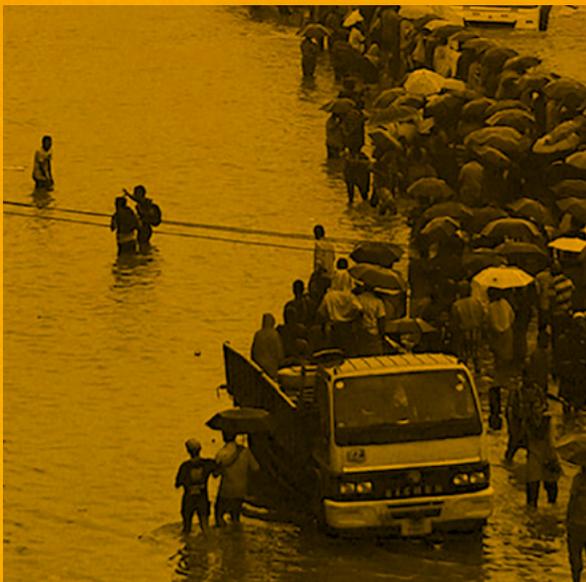




AN ANALYTICAL REVIEW
A DECADE OF
URBAN RESILIENCE



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Lessons and recommendations

The United Nations Development Programme (UNDP) partners with people at all levels of society to help build nations that can withstand crisis, and drive and sustain the kind of growth that improves the quality of life for everyone. On the ground in nearly 170 countries and territories, UNDP offers global perspective and local insight to help empower lives and build resilient nations. UNDP helps countries to develop policies, partnerships, and institutional capabilities in order to effect lasting change.

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Purpose and Outline

Urban resilience is an urgent global priority. A complex set of social, economic and environmental processes combine in cities to create risk, disasters and crises with cascading impacts that undermine development progress and hamper the aspirations of urban residents. With an estimated 90 percent of all reported COVID-19 cases occurring in urban areas,¹ the high population concentrations and interconnectivities of urban agglomerations make them hotspots not only for pandemics, but also for crises, multiple shocks and risks of all kinds. COVID-19 has reinforced the need to devise a comprehensive strategy and approach to risk management and resilience-building in cities.

Over the past decade, international development discourse has centered on the concept of urban resilience, which has emerged as one of the core pillars of sustainable development in international development frameworks and targets. The past years have seen a proliferation of global initiatives, networks, platforms and projects aimed at strengthening urban resilience, some very large in scope and well resourced. UNDP has also implemented a number of projects at regional, country and city level to address increasing disaster and climate risks in urban areas, strengthen risk governance and address the cascading effects of disasters across all walks of socio-economic life — including localization of the Sustainable Development Goals (SDGs). However, in the absence of a comprehensive strategy grounded in a strong understanding of the distinctive characteristics of urban areas and resilience building needs, UNDP has been unable to adequately support partner governments in holistically reducing risk and enhancing resilience within their territories.

UNDP has undertaken this analytical review of policy and strategy frameworks, projects, programmes, tools and methodologies related to urban risk management and resilience with a view to develop a comprehensive urban risk management and resilience-building strategy to augment its disaster/climate risk governance practice and to advance the implementation of the Sendai Framework for Disaster Risk Reduction (2015–2030) at the local/municipal level while ensuring that no one is left behind.

¹ UN-Habitat, 2020

The main findings from this critical review are presented in *Section 3. Global and regional initiatives to enhance urban resilience on page 18* and *Section 4. UNDP urban resilience policies, initiatives and tools on page 39*. Recommendations for the Disaster Risk Reduction and Recovery for Building Resilience Team (DRT) are outlined in *Section 5. Opportunities and priorities for UNDP engagement on urban resilience and risk management on page 62*.

The Urban Risk Management and Strategy produced as a result of this analytical review will provide a comprehensive and structured approach to urban risk management and resilience, complemented by a programmatic offer that brings together UNDP's work on risk management with its development agenda, including that of leaving no one behind and addressing conflict and fragility.



1. Introduction

Summary

- *Cities concentrate risks and these risks are becoming more complex.*
- *The threats may be similar but the interrelationships and ways in which impacts are propagated through urban systems will be different.*
- *Risk assessments focus mainly on the stocks or assets that could be damaged or lost. They do not fully capture the knock-on effects and consequences of a disaster.*
- *In most city governments and their development partners, specialised agencies focus on parts of the system rather than critical points of failure within the whole system.*
- *Systems thinking means looking holistically at urban systems (socio-economic, physical, environmental), services, capacities and resources, and paying close attention to power relations and the political economy of urban development and risk management to drive meaningful change.*
- *Strengthening urban resilience is a political, as well as technical, endeavour; institutional arrangements and policy choices have different outcomes for different urban groups, and there may be trade-offs.*

1.1 A renewed focus on urban issues

Over half the world's population currently lives in urban areas and this share is expected to swell to two-thirds by 2050.² Over 80 percent of global GDP is already generated in cities.³ Our collective ability to deliver the SDGs will therefore depend largely on the performance of towns and cities, but progress on the SDGs in many cities has already been set back by the COVID-19 pandemic, climate change and disasters.

Yet over the next 30 years, average global temperatures are expected to rise by a further 0.5–1°C without a rapid change in policy and investment in reducing greenhouse gas emissions.

² UNDESA, *World Urbanization Prospects 2018*, (2018).

³ Dobbs, R., Smit, S., Remes, J., Manyika, J., Roxburgh, C., and Restrep, A., *Urban world: Mapping the economic power of cities*, (2011).



A number of large urban agglomerations across almost all continents will be exposed to a temperature rise of greater than 1.5°C.⁴

A changing climate will also multiply the impacts of current urban threats, as well as creating new risks that will undermine economic prosperity, competitiveness, public health, political stability and human dignity.⁵ These risks will need to be better managed and attention paid to enhancing the capacity of urban actors and systems to deal with shocks.

UN Common Guidance on Helping Build Resilient Societies defines resilience as:

*“the ability of individuals, households, communities, cities, institutions, systems and societies to prevent, resist, absorb, adapt, respond and recover positively, efficiently and effectively when faced with a wide range of risks, while maintaining an acceptable level of functioning without compromising long-term prospects for sustainable development, peace and security, human rights and well-being for all.”*⁶

This definition recognises that the development and risk reduction agendas are inextricably intertwined – including at the city scale.

Similarly, urban resilience is defined by the UN-Habitat Urban Resilience Hub as:

“The measurable ability of any urban system, with its inhabitants, to maintain continuity through all shocks and stresses, while positively adapting and transforming toward sustainability.”

These shocks and stresses, including disaster events, can be natural, man-made or hybrid (arising from natural and human interactions) in nature, including:⁷

- **Natural:** Tsunamis, earthquakes, natural climate variability and extremes, and volcanic eruptions.
- **Human-made:** Financial crises, industrial accidents and geopolitical volatility.
- **Hybrid:** Pollution, anthropogenic climate change, floods, droughts, deforestation and pandemics.

⁴ Revi, D. E. Satterthwaite, F. Aragón-Durand, J. Corfee-Morlot, and R. B. R. Kiunsi, ‘Urban areas’, in V. R. Barros et al. (ed.), *Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects*. Working Group II Contribution to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change, (New York: Cambridge University Press, 2014), p. (pp. 535 – 612).

⁵ A. Bazaz, P. Bertoldi, M. Buckeridge, A. Cartwright, H. de Coninck, F. Engelbrecht, D. Jacob, J.-C. Hourcade, I. Klaus, K. de Kleijne, S. Lwasa, C. Markgraf, P. Newman, A. Revi, J. Rogelj, S. Schultz, D. Shindell, C. Singh, W. Solecki, L. Steg, and H. Waisman, *Summary for Urban Policymakers: What the IPCC Special Report on Global Warming of 1.5°C Means for Cities*, (2018).

⁶ United Nations, *UN Common Guidance on Helping Build Resilient Societies*, (2020).

⁷ S. Opitz-Stapleton, R. Nadin, J. Kellett, M. Calderone, A. Quevedo, K. Peters, and L. Mayhew, *Risk-informed development: From crisis to resilience*, (2019).



6 Often these hazards occur simultaneously, giving rise to social, economic, environmental, climate or political risks that compound and cascade to create subsequent complex risks. Examples include the COVID-19 pandemic and locust infestations in East Africa in 2020, which limited agro-pastoralists' mobility in the face of increased food insecurity; or COVID-19 lockdowns, which affected local and national flood preparations and the increased risks of coronavirus contagion during flood evacuations due to limited physical distancing.

Critically, work on urban resilience brings together a focus on managing these risks (and, in particular, disaster- and climate-related risks) with development policy and practice. Applying an urban lens can enhance the performance of both development and risk reduction programming. This explains why addressing urban risk management and fostering resilience has become essential for achieving the objectives of different strands of the 2030 Agenda including the SDGs, the New Urban Agenda, Paris Agreement and the Sendai Framework for DRR. The diversity and dynamism of cities, with high concentrations of people, infrastructure and economic activity, pose challenges for risk governance but also present opportunities. Some key characteristics of cities in relation to risk are summarized below in a wide-ranging but not exhaustive list:

- Cities tend to have a higher concentration of people living in areas that are exposed to environmental hazards, such as floodplains, steep slopes, contaminated land and poor air quality. Cities are disproportionately located along coasts and rivers. For example, 65 percent of the world's urban population currently live in coastal zones that are highly exposed to a range of hydrometeorological hazards, and this proportion is likely to increase to 74% by 2025.⁸ High land prices in urban areas push the poor into less desirable locations, particularly where exclusionary planning, regulations and markets preclude densification of well-located land.⁹ This can catalyse a vicious cycle in which human activity, particularly on the margins of cities and in peri-urban areas, accelerates ecosystem degradation and further exacerbates environmental risk. For example, construction or resource extraction in mangroves, wetlands and forests might affect these habitats' ability to provide ecosystem services, such as flood management or temperature regulation, to proximate cities.
- High densities of people and economic activity can compound environmental risks in the absence of adequate service and infrastructure provision. Higher population densities make it possible to provide essential goods and services with more efficient consumption of land, materials and energy. However, in the absence of adequate services and infrastructure, those same higher population densities combined with 'hard' surfaces and expensive land can exacerbate risk. For example, many people

8 Gencer et al., 2018

9 D. Satterthwaite, D. Archer, S. Colenbrander, D. Dodman, J. Hardoy, D. Mitlin and S. Patel, 'Building Resilience to Climate Change in Informal Settlements', *One Earth*, 2/2 (2020), 143–56.

are exposed to health risks if a single urban household lacks adequate sanitation. Urban areas may also require more sophisticated construction, planning and financing approaches, due to the density of people and cost of land.¹⁰ For example, a pit latrine with a slab may safely manage human waste in rural areas, but it is not sufficient in urban areas where there is greater risk of flooding and contamination.¹¹ Lack of adequate water and sanitation continues to be a critical driver of risk and a constraint on development in urban areas.

