varying intensities, in diverse urban settings, and with different building materials. This analysis is complemented by socioeconomic and demographic projections, and by agent-based modeling, that account for the relationships between people and urban systems and infrastructures.

This allows an understanding of how hazard events may disrupt people's lives.

By integrating the damage to infrastructure and the social consequences of decisions, **people-centred Impact Metrics** are derived. Focused on the city-yet-to-be-built, these metrics, such as the number of displaced households, children facing education disruptions, or workers becoming unemployed, offer insights into the societal repercussions of hazards. Furthermore, these metrics can be broken down by age, gender, and income, providing valuable insights into how disasters disproportionately affect different social groups, including children, women, and marginalized future residents.

Utilising a scenario-based approach to hazard

characterization aids in making the impacts understandable to non-technical stakeholders, aligning with one of Tomorrow's Cities' core objectives: **democratizing risk assessment.**

Outputs

Hazard and Impact Modelling creates outputs including:

- ▶ Future hazard scenarios that anticipate potential hazard intensities considering the impacts of climate change.
- ▶ A suite of appropriate engineering models for quantifying physical impacts of natural hazards
- ▶ A set of impact metrics to quantify the damage and disruption caused by these hazard scenarios and urban configurations.



Displaced population



Access to schools



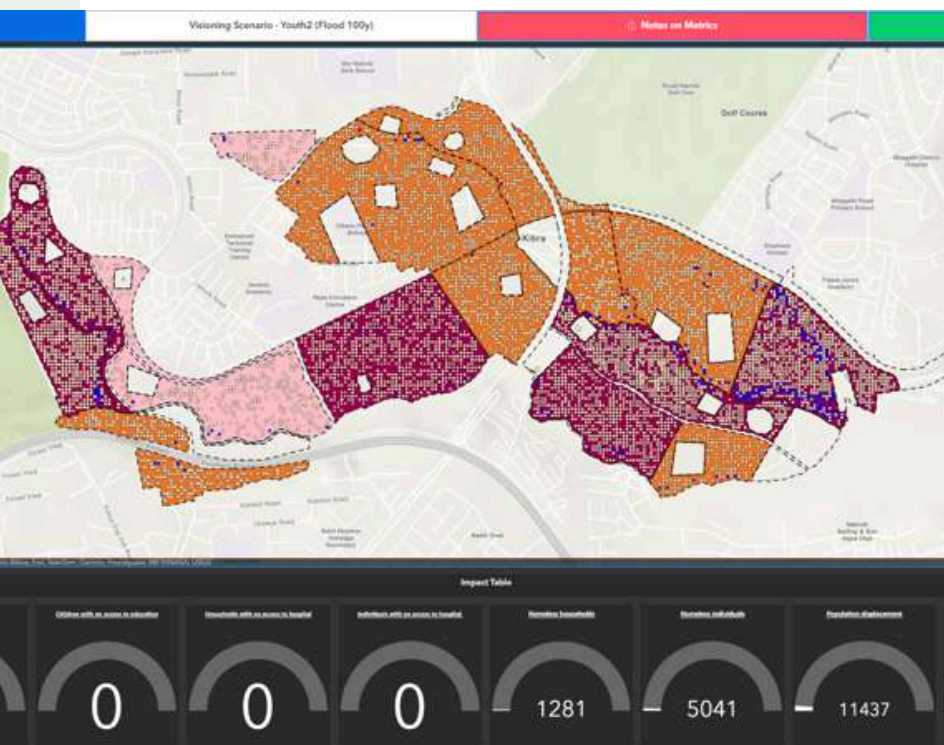
Access to healthcare



Unemployed

After Hazard & Impact Modelling, cities gain quantitative understanding of:

- ▶ The extent and scale of impacts resulting from future hazard events.
- ▶ The disruption caused by various hazard scenarios across diverse future urban configurations which can inform refinement of urban plans and guide policy decisions.
- ▶ The impact mitigation that can be achieved across different visions (see component 1 of the TCDSE).