- Cities tend to have a high concentration of major capital assets such as power generation, mass transit and commercial buildings, and so high levels of exposure to hazards and therefore disproportionate economic impacts when crises occur. Moreover, urban residents' dependence on these systems for water, food and energy may make them vulnerable to environmental shocks as they cannot directly procure or produce these essential goods from ecosystems. Collapse of an urban system or supply chain can therefore have cascading risks beyond its immediate impacts.
- Cities' jurisdictional remits may hamper their efforts to adequately address risks. Localised risk impacts can have their causal factors in jurisdictions or sectors outside of cities' governance mandate. Similarly, solutions may require regional, national or international cooperation, especially in relation to finance, occurring in fora out of reach for many local authorities.
- Cities also offer opportunities that can be harnessed to manage risk and strengthen adaptive capacity resilience. They tend to have a greater diversity of people, ideas and economic activity. Migration to cities and the concentration of households and businesses necessarily increases people's exposure to different values, behaviours, cultures and ideas. Diversity has the potential to enhance resilience to shocks and stresses. For example, women living in urban areas are more likely to have access to information, more years of education and income-generating opportunities, and are more likely to own land and property.¹² This helps them to prepare for and cope with shocks.

In many ways, urban residents face greater risks than those in rural areas. However, urban areas also offer unique opportunities to enhance resilience thanks to their dynamism, diversity and depth of capabilities. These distinctive challenges and opportunities need to be taken into account to appropriately harness their potential in development, risk management and resilience programming.

¹⁰ I. Turok and G. McGranahan, 'Urbanization and economic growth: the arguments and evidence for Africa and Asia', *Environment and Urbanization*, 25/2 (2013), 465–82.

¹¹ D. Satterthwaite, 'Missing the Millennium Development Goal targets for water and sanitation in urban areas', *Environment and Urbanization*, 28/1 (2016), 99–118.

¹² S. Chant, 'Cities through a "gender lens": a golden "urban age" for women in the global South?', *Environment and Urbanization*, 25/1 (2013), 9–29.



There are many definitions of urban resilience, but all refer in some way to ‘systems’ (as opposed to communities or individuals) and to the ability or capacity of these systems to respond to a shock or disturbance (often focussing on the ability to absorb and recover from a shock), or to take a more mutually reinforcing and complementary approach towards urban planning, development and functionality, while being able to advance long-term resilience and sustainability. Urban systems are inherently dynamic and constantly change in non-linear ways. Therefore, building the resilience of these systems is a highly relevant approach for dealing with future disaster/ climate uncertainties and systemic risks such as pandemics, and for promoting and sustaining development. Because risk planning in cities means dealing with different timescales, moving away from a siloed approach can help overcome timeline mismatch; for example, cities are confronted with slow-onset risks such as sea level rise occurring over a long period of time, while cities’ electoral cycle and budget planning occur on much shorter timelines.

Although systems thinking has been around since the 1950s, governments, businesses, universities and NGOs still prefer to break issues and problems into their separate parts and deal with each in isolation. Separate agencies, departments and organisations specialise in energy, land, food, water, the economy, finance, building regulations, technology, health and transportation as if each were unrelated to the others:¹³

“The challenge is to transition organized urban complexity built on an industrial model and designed for automobiles, sprawl, and economic growth into coherent, civil, and durable places.”¹⁴

This transition can be approached from a number of different entry points, of which urban governance is particularly important. Systems thinking will shape the way city governments undertake, organise and collaborate with non-state actors to assess current threats, look to the future, and plan for expected and unexpected changes. City governments can take better decisions if they adopt a model of the city as a system of ecological inputs and outputs, understanding the resource flows as well as the assets ‘at risk’. But this is not the norm. At best, local governments will undertake a risk assessment before initiating an urban planning and budgeting process. But these assessments look only at stocks or assets that could be damaged or lost; they do not fully capture the inter-relationships, knock-on effects and consequences of a disaster, including the long-term effects. This often leads to sectoral approaches that are focused on parts of the system (particular assets or individuals), look only at short-term recovery rather than long-term changes, and do not address the critical points of failure within the system.

Adopting a systems approach will also help to focus the attention of planners and decision-makers on causal factors or the so-called ‘underlying drivers of risk’. As many of the UNDP global policy teams consulted for this report noted,

¹³ D. Orr, ‘Systems Thinking and the Future of Cities’, (2016).

¹⁴ D. Orr, ‘Systems Thinking and the Future of Cities’, (2016).

reducing risk in urban areas means tackling the drivers of conflict, violence, insecurity, environmental degradation and unsafe housing — drivers that are likely rooted in unequal power relations and therefore highly challenging to address. Many urban residents are systematically marginalised either informally or by law, including women, migrants and ethnic minorities, and incorporating the voices of the most marginalised in policies/programming remains a challenge. They may therefore have limited avenues either to reduce their exposure to hazards or to enhance their own adaptive capacity.¹⁵

In most countries, the institutions set up to manage urban development and disaster risk do not have the inclination, authority or skills to tackle these drivers of vulnerability and potential risk which ostensibly lie outside their administrative or sectoral mandates. In many cases, these institutions are governed in a manner or prompted by considerations which tend to perpetuate the status quo or fail to recognize that low-income groups play an important role in the economic and social functioning of the city.¹⁶ This is the disconnect between risk creation and risk reduction – a complex problem to address and one that will require multi-sectoral, participatory approaches to urban resilience, development planning and programming including for reducing or managing risks. Understanding the connections between institutional arrangements and policy choices, and the outcomes for different urban groups is therefore an important foundation of systems thinking.

In short, systems thinking in the urban context will mean looking holistically at urban systems (institutions, processes, policies, legal frameworks, decision-making etc.), services, capacities, resources (financial, natural, environmental) and urban functionality. Effective systems thinking requires paying close attention to power relations and political economy within a city to drive meaningful change.

City governments are keenly interested in technology and innovation. They want to know, for example, how they can take advantage of digital technologies to function more efficiently, reduce waste and manage risks better. Technology has advanced our understanding and awareness of hazards, vulnerability and exposure through better data/mapping, early warning systems and through the dissemination of this information via the internet, electronic media and smartphones. But the adoption of new technologies does not by itself bring more equitable results, and the risks will likely remain for those living in informal settlements with no access to these technologies. Moreover, enhanced access to information can enhance vulnerabilities, through fake news and misinformation, when there is a disconnect between the national and local level, and in some cases when the internet is shut down which prevents citizens from accessing information.

¹⁵ Satterthwaite, Archer, Colenbrander, Dodman, Hardoy, Mitlin, and Patel, 'Building Resilience to Climate Change in Informal Settlements'.

¹⁶ Turok and McGranahan, 'Urbanization and economic growth'.





Resilience will not mean the same thing for any two cities; it is context-specific and dependent on the kinds of development, urbanisation and environmental problems that cities face. While there are likely to be some common social, economic, cultural, political, natural and physical dimensions of resilience in cities, and similar threats (including those related to climate change and global pandemics), the interrelationships and ways in which impacts are propagated through the system will be different. Understanding how urban risks are being created – for example, through the destruction of forests and mangroves, and poor water sanitation systems in densely populated informal settlements – and propagated – for instance, when localised flooding leads to vector-borne diseases, diarrhoea and the interruption of schooling – will determine the success of interventions and ensure that urban resilience programmes do not lead to maladaptive practices.

Furthermore, the context in which cities evolve is interdependent with regional - and increasingly international socio-economics. If cities have interconnections at multiple scales and across multiple overlapping issues while also having limited jurisdictions and mandates, the task of enhancing cities' resilience when risks are boundless and can travel through networks of interdependencies can seem extremely daunting.

Having a strong analytical framework for understanding capacities and connections, and appropriate data, are therefore prerequisites for managing risks effectively and strengthening resilience capacities.

2. International policy frameworks shaping urban risk and resilience

Summary

- *Urban resilience is increasingly seen as part of the development agenda given the location of urban growth in low-income countries, currently and in the coming decades.*
- *The various international development, climate change, risk reduction and urban agendas, as well as the policy frameworks for 2030 (SDG, New Urban Agenda, Sendai Framework and Paris Agreement), make a coherent case for placing greater emphasis on risk and resilience in urban planning and governance, as a core component of – and even a prerequisite for – sustainable development.*
- *These agreements have led to a proliferation of planning, prioritisation and reporting processes and tools.*
- *Of concern, however, is the view that urban resilience is a necessary response to external threats faced by cities. This fails to adequately acknowledge the complex interactions that generate risk within cities.*

Urban risk reduction and resilience practices in cities across the world vary significantly, relying on national policy and the support provided by central governments. Meanwhile, national policies in some countries imitate international policy frameworks, although to varying degrees. In this section we examine four internationally agreed policy frameworks spanning the development, disaster risk reduction and climate agendas, assessing how they respond to the risk and resilience challenges that cities face now and in the future. Together, these frameworks provide an overarching ambition of urban resilience, the kinds of goals cities should be aiming for and a comprehensive picture of what they can all do – despite their significant historical-cultural, socio-economic, political and geographic/geophysical differences.

The specific provisions for urban resilience made in the SDGs, the New Urban Agenda, the Sendai Framework for DRR and the Paris Agreement on climate change are discussed below.

2.1 The Sustainable Development Goals

The SDGs are a non-legally binding commitment by countries to achieve development progress across 17 goals by 2030. There are 169 individual targets and a commitment to equitable development, captured in the pledge to ‘Leave no one behind’.¹⁷ Most goals and targets relate to the resilience agenda in some way, but SDG 11 – Sustainable Cities and Communities – is focused specifically on making cities inclusive, safe, resilient and sustainable. Target 11.5 focuses attention on the need to reduce the human and economic toll of disasters in cities:

“11.5 By 2030, significantly reduce the number of deaths and the number of people affected and substantially decrease the direct economic losses relative to global gross domestic product caused by disasters, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations.”¹⁸

Other SDG indicators and targets that speak explicitly to urban resilience and risk reduction include:

- **SDG 11.3** By 2030, enhance inclusive and sustainable urbanization and capacity for participatory, integrated and sustainable human settlement planning and management in all countries.
- **SDG 11.b** By 2020, substantially increase the number of cities and human settlements adopting and implementing integrated policies and plans towards inclusion, resource efficiency, mitigation and adaptation to climate change, resilience to disasters, and develop and implement, in line with the Sendai Framework for DRR 2015–2030, holistic disaster risk management at all levels.
- **SDG 1.5** By 2030, build the resilience of the poor and those in vulnerable situations and reduce their exposure and vulnerability to climate-related extreme events and other economic, social and environmental shocks and disasters.
- **SDG 3.d** Strengthen the capacity of all countries, in particular developing countries, for early warning, risk reduction and management of national and global health risks.
- **SDG 13.1** Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries.

¹⁷ UNDESA, ‘Transforming our world: the 2030 Agenda for Sustainable Development | Department of Economic and Social Affairs’, (2015).

¹⁸ UNDESA, ‘Transforming our world: the 2030 Agenda for Sustainable Development | Department of Economic and Social Affairs’, (2015).

Many other targets and indicators also relate closely to this agenda, including the goals on food security (SDG 2) and infrastructure provision (SDG 9).

Each of these benefits from having a distinct urban focus and can benefit from an urban lens.

While the concept of urban resilience existed before 2015, its inclusion as a standalone goal in the 2030 Agenda cemented its status as a cornerstone of sustainable development.¹⁹

2.2 The New Urban Agenda

The UN's New Urban Agenda, a product of the Habitat III conference²⁰ in 2016, revolves around concepts of sustainability, resilience, equity and smartness. One of the three pillars of the New Urban Agenda is environmentally sustainable and resilient urban development (alongside two pillars focusing on economic and social goals). Articles 65–80 of the agenda include commitments by signatories to implement these pillars. Almost all of these articles have implications for development, risk reduction and resilience, but articles 77–78 perhaps most explicitly speak to these issues:

“77. We commit ourselves to strengthening the resilience of cities and human settlements, including through the development of quality infrastructure and spatial planning, by adopting and implementing integrated, age- and gender-responsive policies and plans and ecosystem-based approaches in line with the Sendai Framework for Disaster Risk Reduction 2015–2030 and by mainstreaming holistic and data-informed disaster risk reduction and management at all levels to reduce vulnerabilities and risk, especially in risk-prone areas of formal and informal settlements, including slums, and to enable households, communities, institutions and services to prepare for, respond to, adapt to and rapidly recover from the effects of hazards, including shocks or latent stresses. We will promote the development of infrastructure that is resilient and resource efficient and will reduce the risks and impact of disasters, including the rehabilitation and upgrading of slums and informal settlements. We will also promote measures for strengthening and retrofitting all risky housing stock, including in slums and informal settlements, to make it resilient to disasters, in coordination with local authorities and stakeholders.

“78. We commit ourselves to supporting moving from reactive to more proactive risk-based, all-hazards and all-of-society approaches, such as raising public awareness of risks and

¹⁹ H. Leitner, E. Sheppard, S. Webber, and E. Colven, ‘Globalizing urban resilience’, *Urban Geography*, 39/8 (2018), 1276–84.

²⁰ The United Nations Conference on Housing and Sustainable Urban Development.

*promoting ex ante investments to prevent risks and build resilience, while also ensuring timely and effective local responses to address the immediate needs of inhabitants affected by natural and human-made disasters and conflicts. This should include the integration of the ‘build back better’ principles into the post-disaster recovery process to integrate resilience-building, environmental and spatial measures and lessons from past disasters, as well as awareness of new risks, into future planning.*²¹

Importantly, most of the specific targets in the New Urban Agenda are based on other multilateral frameworks, such as the SDGs, Sendai Framework and Paris Agreement. The agenda is explicit in being an accelerator of SDG 11 for ‘planning, construction, development, management and improvement of urban areas’.²² The agenda embeds urbanisation in development policy and practice, recognising that most urbanisation for the coming decades will take place in low-income countries.

The New Urban Agenda leaves the question of implementation open, so the Action Framework for the Implementation of the New Urban Agenda was created. While non legally binding, the framework promotes five areas where national action can be taken that will have local urban benefits: National urban policies; Urban legislation, rules and regulations; Urban planning and design; Urban economy and municipal finance; Local implementation.

2.3 The Sendai Framework for Disaster Risk Reduction

The Sendai Framework for DRR sets out a broad commitment to reducing disaster damage and losses, and is linked to the achievement of the SDGs. With four priority areas, seven targets and 38 indicators, the Sendai Framework is designed to promote and monitor progress on disaster risk reduction as reported by Member countries. Resilience is described in relation to disaster risks and is a core concept included in the Sendai Framework. Priority 3 centres around ‘Investing in disaster risk reduction for resilience’, and has a specific target (d) related to the effectiveness of these investments:

“(d). Substantially reduce disaster damage to critical infrastructure and disruption of basic services, among them health and educational facilities, including through developing their resilience by 2030.

Resilience is understood as cutting across all contexts (urban and rural), sectors and scales (local, national, regional and global), but the framework is nonetheless explicit in its guiding principles that the involvement, responsibility and empowerment of local governments is critical to reducing disaster risk.²³

²¹ UN-Habitat, *The New Urban Agenda*, (2016).

²² UN-Habitat, *The New Urban Agenda*, (2016).

²³ UNDRR, ‘Sendai Framework for Disaster Risk Reduction 2015—2030’, (2015).

In 2017, United Nations Office for Disaster Risk Reduction (UNDRR) produced an additional reporting framework for local governments through its Making Cities Resilient campaign. The Disaster Resilience Scorecard for Cities, developed as part of the campaign as a diagnostic, reporting and planning tool, is structured around 10 principles:²⁴

1. Organise for disaster resilience
2. Identify, understand and use current and future risk scenarios
3. Strengthen financial capability for resilience
4. Pursue resilient urban development and design
5. Safeguard natural buffers to enhance the protective functions offered by natural capital
6. Strengthen institutional capacity for resilience
7. Understand and strengthen societal capacity for resilience
8. Increase infrastructure resilience
9. Ensure effective disaster response
10. Expedite recovery and build back better.

The scorecard supports local authorities in assessing urban resilience and producing resilience action plans set against the Sendai Framework targets. Its key indicators feed into national-level reporting on the Sendai Framework, and the Sendai Framework reporting mechanism itself is linked to SDG target 11.b to ensure coherence between these agendas and minimise duplication in reporting:

“11.b. By 2020, substantially increase the number of cities and human settlements adopting and implementing integrated policies and plans towards inclusion, resource efficiency, mitigation and adaptation to climate change, resilience to disasters, and develop and implement, in line with the Sendai Framework for Disaster Risk Reduction 2015–2030, holistic disaster risk management at all levels.

The campaign is now being pursued under the label ‘Making Cities Resilient 2030’. In addition to the scorecard and action planning, the initiative supports cities’ implementation of resilience plans, focusing on improving cross-sector governance structures and access to finance.

2.4 The Paris Agreement

While the text of the legally binding Paris Agreement under the United Nations Framework Convention on Climate Change (UNFCCC) does not focus

²⁴ UNDRR, Disaster Resilience Scorecard for Cities’ United Nations office for Disaster Risk Reduction, (2017).



specifically on urban contexts, resilience and risks are the explicit focus of articles 7.1 and 8.1:

“7.1 Parties hereby establish the global goal on adaptation of enhancing adaptive capacity, strengthening resilience and reducing vulnerability to climate change, with a view to contributing to sustainable development and ensuring an adequate adaptation response in the context of the temperature goal referred to in Article 2.

“8.1 Parties recognize the importance of averting, minimizing and addressing loss and damage associated with the adverse effects of climate change, including extreme weather events and slow onset events, and the role of sustainable development in reducing the risk of loss and damage.”²⁵

The agreement makes countries responsible for mitigation and adaptation planning and implementation. The technical guidelines supporting countries’ drafting of nationally determined contributions (NDCs) and national adaptation plans (NAPs), submitted to the UNFCCC, make specific provisions for urban resilience and risks.

Within the NDC planning process, resilience in urban contexts is understood as resilience to climate change. The NDC technical guidelines encourage countries to include local authorities in NDC implementation, undertake multi-stakeholder consultations, coordinate with existing urban policies and provide support for local delivery. Conversely, the guidelines assume improved resilience for cities from an effective mitigation policy.²⁶ Analysis carried out by UN-Habitat in 2016 shows that 113 of the 164 first NDCs had urban components.²⁷ Out of these, 75 countries featured urban adaptation measures, focusing on key adaptation priority sectors (ordered by importance):

1. Food security
2. Biodiversity and ecosystem conservation
3. Water management
4. Vulnerability and disaster
5. Health/healthcare
6. Land use management.

The NAP human settlement technical guidelines developed by UN-Habitat specifically address urban and human settlement issues in the formulation and implementation of NAPs and more broadly for improved adaptation.

²⁵ UNFCCC, ‘Paris Agreement’, (2015).

²⁶ UN-Habitat, *Enhancing Nationally Determined Contributions through Urban Climate Action. A guide for incorporating urban climate action and human settlement issues into the Nationally Determined Contributions enhancement process*, (2020).

²⁷ N. Tollin, J. Hamhaber, S. Grafakos, S. Lwasa, and J. Morato, *Sustainable Urbanization in the Paris Agreement: Comparative review for urban content in the Nationally Determined Contributions (NDCs)*, (2017).



Urban resilience is implicitly assumed to be a product of reduced vulnerability, which would be achieved through a NAP with an urban-focused component.²⁸ Technical assistance is also being provided by international agencies to integrate urban adaptation and resilience goals and priorities in the NAP process^{29,30}

These four policy frameworks and global agendas coalesce around the importance of urban resilience and have led to a set of norms, assessment tools and often top-down technical and managerial knowledge. Predominantly, what emerges from these agendas is an understanding of urban resilience as a response to disturbance, which is assumed to be external. Limited recognition is given to how risk is produced by – and occurs within – the urban system.³¹

²⁸ L. Fee, M. May, and Y. Wang, Addressing Urban and Human Settlement Issues in National Adaptation Plans: A Supplement to the UNFCCC Technical Guidelines on the National Adaptation Plan Process, (2019).

²⁹ L. Fee, M. May, and Y. Wang, Addressing Urban and Human Settlement Issues in National Adaptation Plans: A Supplement to the UNFCCC Technical Guidelines on the National Adaptation Plan Process, (2019).

³⁰ See also <https://www.adaptation-undp.org/urban-resilience>

³¹ B. Evans and J. Reid, 'Dangerously exposed: the life and death of the resilient subject', *Resilience*, 1/2 (2013), 83–98.

3. Global and regional initiatives to enhance urban resilience

Summary

- A review of 18 major global urban resilience initiatives in the last decade shows that most initiatives have provided support for the assessment of hazards, vulnerabilities and risks. Most have also built the capacity of stakeholders to develop resilience strategies, plans and specific policies, and have increased awareness and political ownership of urban resilience. A few have supported the development of investable/bankable projects and project pipelines, with some providing grants for pilot projects or for bringing these to scale.
- Initiatives focused on generating new data or creating data management systems, however, have received little attention. Similarly, few initiatives have produced documented evaluations or evidence of outcomes (as opposed to activities and outputs). The result is that, after at least 10 years of urban resilience initiatives, little is understood about their effectiveness in helping particular cities or groups within cities, or their collective contribution globally.
- Initiatives have tended to focus on physical systems, whereas other sectors deemed to influence urban resilience – such as land use planning, the built environment, human settlements and slums, natural resource management, public safety and security – have received less attention.
- Few initiatives have taken a people-centred approach or focused on the health, livelihoods and basic needs of groups and parts of the city that are often marginalised in urban development, and that are made more vulnerable by disasters and other shocks.
- Initiatives have clustered in bigger cities (with more than 1 million inhabitants) across the continents.
- Geographically, most initiatives have targeted cities in the Global North, especially in the US and Europe, followed by East and South-East Asia. Latin America, the Middle-East and Northern Africa, Central Asia, Eastern Europe and the majority of countries in Sub-Saharan Africa have been underserved.