4. RISK AGREEMENT

Tomorrow's Cities Risk Agreement approach encompasses a series of activities that **empower participants** to evaluate Urban Scenarios derived from Future Visioning in light of refined multi-hazard simulations conducted in the Hazard & Impact Modelling component of the TCDSE. Through **collaborative efforts**, groups revise and propose interventions that reduce **the impacts of future hazard events**.

The process starts with introducing each group to an **interactive digital dashboard** that simplifies the communication of multi-hazard impacts. A series of activities are designed so that participants identify and

discuss the hazard, exposure and vulnerability features of the Urban Scenarios under consideration, which may contribute to different risk outcomes.

Facilitated through **evidence-based conversations** from both social and technical perspectives, these discussions result in a set of revisions to the Urban Scenarios.

In a final group discussion, the selected revisions are evaluated **in light of the social, political, and governmental challenges** that may impede their implementation and/or effectiveness.

This reality check facilitates moving beyond the assumptions of the adopted

Illustration of Tomorrow's Cities' platform for risk calculation and communication

risk model and identifying strategies to overcome such challenges. It also enables identifying the key actors responsible for implementing these strategies and shaping the future city.

Risk Agreement empowers different groups to evaluate various Urban Scenarios in light of refined future multi-hazard simulations.

Methods & Activities

The Risk Agreement component is usually conveyed through a two-day workshop, gathering participants that engaged in previous stages (usually, but not solely, community groups) and other actors, such as local urban practitioners and policy makers.

The first day of the workshop entails a recapitulation of preceding TCDSE activities, a tutorial on utilizing the interactive risk dashboard, and a facilitated evaluation of the performance of each urban scenario against hazard event.

On the second day, facilitated group discussions enable participants to delve into the governmental, societal, and environmental challenges associated with their proposed modifications of the Urban Scenarios developed on the previous day.

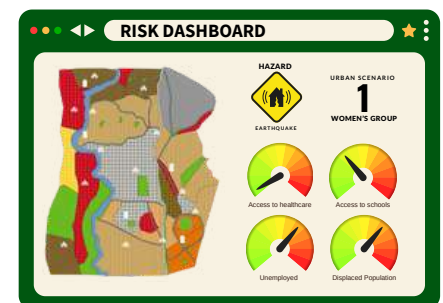
What are the present-day constraints to reduce risk in the future? This is a key question asked during the Risk Agreement workshops.



Risk Agreement workshop in Nairobi, Kenya.

Subsequently, each group engages in **deliberations regarding potential solutions** to these challenges, while also identifying the relevant actors responsible for implementation and establishing associated timeframes.

The workshop culminates in a **plenary session** where each group presents their findings, fostering cross-group learning by identifying both differences and commonalities among the proposed solutions and challenges.

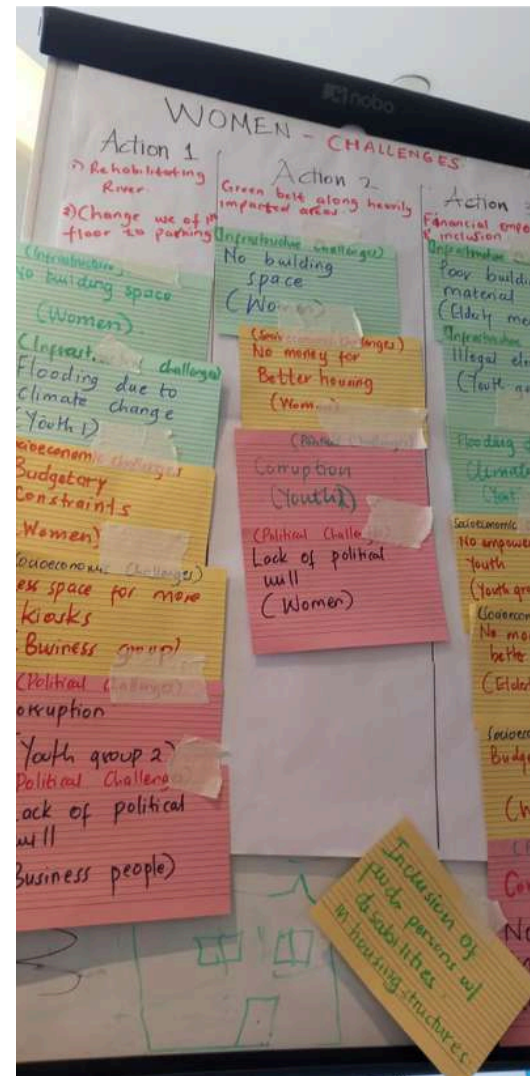


Following the Risk Agreement, cities achieve:

- ▶ Enhanced community understanding of the fundamental components of risk, as quantified for the future urban scenario of each group.
- ▶ Articulated statements from participant groups outlining strategies for risk reduction tailored to each urban scenario.
- ▶ Comprehensive group statements addressing the governmental, societal, and environmental challenges linked to the implementation of risk reduction measures, along with proposed solutions.

Outputs

- ▶ Comprehensive risk assessments of each urban scenario, integrating objectively quantified impact metrics and local knowledges.
- ▶ Compilation of desired modifications for each urban scenario with three priority actions.
- ▶ Enumeration of societal, governmental, and environmental challenges associated with the proposed modifications.
- ▶ For each challenge, potential solutions, responsible actors, and associated timeframes are documented.



Discussion of implementation challenges with each group in the light of their Urban Scenario and risk assessment.



Group assessing future risk using Tomorrow's Cities interactive platform.

Science-based, agreed upon future risk assessments, combined with local knowledges of implementation constraints (social, political, environmental), lead to solutions and lessons that are context-sensitive and useful for the present.

This opens spaces for a discussion on **how to change decision making cultures** to accommodate visions in light of assessed risks. This is how the TCDSE transitions to its next component (Implementation Pathways).

Rich lessons emerge from discussions that integrate science-based assessments with local knowledges.



5. IMPLEMENTATION PATHWAYS

The final TCDSE component is designed to deliver detailed Action Plans that facilitate collaborative city shaping, involving civil society and government actors at various levels. These plans also ensure a commitment to implementing the lessons learned. The broader ambition is for pro-poor, participatory, risk informed planning to become a sustainable feature of decision-making cultures.

Four aims can be highlighted:

- ▶ To build an enhanced partnership between diverse stakeholders and partners that ensures future commitment to sustainable TCDSE deployment at policy and government levels.
- ▶ To advance thinking on the positioning of the TCDSE within existing planning and decision-making processes, and on the issues it will assist decision makers in addressing.
- ▶ To identify and rectify barriers to the implementation of key identified actions, while also outlining pathways for effective uptake.
- ▶ To formulate concrete Action Plans for subsequent steps towards the implementation of measures and the TCDSE itself.