This section reviews a broad range of projects, programmes, networks and other interventions aimed at building the resilience of cities over the last 10 years. Resilience – particularly urban resilience – is thought to be a complex process, so there has been a major focus on producing frameworks to help operationalise resilience thinking.

3.1 Analytical frameworks

There is a rich body of experience in the development and application of urban resilience frameworks. Unlike international policy frameworks, many of the analytical tools that have been developed explicitly recognise the drivers of vulnerability in urban areas and the interrelated nature of urban risks. They emphasise that efforts to enhance urban resilience can simultaneously advance progress towards other agendas, such as public health, basic services, improving jobs and livelihoods, mobilising investment, and safeguarding urban green and blue space. Above all, prioritising urban resilience can help to safeguard the economic, social and environmental progress of recent decades, laying the foundations for a less fragile future.

Most analytical frameworks characterise and interpret urban resilience. They do not focus on specific risks or potential shocks and stresses, such as extreme weather, infectious diseases, cybersecurity, debt crises or infrastructure breakdown. Rather, the frameworks are used as diagnostic and planning tools – to identify the qualities of urban systems, services, capacities, resources and other city-specific characteristics that determine how well they might respond to a variety of disturbances, enabling an evaluation of how the city will be able to prepare for, cope with and adapt to changing conditions.³² Urban resilience frameworks are transferable across urban areas, even though the nature of the risks and drivers of vulnerability may be unique to each one.

One of the most widely used frameworks is the City Resilience Index (CRI), which was developed by Arup with support from the Rockefeller Foundation. The CRI provides a comprehensive and globally applicable basis for measuring city resilience. It expands on a similar framework developed by the Asian Cities Climate Change Resilience Network (ACCCRN),³³ which is also funded by the Rockefeller Foundation. The CRI has also served as a blueprint for tools developed subsequently, such as the Urban Community Resilience Assessment framework by the World Resources Institute, which focuses specifically on poor urban communities.³⁴

The CRI index comprises 52 outcome indicators in four categories: leadership and strategy (knowledge); health and wellbeing (people); economy and society (organisation); and infrastructure and ecosystems (place). Taken together, these four categories and 52 indicators are intended to allow cities to monitor

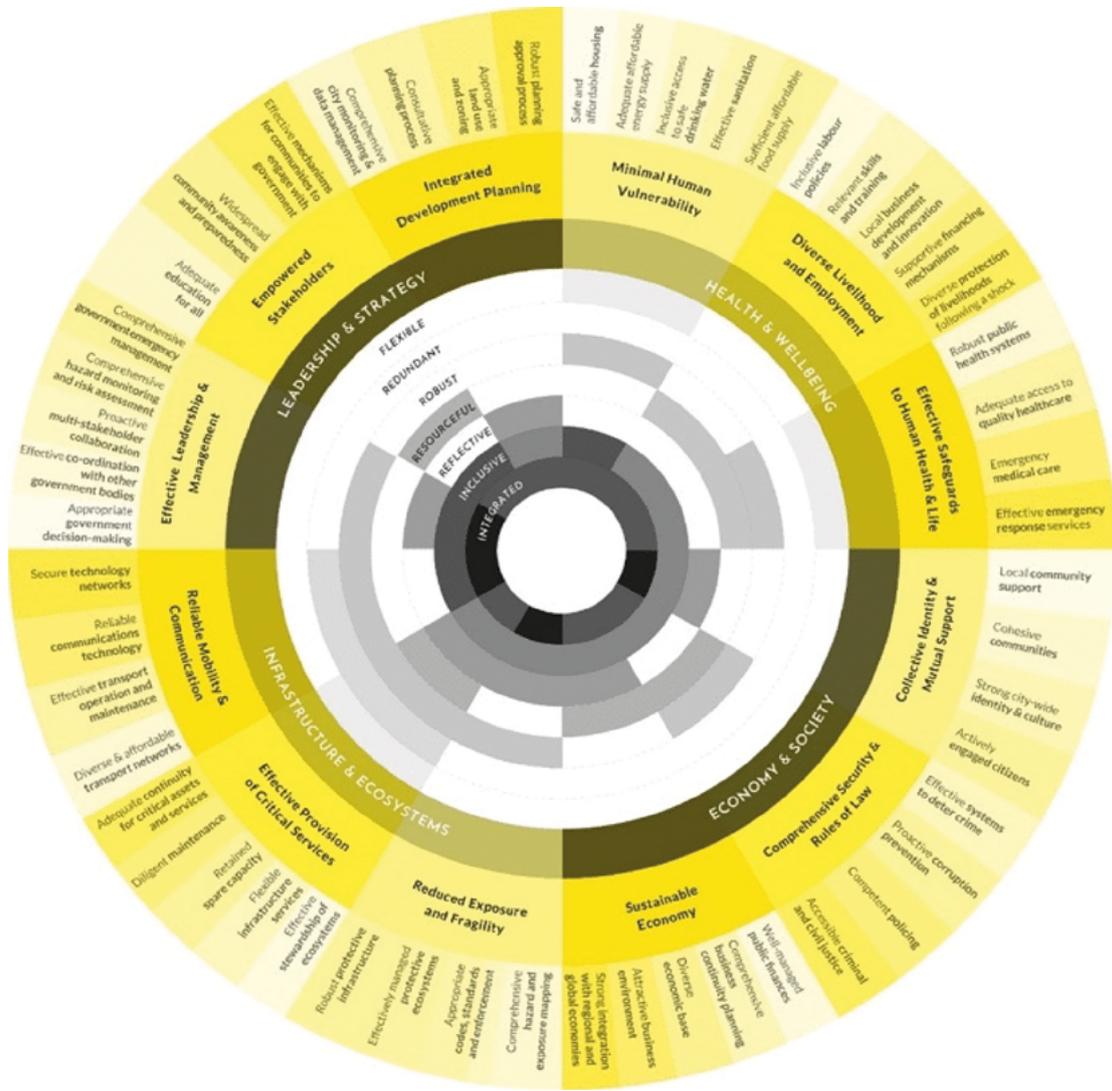
³² S. Meerow, J. P. Newell, and M. Stults, 'Defining urban resilience: A review', *Landscape and Urban Planning*, 147 (2016), 38–49.

³³ S. Tyler and M. Moench, 'A framework for urban climate resilience', *Climate and Development*, 4/4 (2012), 311–26.

³⁴ K. Elias-Trostmann, L. Burke, L. Rangwala, and D. L. Cassel, *Stronger Than the Storm: Applying the Urban Community Resilience Assessment to Extreme Climate Events*, (2018).



Figure 1. The City Resilience Index



the multiple factors that contribute to their resilience, and identify policies and programmes to manage risk. The index has been applied widely in the 100RC network (see *Planning support on page 26*) to diagnose current levels of city resilience for planning purposes.

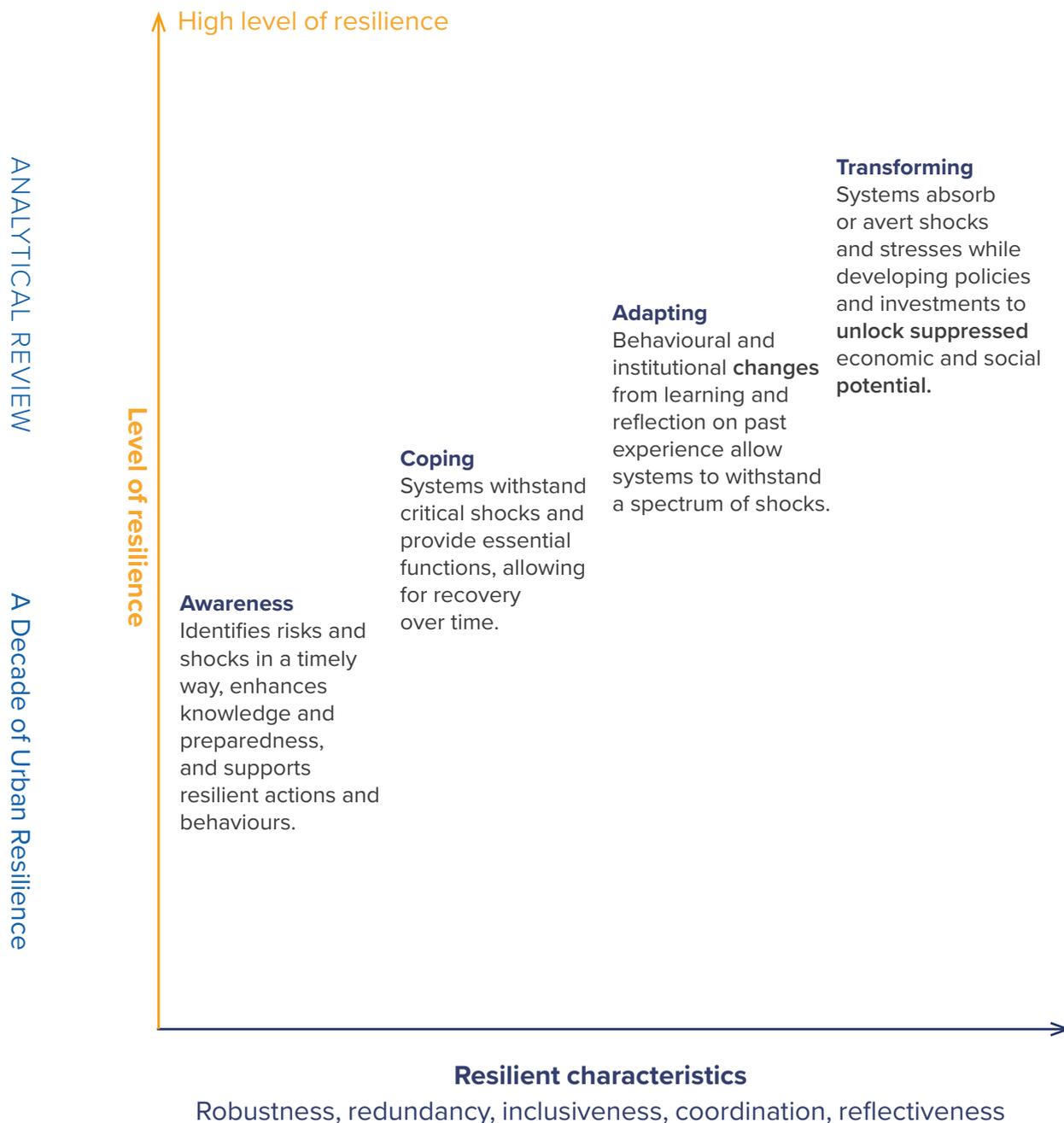
Similarly, the World Bank has developed a framework for urban resilience, with characteristics that can be used to design interventions and provide a baseline:

- **Robustness:** Integrity and strength of infrastructure and urban systems
- **Inclusion:** Ensures that the most vulnerable people equally benefit from resilience activities
- **Coordination:** Supports integrated responses in the face of stresses and shocks
- **Reflectiveness:** Systems that learn and evolve based on shared knowledge and experience
- **Redundancy:** Alternate pathways within urban systems to manage resilience risks.