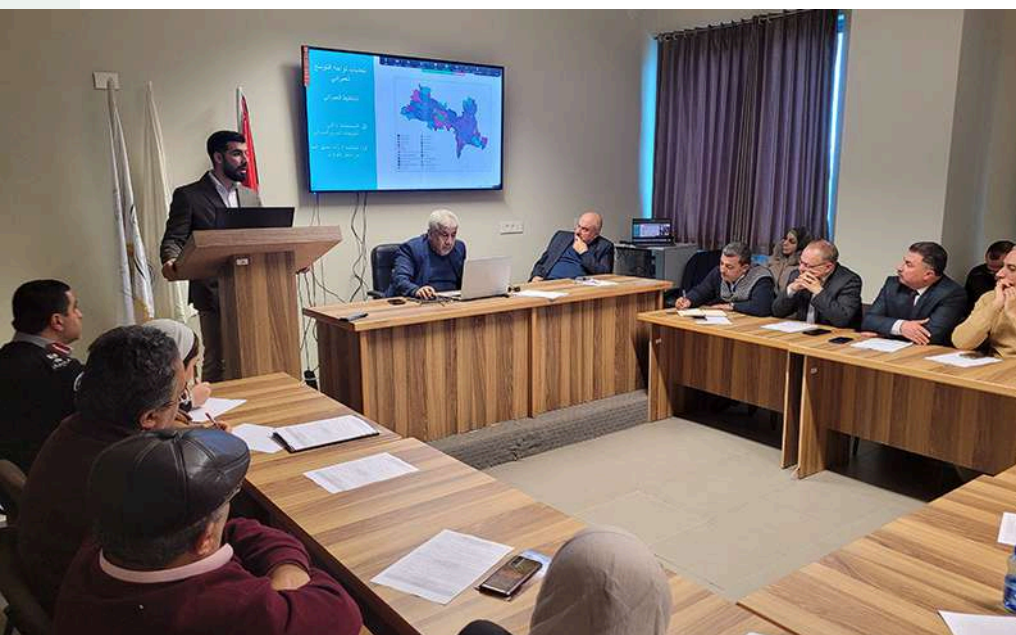
Urban stakeholders revisit disaster risk reduction challenges and aspirations identified early in the process. These are refined and transformed into Action Plans that build on lessons learned.

Objectives

- ▶ To revisit discussions initiated in City Scoping regarding ambitions for disaster risk reduction and opportunities for equitable urban development, but now informed by learnings from the previous stages.
- ▶ To clarify the needs of organizations and their envisioned utilization of the tools and methods presented. This involves aligning Tomorrow's Cities' approach with the objectives and capabilities of each organization.
- ▶ To discuss ownership and responsibilities associated with the integration of lessons and the TCDSE into decision making environments.
- ▶ To delineate potential pathways for the implementation of lessons. For each pathway, to devise concrete Action Plans which take into account barriers and levers of change.
- ▶ To highlight and address context-specific challenges (related to data, capacity, finance, etc) that could prevent the implementation of suggested policies. This will be connected to further actions to address those challenges (additional training, agreements for data sharing, etc).
- ▶ To broaden and enrich the decision making environment associated with this process, by incorporating new actors and organizations for more inclusive, collaborative and comprehensive risk informed planning.



Action Planning workshop in Nairobi.



Institutional stakeholder engagement in Nablus.

During Action Planning workshops stakeholders discuss concrete actions to improve their decision making culture.

Methods & Activities

An Action Planning workshop is the key moment when this work comes together. This is preceded by a series of meetings with diverse stakeholders, at different sectors and levels, aimed at grasping specific interests (capacity strengthening, data, tools) and potential contributions to the process.

After the conclusion of the workshop, the Tomorrow's Cities team works to consolidate findings and find concrete pathways for impact with different organizations. These activities can include the signing of agreements between partners, the production of policy recommendations, and the facilitation of spaces for further data sharing and inclusive planning.



Discussion of specific actions and barriers for the implementation of lessons with institutional stakeholders.



The Implementation Pathways component delivers:

- ▶ A structured series of meetings and workshops tailored to the needs of participants.
- ▶ Guidance and resources to effectively communicate the key features of the TCDSE to new audiences.
- ▶ Additional training sessions and capacity building support.
- ▶ Facilitation of knowledge sharing and dissemination of data and best practices.

Outcomes and Outputs:

- ▶ Action Plans based on scientific evidence and community engagement.
- ▶ Detailed actions for re-tooling enabling environments, including data acquisition/sharing plans, technical training, and financing.
- ▶ Progress towards new partnerships and a Community of Practice.
- ▶ Enhanced awareness and buy-in from multi-level stakeholders for concerted action.



6. CAPACITY STRENGTHENING

Tomorrow's Cities offers **various modes** of capacity strengthening, including sensitization of actors, peer learning exchanges, support for method delivery, and implementation of the TCDSE framework.