The framework can be used at the operational level, to assess if urban projects incorporate these characteristics, and at the urban system level, to assess its overall contribution to building urban resilience along a continuum of five stages (see *Section 2. International policy frameworks shaping urban risk and resilience on page 11*).

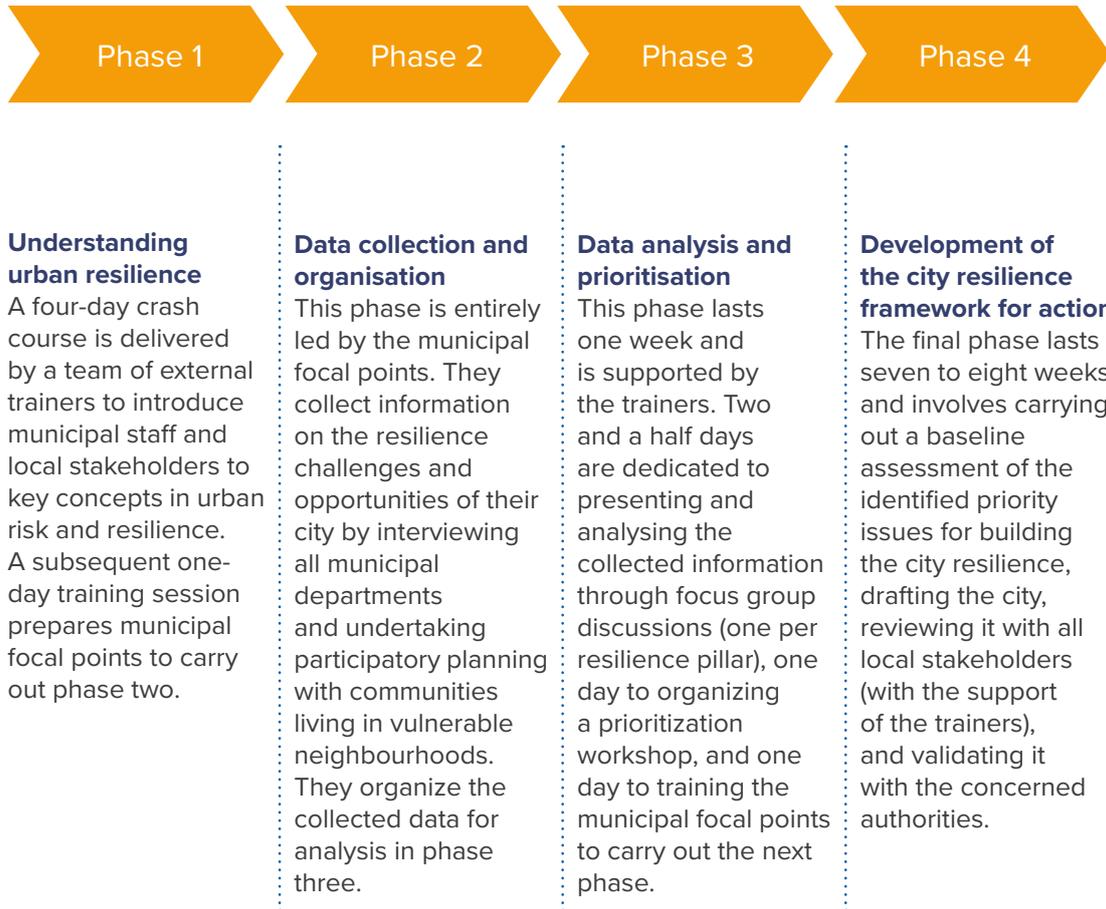
UN-Habitat's City Resilience Action Planning (CityRAP) tool is more of a planning instrument outlining a step-by-step participatory planning process, which includes a set of training exercises and activities targeting municipal authorities, communities and local stakeholders. The framework identifies five pillars of city resilience: urban governance; urban planning and environment; resilient infrastructure and basic services; urban economy and society; and urban disaster risk management. Resilience data is collected on these five pillars plus additional information on three cross-cutting issues – climate change mitigation and adaptation, city growth, and safe and inclusive cities – to feed into a five-step planning process (see *Section 3. Global and regional initiatives to enhance urban resilience on page 18*).

Figure 2. The World Bank's urban system resilience framework continuum driven by resilience characteristics



Source: World Bank, *Building Urban Resilience: An Evaluation of the World Bank Group's Evolving Experience* (2019) | Independent Evaluation Group.

PREPARATORY PHASE



Global and regional initiatives to enhance urban resilience

DURATION

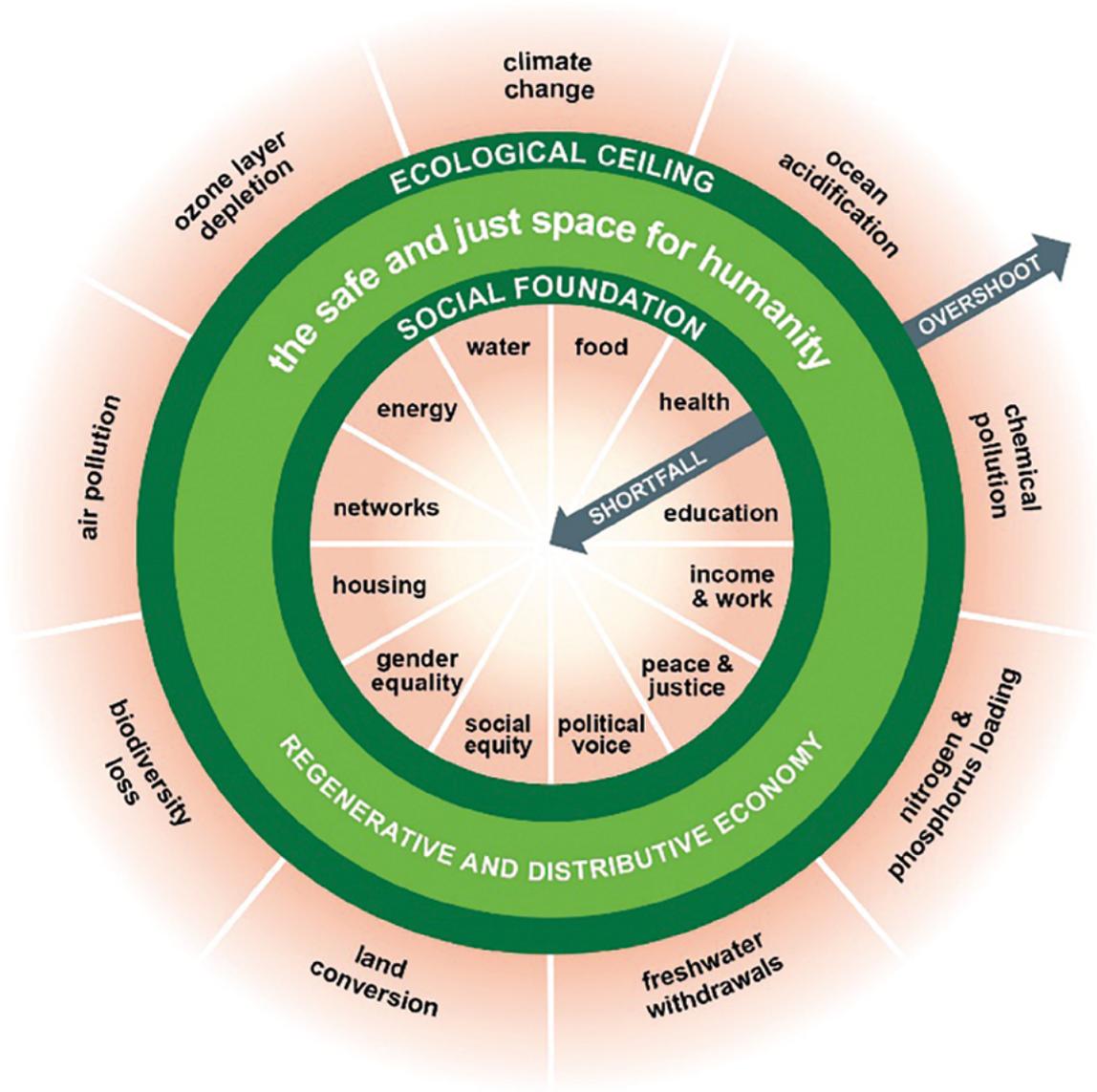


A concept that is rapidly gaining currency in urban circles is the ‘Doughnut’, which was developed by University of Oxford economist Kate Raworth (see *Figure 4. The Doughnut framework on page 25*). The outer ring of the doughnut shape represents planetary boundaries or ecological ceilings that, if crossed, risk large-scale, abrupt and/or irreversible environmental changes that will affect human prosperity.³⁵ The inner ring represents the social foundations that should be met to provide everyone with a decent standard of life, often understood as the SDGs. Initially proposed as a new “growth paradigm” for countries, the Doughnut framework is increasingly finding downscaled applications. It reveals critical tensions between, on the one hand, reducing total environmental impacts associated with the production of goods and wastes and, on the other, increasing production and consumption in order to meet basic needs and enhance resilience to shocks. This is another way in which development, risk reduction and resilience strategies need to be reconciled and aligned. The Doughnut framework is now being adapted to city contexts to provide a snapshot of where cities stand on ecological ceilings and social wellbeing objectives, as a way to start conversations around where they want to be.³⁶ A brief comparison of the four frameworks described in this section is below:

CRI	World Bank	CityRAP	Doughnut
Level			
City/urban system	1. Intervention 2. City/urban system	1. Sectors 2. City/urban system	City/urban system
Type of tool			
Diagnostics, monitoring and evaluation	Diagnostics, monitoring and evaluation	Diagnostics, planning and prioritisation	Diagnostics, monitoring and evaluation
Targeted urban systems			
Balanced across physical, social, economic and knowledge systems	No urban system specified, but provides a continuum of how well systems respond to disturbances, from awareness of risks and shocks to coping, adapting and ultimately transforming	Sectoral approach, multi-hazard focus	Strong focus on human and ecological systems

35 W. Steffen, K. Richardson, J. Rockström, S. E. Cornell, I. Fetzer, E. M. Bennett, R. Biggs, S. R. Carpenter, W. de Vries, C. A. de Wit, C. Folke, D. Gerten, J. Heinke, G. M. Mace, L. M. Persson, V. Ramanathan, B. Reyers, and S. Sörlin, ‘Planetary boundaries: Guiding human development on a changing planet’, *Science*, 347/6223 (2015).

36 K. Raworth, ‘Introducing the Amsterdam City Doughnut | Kate Raworth’, (2020).



3.2 Types of support provided by global and regional urban resilience initiatives

Global and regional efforts to support urban resilience and sustainability are independent of each other and so, unsurprisingly, target different parts of the urban system, focus on different cities/geographical regions and offer different types of support. However, there are some strong functional overlaps between initiatives. Not every urban resilience project can be assessed here; instead, we focus on multi-year programmes that have backing from a large number of institutions, enjoy continued financial support, and are regional or global in scope (See *Major global urban resilience initiatives on page 27*).

Based on their key activities, these projects can be broadly grouped into the categories below, noting that several of the larger programmes could fit within multiple categories.

Planning support

Several initiatives have an explicit focus on capacity-building, aiming to assist local authorities with city-level resilience planning. The UN-Habitat Urban Resilience Hub, for example, has supported cities with tools and guidelines for measuring and increasing resilience to multi-hazard impacts, including those associated with climate change. UN-Habitat's resilience planning is informed by CityRAP, a participatory tool that includes training exercises and activities targeting municipal authorities, communities and local stakeholders. The UNDRR Making Cities Resilient 2030 programme provides a similar multi-hazard approach, with activities focused on increasing awareness of the risks and benefits of disaster risk reduction, planning mitigation measures for identified risks, and work on governance, access to finance, infrastructure project design and nature-based solutions.

The most well-known urban resilience initiative is 100RC, which was funded by the Rockefeller Foundation between 2009 and 2019 to support municipal leaders to mainstream resilience. It did this by providing financial and logistical support to create the innovative position of chief resilience officer, who was embedded in mayoral teams and tasked with championing and developing an integrated urban resilience strategy to address risks within and between urban systems. Preceding 100RC was ACCCRN, a network of Asian cities that worked with civil society and research institutes to develop standardised approaches to vulnerability assessments that then informed city resilience strategies.

More recently, the Doughnut Economics Action Lab downscaled the Doughnut framework to the cities of Amsterdam, Philadelphia and Portland with support from the C40 Cities network. In contrast to existing approaches, the Doughnut has a stronger people-centred focus, in addition to respecting ecological limits, which contributes to increasing the adaptive capacity and resilience of individuals.

What city governments want – and are able – to do to strengthen resilience is shaped by political economy constraints at national and local levels. At the local level, in particular, private sector interests can play a significant role in determining which risks are prioritised. Many local authorities do not have

Major global urban resilience initiatives

1. UN-Habitat Global Urban Observatory Urban Indicators Database
2. 100 Resilient Cities
3. Asian Cities Climate Change Resilience Network
4. ICLEI Resilient Cities
5. ICLEI Transformative Actions Program
6. ADB Urban Climate Change Resilience Trust Fund
7. ADB ASEAN Australia Smart Cities Trust Fund
8. Cure Violence Global
9. World Bank City Resilience Program
10. Global Covenant of Mayors for Climate & Energy
11. UNDRR Making Cities Resilient 2030
12. Arup and Lloyd's Register Resilience Shift
13. Doughnut Economics Action Lab City Doughnut
14. C40 Cities network
15. UN-Habitat Urban Resilience Hub
16. Cities Climate Finance Leadership Alliance
17. SDI Know Your City campaign
18. Carbon Disclosure Project cities and regions data

significant powers to act, which curtails their ability to deliver ambitious – and perhaps even transformational – resilience agendas.³⁷ Many more do not have sufficient fiscal and financial resources to fulfil their responsibilities, since in many countries tax revenues continue to be centrally collected and administered.³⁸ In India and Sub-Saharan Africa, where much of the world's urban population growth will take place over the next three decades, these political economy and resource constraints pose major challenges to local governments devising and delivering solutions to urban risk problems. In these contexts, urban resilience needs to be promoted by relatively well-resourced and capacitated state and national governments.

Project preparation and implementation grants

Several initiatives have been created to assist in the design, financing and implementation of resilience projects in recent years. The Asian Development Bank (ADB) has two dedicated financing vehicles to accelerate the implementation of resilience projects. The ADB Urban Climate Change Resilience Trust Fund invests in local stakeholder capacity to prepare resilience projects and engineering designs, and to reach financial closure of infrastructure investments. It also provides support for integrated climate and disaster risk planning, knowledge brokering and small grants to bring civil works pilots to scale.

The ADB ASEAN Australian Smart Cities Trust Fund has a stronger focus on funding the adoption of useful technologies, including better data for planning, network management and ICT technology for infrastructure service delivery (e.g. real-time detection and information exchange of water leaks) to increase the resilience of urban systems. The fund also focuses on improving the effectiveness and efficiency of city financial management systems to better fund resilience activities in light of cities' general lack of resources.

The ICLEI Transformative Actions Program (TAP) also aims to build the capacity of local institutions to attract finance for the implementation of resilience projects, addressing both the supply and demand of such projects through a match-making model. It is an incubator that supports local and regional governments to develop climate project concepts through TAP services provided by ICLEI and partners, including capacity-building and technical assistance, financial services providers and increased international visibility. Projects are selected mainly for their transformative potential and are entered into the TAP pipeline, which is matched to potential investors, and through a number of iterations these become financially more robust (i.e. bankable).

Similar in nature, the Cities Climate Finance Leadership Alliance is a network of all the major public and private institutions engaged in climate finance. It leverages the strength of the network to have members working on solutions

37 A. V. Bahadur and H. Thornton, 'Analysing urban resilience: a reality check for a fledgling canon', *International Journal of Urban Sustainable Development*, 7/2 (2015), 196–212.

38 A. Cartwright, I. Palmer, A. Taylor, E. Pieterse, S. Parnell, and S. Colenbrander, *Developing Prosperous and Inclusive Cities in Africa – National Urban Policies to the Rescue?*, (2018).

to specific challenges in ‘action groups’ within a fixed timeframe. There are three key action groups working on:

- Project preparation, which supports alliance members in identifying, coordinating and accelerating existing preparation facilities for low-carbon and climate-resilient urban infrastructure projects
- Financial toolboxes, to collaboratively advance identification and deployment of financial instruments that can help to scale climate finance in cities
- Enabling frameworks, which seek to strengthen national legal, regulatory and policy frameworks that can boost climate finance for cities.

The C40 Cities Climate Leadership Group provides climate action services, including network and alliance brokering, peer learning and capacity building on climate-related topics, and improved resilience cuts across a number of its workstreams. The climate action planning initiative and finance facility are more relevant to resilience building. The former supports cities in formulating climate action plans with resilience at their heart, and the latter provides broad implementation of capacity building through city-to-city learning and climate-informed knowledge support for the construction of infrastructure projects, such as solar PV rooftops and electric transport buses.

Data, information and knowledge

Other projects have sought to improve the data ecosystem for planning and policy in cities. These global initiatives may or may not have an explicit focus on resilience. The UN-Habitat Global Urban Observatory Urban Indicators Database is a network of more than 360 regional, national and local observatories worldwide that gathers data on urban-related SDG indicators, including on slums, land consumption, health, basic services, transport, equity and inclusion, productivity and quality of life.

The Carbon Disclosure Project (CDP) maintains a data portal gathering datasets on emissions, climate actions and risks for 812 cities. All data is reported by cities themselves and covers greenhouse gas emissions, renewable energy, mitigation and adaptation projects, climate hazards, governance and economic opportunities. In a sense, the portal acts as a tracker on climate actions undertaken to date.

The World Bank City Resilience Program is a large multi-year initiative that provides support for urban resilience planning and implementation with a strong focus on financing capital investments. The programme adopts a geospatial approach that shifts away from sectoral priorities, and uses global data sets, advances in artificial intelligence, and machine learning to generate new information to enable risk-informed decision-making. This information is presented in the form of ‘City Scans’.

The Global Covenant of Mayors for Climate & Energy has a Data4Cities workstream that provides community-specific activity data and emission factors to develop greenhouse gas emissions inventories and fact-based climate action planning. This standardizes how and what climate information

from cities is collected, and what data can be made available to support cities to act, alongside the mechanisms used to analyse this information. The covenant's Data Portal for Cities helps communities by filling critical information gaps about their building, transport and waste sectors by providing previously unavailable data drawn from national and regional sources, and making it freely available for city use.

Arup and Lloyd's Register combined their extensive knowledge in infrastructure and risks to launch Resilience Shift, a new initiative to shift perception, policy and practice to build resilient infrastructure systems. The initiative acts as a think tank, convening dialogues and generating knowledge to influence policymakers to break down sectoral silos and to empower practitioners to embrace different ways of thinking and working on infrastructure resilience across the entire value chain. The focus is not only on physical infrastructure but also social and natural infrastructure to save lives, improve livelihoods, protect the environment and strengthen markets.

Most data-driven initiatives have emerged from multilateral agencies or research institutes. However, one of the most important resources developed is by SDI (formerly Slum/Shack Dwellers International), a network of residents of informal settlements in 478 cities across 32 countries. This grassroots movement, built around women's local savings groups, has developed a standardised method for profiling, enumerating and mapping informal settlements called the 'Know Your City' campaign. Residents themselves collect the data, using it to establish a shared understanding of community priorities and subsequently to persuade and support local authorities to upgrade low-income neighbourhoods. Know Your City is now a powerful force for community organisation, participatory local governance and collective action, serving to redress some of the fundamental power inequalities that drive urban vulnerability.

Convening and scaling ambition

Most initiatives have created networks between cities and broader urban resilience actors for knowledge exchange, peer learning and resource generation, while network initiatives such as C40, ICLEI and the Global Covenant of Mayors for Climate & Energy have advanced cities' voices and their agendas in international climate diplomacy. A few initiatives have dedicated resources to scaling up ambition and galvanising institutional and policy change. ICLEI supported the Talanoa Dialogues UNFCCC's 2017 conference COP23 – which featured multilevel governance as a key component to inform countries' NDCs and NAPs. But perhaps the most well-known initiative is the ICLEI Resilient Cities Congress, which started in 2010 as a yearly forum bringing local government leaders and climate adaptation experts together to discuss the adaptation challenges facing urban environments around the globe. Another initiative primarily involving the most populous cities in the world, the C40 Climate Summit for Mayors, is an international city diplomacy effort to promote collective action between cities, which links mayors as well as the private sector and international donor agencies to take action on climate change.



Community intervention

Among organisations focusing on implementation, Cure Violence Global adopts a contact-tracing approach, normally used in disease control, to stop the spread of violence and increase resilience of communities. It trains outreach workers to prevent shootings and lethal conflicts, who follow up to ensure that conflict does not reignite. Outreach workers also identify the most at-risk individuals in communities and work with them to reduce the likelihood of violence, as well as engaged community leaders to change social norms around violence. ACCCRN also had a strong emphasis on community-level action in certain geographies.³⁹

3.3 Lessons from existing global and regional urban resilience initiatives

The global and regional urban resilience initiatives described in section 3.2 have supported cities in many ways. Some of these initiatives, such as 100RC, have operated for a long time and have achieved observable outcomes and produced cumulative lessons that can be documented. Other lessons can be derived by analysing these initiatives as an ensemble, especially to identify gaps and needs that may not have been met either locally or globally. Many cities have developed resilience plans/strategies but these are often fairly high level, and cities face many challenges in terms of prioritising and implementing these plans. External organisations highlighted capacity and financial constraints as major challenges to the implementation of resilience strategies, including how governments can turn a high-level activity within a strategy into a tangible, fundable and deliverable project. On the implementation side, successful cities have tended to have political leaders with a clear vision and desire to deliver quick wins, have a long-term presence and the support of external agencies working closely with city governments to implement and evaluate interventions.