Online options include a **Massive Open Online Course (MOOC)** offered in partnership with **United Cities and Local Governments**, as well as a structured **capacity strengthening modular course** prepared by the **National Society for Earthquake Technology (NSET)**. These come with freely available online resources for self-training in each component of the TCDSE.

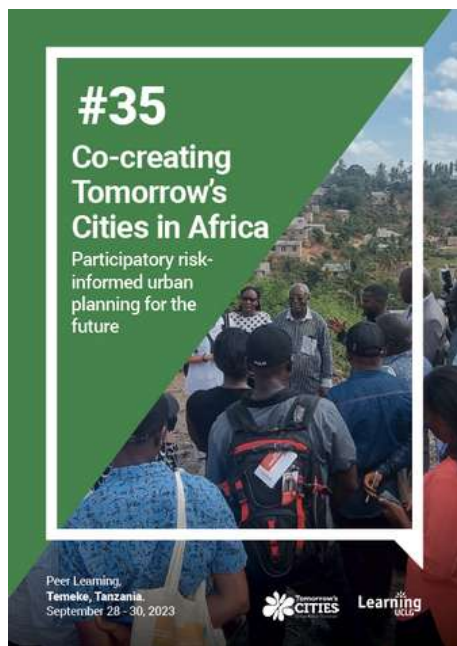
In-person options can happen through the delivery of **peer learning events**, where methods and tools become the starting point for knowledge exchanges on disaster risk reduction.

Finally, the Tomorrow's Cities team offers in-person and hybrid support for the delivery of the TCDSE on a consultancy basis across **four different deployment modes**. The degree in which this support strengthens local capacities will depend on the depth of each deployment mode. This is explained in more detail in Annex I.

A series of online and in-person capacity strengthening options opens opportunities for learning and knowledge exchange in customized ways.

Capacity Strengthening types

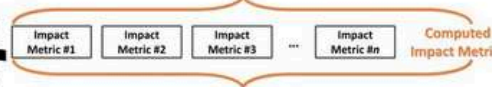
- ▶ **Entry level Massive Open Online Course (MOOC)**, developed in partnership with United Cities and Local Governments.
- ▶ **Comprehensive Overview of the TCDSE.** Structured Capacity Strengthening course with five modules, including resources such as workbooks and online sessions.
- ▶ **Peer Learning Events.** Knowledge exchanges between cities through Tomorrow's Cities methods.
- ▶ **In-person consultancy training and complementary delivery support.** Offered in four versions - see p. 6.



Peer Learning Note on “Co-creating Tomorrow’s Cities”, developed with United Cities and Local Governments, and Ardhi University and Temeke Municipality (Tanzania).



Calculating Impacts



2 flood scenarios x 4 workgroups x {bld + road + power} = 8 runs

Workgroup	FS	M1	M2	M3	M4	M5	M6	M7	M8
Elderly	1	31,292	7,591	41,206	245,456	252	1,529	298,221	0
	2	31,017	7,226	39,810	237,120	399	2,456	297,746	0
Leaders	1	35,950	5,356	49,692	296,140	125	737	296,140	0
	2	35,976	5,368	49,692	296,140	312	1,889	296,140	0
Residents	1	31,357	5,789	48,052	286,392	42	231	295,520	0
	2	31,496	5,799	48,052	286,392	177	1,027	295,521	0
Youth	1	34,815	7,668	49,586	295,578	110	655	297,179	0
	2	34,879	7,668	49,586	295,578	274	1,640	297,179	0

FS: Flood Scenario B; Building, R: Road, P: Power

M1: Number of workers unemployed, M2: Number of children with no access to education, M3: Number of households with no access to hospital, M4: Number of individuals with no access to hospital, M5: Number of households displaced, M6: Number of homeless individuals M7: Population displacement, M8: Casualty

Online Capacity Strengthening courses delivered by Tomorrow's Cities instructors and led by NSET.