Informed by the literature and practice on urban resilience, we classify these initiatives to provide an overview and critical assessment of 10 years of urban resilience practice (see *Classification of urban resilience initiatives on page 32*).

³⁹ A. Bahadur and T. Tanner, 'Transformational resilience thinking: putting people, power and politics at the heart of urban climate resilience', *Environment and Urbanization*, 26/1 (2014), 200–214.



Geography

Initiatives are global in nature or target regional blocs (including those that operate in specific countries within a region).

Stage of resilience – building

Understood as steps in a project/programme cycle, initiatives have focused their activities on one or multiple steps:

Data (P1); Diagnosing (P2); Planning/strategy (P3); Engagement, ownership and inclusion (P4); Resource sourcing (finance, technical, communications) (P5); Implementation (P6); Monitoring (P7); Evaluation and Learning (P8).

Programmes tend to concentrate on the diagnostic, mapping and planning aspects of resilience-building, as opposed to resource, implementation and monitoring aspects, but larger initiatives have provided support throughout.

Sectoral entry point

These are the entry points through which the majority of urban resilience initiatives tend to work through:⁴⁰

Urban Governance (S1); Land-Use Planning and Land Markets (S2); Built Environment Standards (S3); Infrastructure and Services Planning (S4); Circulation, Networks and Linkages (S5); Spatial Distribution of Human Activities (S6); Natural Resource Management (S7); Own Revenue Generation and Finance (S8); Public Safety and Security (S9); DRR (S10); Digital Transformation and Innovation (S11).

Targeted resilience outcome

Based on Arup's City Resilience Framework, these identify the desired resilience outcome that initiatives contribute to. The 12 outcomes are normative in nature and are clustered around four themes:

People: The health and wellbeing of individuals: Minimal human vulnerability (O1); Diverse livelihoods and employment (O2); Effective safeguards to human health and life (O3)

Place: Urban systems and services: Reduced exposure and fragility (O4); Effective provision of critical services (O5); Reliable communications and mobility (O6)

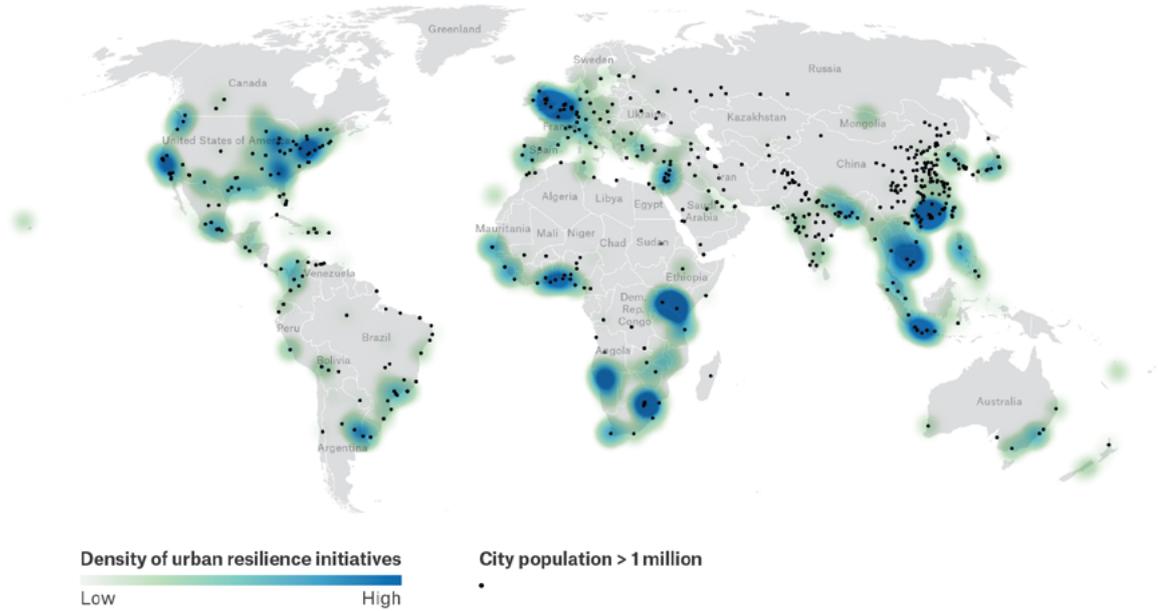
Organisation: Economy and society: Collective identity and community support (O7); Comprehensive security and rule of law (O8); Sustainable economy (O9)

Knowledge: Leadership and strategy: Effective leadership and management (O10); Empowered stakeholders (O11); Integrated development planning (O12).

Based on this classification, some important trends and gaps emerge. These are analysed in more detail in the following sub-sections.

⁴⁰ All the initiatives reviewed are working on mitigating climate change or adapting to its impacts through different sectors. Therefore we did not include a specific 'climate change' entry point code, as all the initiatives would score against it.

Figure 5. Cities included in global and regional urban resilience initiatives



Source: authors

Note: this heatmap of urban resilience initiatives was generated by interpolating the location of initiatives within a 600km radius. The density scale ranges between 0 to 8+ initiatives.

Where are urban resilience initiatives concentrated?

Global and regional urban resilience initiatives have clustered in cities with more than 1 million inhabitants (see Figure 5), leaving smaller cities underserved. The World Bank City Resilience Program, 100 Resilient Cities, SDI Know Your City Campaign and Cure Violence Global have made greater efforts to target second and third tier cities and smaller urban centres, with the latter two initiatives serving more smaller cities than larger ones. This may be because SDI Know Your Campaign is a grassroots movement to map informal settlements and collect local data and Cure Violence Global's interventions to stop violence are highly localised in communities.

Geographically, most initiatives have targeted cities in the Global North, especially in the US and Europe. Resilience initiatives have also tended to concentrate in East Asia and South-East Asia, as well as in some countries in East Africa (e.g. Kenya), Southern Africa (e.g. South Africa) and West Africa (e.g. Ghana). As Figure 5 highlights, Latin America, the Middle-East and Northern Africa, Central Asia, Eastern Europe and the majority of countries in Sub-Saharan Africa have not received enough support from existing major global and regional initiatives to build urban resilience.

Codes: *Data (P1); Diagnosing (P2); Planning/strategy (P3); Engagement, ownership, and inclusion (P4); Resource sourcing (finance, technical, communications) (P5); Implementation (P6); Monitoring (P7); Evaluation and Learning (P8)*

Urban Governance (S1); Land-Use Planning and Land Markets (S2); Built Environment Standards (S3); Infrastructure and Services Planning (S4); Circulation, Networks and Linkages (S5); Spatial Distribution of Human Activities (S6); Natural Resource Management (S7); Own Revenue Generation and Finance (S8); Public Safety and Security (S9); DRR (S10); Digital transformation and innovation (S11)

Minimal human vulnerability (O1); Diverse livelihoods and employment (O2); Effective safeguards to human health and life (O3); Reduced exposure and fragility (O4); Effective provision of critical services (O5); Reliable communications and mobility (O6); Collective identity and community support (O7); Comprehensive security and rule of law (O8); Sustainable economy (O9); Effective leadership and management (O10); Empowered stakeholders (O11); Integrated development planning (O12)

Which type of activities have received the most attention?

Of the 18 initiatives reviewed, there were some commonalities:

- An assessment of hazards, vulnerabilities and risks (10 initiatives). Knowledge of multiple hazards that cities are exposed to is critical for understanding interconnecting risks and for generating a holistic strategy to reduce those risks and enhance resilience.
- Building the capacity of stakeholders to develop resilience strategies, plans and specific policies (eight initiatives).
- Increasing awareness and political ownership of urban resilience (11 initiatives). This is done during the development of resilience strategies through multi-stakeholder consultation and participatory planning, as well as by convening and connecting activities at multiple levels. In some instances, these engagements are driven by more explicit goals of shaping the governance system for urban resilience.
- Providing the necessary tools, building the technical capacity and brokering the right relationships to translate resilience plans into concrete, investable projects, as well as helping clarify and demonstrating the value proposition of resilience to investors, and building the capacity of municipal stakeholders to independently attract multiple sources of funding for urban resilience (seven initiatives).
- Several of these initiatives (four) have also brought projects to life through the provision of grants for piloting or scaling up.

Despite the global effort to build evidence base and local capacities, external stakeholders consulted in this review frequently highlighted the need for greater understanding about how to align climate change adaptation, mitigation, disaster risk reduction, sustainability and resilience through policy frameworks at the local level, including within town and city planning. They also highlighted the need to raise awareness about the different dimensions of resilience, how they are interconnected and about the co-benefits that investing in resilience can have in terms of development outcomes.

Notwithstanding the many initiatives providing assessment, planning and funding support, there is still a vast proportion of unmet demand coming from smaller cities (second and third tier) in many countries and regions worldwide.

Two types of activities stand out in terms of the small amount of attention received. First, while a few initiatives have dedicated work packages to either generate new data or create coherence in urban data collection and access, this is insufficient compared to needs. To date, there is still little information available globally on informal settlements, distribution of urban infrastructure networks to improve flood mapping, and the use of local knowledge and narratives to complement technical data.⁴¹ While efforts such as the Know Your

41 X. Bai, R. J. Dawson, D. Ürge-Vorsatz, G. C. Delgado, A. S. Barau, S. Dhakal, D. Dodman, L. Leonardsen, V. Masson-Delmotte, D. Roberts, and S. Schultz, 'Six research priorities for cities and climate change', *Nature Comment*, 555 (2018), 3.

City campaign may partially fill this gap, the underlying challenge is that these communities and neighbourhoods continue to be excluded from the systems that routinely generate this data. For example, because residents of informal settlements may not be able to access health services (either because they do not have a legal address or cannot afford the cost), their disproportionate exposure to disease, chemical pollutants and physical hazards is not captured in datasets on health and disaster risk.^{42,43}

Second, only two initiatives have seemingly produced documented evaluations and learning of resilience outcomes in addition to activities or outputs. This can be expected with newer initiatives, which may not have enough implementation time to draw such conclusions, but it is also likely due to the reporting pressures that projects and programmes are usually put under. External stakeholders highlighted the limitation that most evaluations focus on inputs and outputs as opposed to outcomes and the change that happens as a result of interventions. The result is that, after at least 10 years of urban resilience initiatives, little is understood as to their effectiveness in helping particular cities or groups within cities, or their collective contribution globally.

Which are the most common sectoral entry points?

External stakeholders noted that, despite the rhetoric of taking a system and a multi-sectoral approach, in reality most urban resilience initiatives do take a sectoral approach:

“Cities are very complex systems with different ethnographic compositions, topological structures and different economic activities coming together, and yet we are still very siloed.”⁴⁴
 – External stakeholder

Urban resilience initiatives have tended to focus on physical systems, such as energy and transport, and many activities have successfully supported planning, design and investment in infrastructure assets and networks (four initiatives).

Several initiatives have focused on improving public finance systems in urban governments, and helping them to access international climate finance (five initiatives), while a couple have explored how digital technologies can be used to improve resilience.