Key Publications & Resources

Cremen, G., Galasso, C., McCloskey, J., Barcena, A., Creed, M., Filippi, M.E., Gentile, R., Jenkins, L.T., Kalaycioglu, M., Mentese, E.Y. and Muthusamy, M., 2023. A state-of-the-art decision-support environment for risk-sensitive and pro-poor urban planning and design in Tomorrow's cities. *International Journal of Disaster Risk Reduction*, 85, p.103400.

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Pelling, M., Comelli, T., Cordova, M., Kalaycioglu, S., Menoscal, J., Upadhyaya, R. and Garschagen, M., 2024. Normative future visioning for city resilience and development. *Climate and Development*, 16(4), pp.335-348.

For stories on cities and the Tomorrow's Cities podcast, please visit <https://tomorrowscities.org>

COMMUNITY OF PRACTICE

Tomorrow's Cities started its work as a research hub funded by the United Kingdom Research and Innovation Global Challenges Research Fund. From 2019 to 2022 it worked with partners across the world to test methods and best practices. This led to the development the Tomorrow's Cities Decision Support Environment.

During this journey, the team engaged with hundreds of researchers, civil society and public sector actors and communities to change the way risk is understood and incorporated in city shaping.

This network now composes the Tomorrow's Cities Community of Practice, whose core aim is to sustain Tomorrow's Cities mission, values and ways of working through peer support and exchange.

The Community of Practice provides access to technical support and a means of sharing achievements beyond the deployment of the TCDSE. With access to global and regional financial institutions and development agencies this is also a key forum for a city to undertake international and national advocacy.

The Community of Practice carries Tomorrow's Cities mission, values and ways of working in different contexts and at different levels of governance.

Our Community of Practice includes members from:



Tomorrow's Cities is the UKRI GCRF Urban Disaster Risk Hub



ANNEX I - DEPLOYMENT MODES

Tomorrow's Cities Decision Support Environment can be deployed through **four different versions**. These entail different capacity commitments and resources. Versions can be deployed in complementary ways. For instance, Sensitization or

Capability Transition versions can be used as introductions to the framework, or to raise support and finance for more complex deployment modes. **Cities should assess existing skillsets and data, as well as the desired outcomes in selecting deployments.**

Suggested timeframes are guidelines only. These estimates are based on past deployments. Yet **each case is unique, leading to bespoke agreements** that depend on the capacity available and support requested.

City Needs	Sensitization	Capability Transition	Policy Transition	Detailed Implementation
About	Rapid run-through the TCDSE using a synthetic testbed (Tomorrowville) that draws on data from real global south cities.	Role-playing based deployment of TCDSE components using a real-world, bespoke case study and global datasets.	Rapid modelling and participatory works for useful results that flag data, policy and capacity gaps. Data mixes local and global sources.	State-of-the-art impact modelling work with in-depth social engagements for direct inputs into decision making.
Timeframe	1-3 days	1-2 months	4-6 months	18 months
City Inputs & Capacity	No existing capacity needed. Requires ordinary PC's and basic support from Tomorrow's Cities.	No existing capacity needed. Requires local spatial data and global datasets for hazard analysis.	Needs capacity on participatory planning and hazard science/engineering .Local + global data.	Comprehensive local skillsets and robust datasets (or capacity to collect them) are needed.
Expected Outputs	1 Report that maps opportunities for future impact and capability or policy transition.	1 Report + 1 Policy Brief outlining specific policy challenges and opportunities for equitable impact.	1 Action Plan containing detailed datasets & pathways for transformative urban development.	1 Action Plan + ready-to-use datasets (land use plans, policies, risk assessments, etc).
Best used to...	<i>Communicate</i> the value and novelty of risk sensitive urban planning for reviewing enabling environments and fundraising.	Clearly <i>identify</i> the data, knowledge, finance and capacity needed to facilitate future-oriented risk-informed urban planning.	<i>Map</i> policy gaps, opportunities and specific datasets to implement risk-informed urban development strategies.	<i>Up-skill existing capacity and generate high fidelity data</i> for risk-informed urban planning and policy that can reduce future risk.



To apply Tomorrow's Cities
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