There are visible gaps concerning other sectors deemed to influence urban resilience, including land-use planning, the built environment, human settlements and slums, natural resources management, public health, safety and security. Those initiatives that have actively fostered integrated development planning and taken a systems approach (5 initiatives) have

42 D. Satterthwaite and S. Bartlett, ‘Editorial: The full spectrum of risk in urban centres: changing perceptions, changing priorities’, *Environment and Urbanization*, 29/1 (2017), 3–14

43 Bai, X., R. J. Dawson, D. Ürge-Vorsatz, G. C. Delgado, A. S. Barau, S. Dhakal, D. Dodman, L. Leonardsen, V. Masson-Delmotte, D. Roberts, and S. Schultz, ‘Six research priorities for cities and climate change’, *Nature Comment*, 555 (2018), 3

44 Quote edited for clarity



implemented activities across various categories, described in *Analysis of UNDP urban resilience initiatives* on page 54.

Common intended outcomes of resilience programmes

Almost all the initiatives reviewed for this paper have contributed to what the Arup resilience framework defines as knowledge outcomes on fostering leadership and strategic visions. Most activities have sought to empower stakeholders by providing up-to-date information and knowledge to enable them to take appropriate actions (14 initiatives). A share of these (5 initiatives) have also sought to foster effective leadership and management of urban resilience challenges through participatory processes and promoting the use of evidence to make decisions.

Many of these initiatives focus less on people, and more on the health, livelihoods and basic needs of groups and parts of the city that are often marginalised in urban development and rendered more vulnerable by disasters and other shocks.

Numerous external organisations emphasised the need to ensure the participation of vulnerable and ‘at-risk’ groups in urban resilience planning and implementation, highlighting that, the closer cities are to their constituencies and the more pro-poor interventions can be, the more effective they will be in managing risk and building people’s resilience. However, this rhetoric is not translating into substantive programming focusing on the needs of those living in informal settlements, among other issues, so more ambitious programming is needed in this regard.



4. UNDP urban resilience policies, initiatives and tools

Summary

- UNDP's Sustainable Urbanization Strategy 2016 aimed to foster an integrated approach to urban sustainability through the adoption of a risk-informed development (RID) paradigm, but uptake has been slow internally, programming is siloed and urban resilience projects are ad hoc (not contributing directly to the New Urban Agenda or SDG11).
- At the regional level there are good examples of UNDP moving away from this fragmented modality. The Asia Pacific Regional Hub's IUR framework breaks away from the siloed approach while still leveraging the expertise of UNDP sectoral teams to develop urban resiliency roadmaps.
- UNDP published an Urban Climate Resilience issue brief in 2020, identifying three persisting gaps in urban resilience-building:
 - » A lack of data and coordinated planning and programming in secondary and tertiary cities and towns.
 - » A lack of capacity to develop investable pipelines of adaptation projects and attract financial resources.
 - » Poor use of technological (e.g. AI, remote sensing, smart cities, and the internet of things) and social innovation to build urban resilience to climate impacts and disasters.
- These considerations have been included in the Enhanced Collaboration Framework between UNDP and UN-Habitat to accelerate the implementation of the New Urban Agenda and Agenda 2030. The framework recognises the development and adoption of NUPs as the key priority area for collaboration between the two institutions.
- UNDP teams have analysis, diagnostic and problem-solving frameworks and tools that could be used, combined and adapted to support urban resilience and risk management strategies and programmatic offers.

This section critically assesses UNDP's engagement on urban resilience to date, reviewing relevant policies, analytical frameworks, projects and planning and diagnostic tools that have been applied to urban contexts, in particular to manage disaster risks.



From 2016, UNDP began to issue a series of policy documents signalling an interest in and an approach to supporting urban resilience.

UNDP's Sustainable Urbanization Strategy 2016

UNDP's support to urban resilience is guided by its Sustainable Urbanization Strategy⁴⁵. The strategy recognises each city as a 'complex emergent system', facing a host of economic, social, spatial, governance and environmental challenges to development (*Development challenges in urban areas on page 41*). It adopts a socio-economic angle to improve resilience, focussed on expanding economic opportunities, services and welfare for the poor, including the poorest in the informal economy, IDP camps, and rural to urban migrants. The strategy also identifies climate change, disasters, urban conflict, violence, and crime as key drivers of vulnerability in urban contexts.

The strategy sees resilience as a pillar, together with the sustainability and inclusiveness pillars, around which to build interventions to overcome development challenges and realize sustainable development (see the strategy's Theory of Change, *Figure 6. UNDP's Sustainable Urbanization Strategy Theory of Change on page 42*). It identifies several areas for priority resilience interventions:

- Mainstreaming disaster risk reduction and climate change adaptation into local urban plans. This includes turning targets into concrete actions, e.g. design and implementation of the NDCs and NAMAs.
- Improving urban disaster response and recovery, including coordination of stakeholders, needs assessment, and training of staff for humanitarian response, as well as supporting the transition from immediate humanitarian intervention to medium – to longer-term development and resilience by bridging city, humanitarian and development actors.
- Citizen security and rule of law, including assessment of different risk factors linked with urban violence and crime.

Overall, the 2016 strategy sought to foster an integrated approach to urban resilience by proposing a RID paradigm, support for locally-led initiatives in secondary and tertiary cities, and joining forces with other actors in the urban resilience space in strategic coalitions. However, implementation has been slow, partly due to internal operationalization challenges and likely due to a lack of conceptual clarity as to what a RID approach entails beyond the need to 'establish disaster information systems' and 'apply actionable risk information'. This has translated to siloed approaches to addressing urban risks, and to the creation of ad hoc projects, programmes and initiatives with an urban resilience or risk reduction focus (see 5. *Opportunities and priorities for UNDP engagement on urban resilience and risk management on page 62* for a discussion).

⁴⁵ UNDP, *Sustainable urbanization strategy: UNDP's support to sustainable, inclusive and resilient cities in the developing world*, (2016).

Development challenges in urban areas

Economic

Growing urban poverty; inequality between cities; urban unemployment and underemployment; informal economy.

Social

Poor particularly affected by climate change impacts; IDP camps; proper housing and quality of lifeline infrastructure services; energy access and poverty; rates of crime and violence; gendered rural–urban migration.

Spatial

Division and segregation in cities; limited space for city residents; consequences for peri-urban and rural areas due to urbanisation.

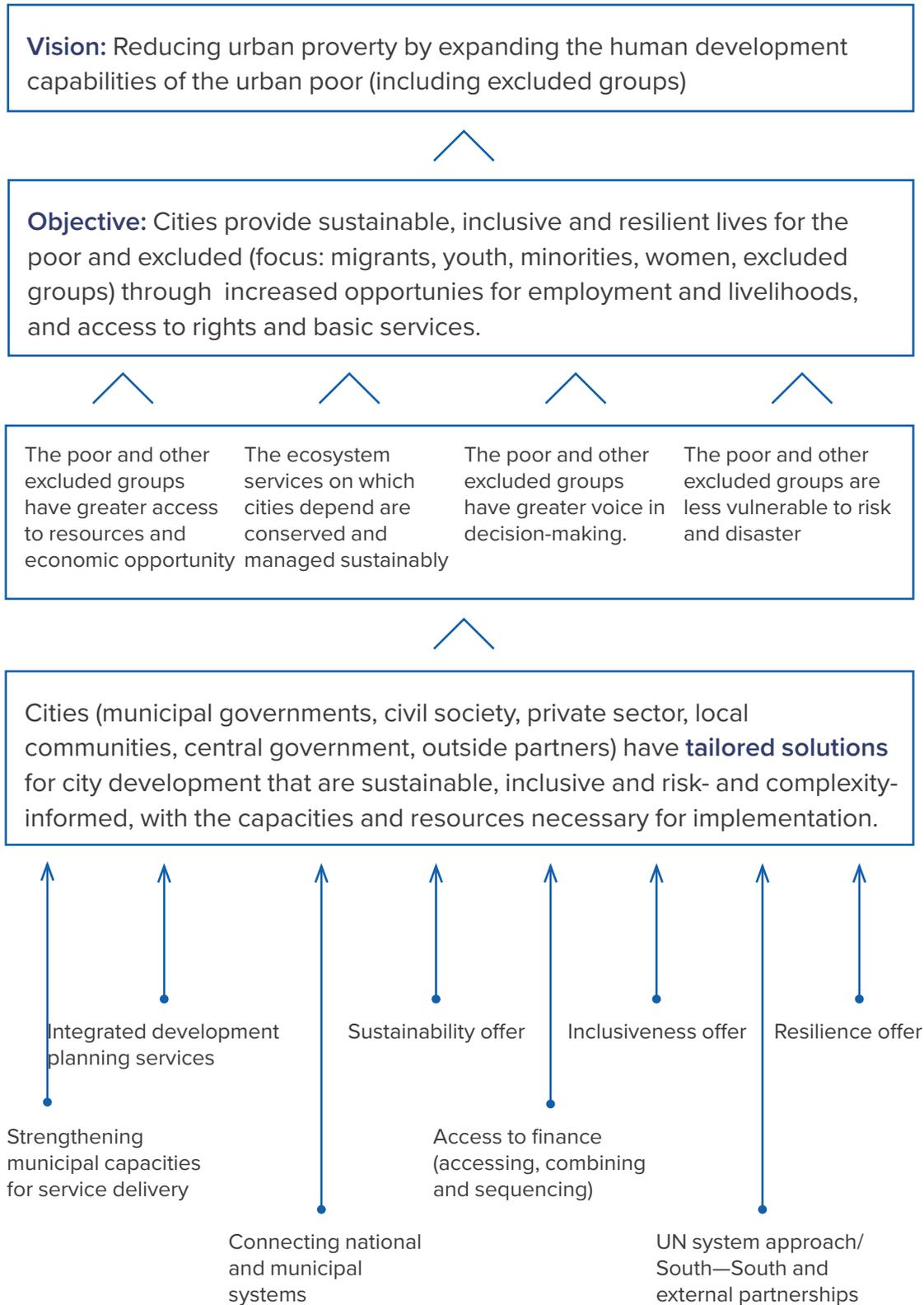
Governance

Low governance capacity where urbanisation is peaking; lack of urban financing and lags in fiscal decentralisation.

Environmental

Environmental degradation; physical climate change vulnerability due to land/natural ecosystem displacement; growing middle class driving demand for resources.

Figure 6. UNDP’s Sustainable Urbanization Strategy Theory of Change



The Integrated Urban Resilience framework 2020

UNDP Asia Pacific Bangkok Regional Hub has recently developed an integrated Urban Resilience (IUR) framework.⁴⁶ This represents a new strategic approach to addressing growing urban resilience problems in the Asia Pacific region through RID. The IUR recognises the same economic, social, governance, and environmental challenges to urban resilience that characterised the 2016 Sustainable Urbanization Strategy, but notes a changed wider context compared to 2016, whereby:

- Urban risks have become more extensive due to changing socio-economic and demographic characteristics, and accelerated global change. These risks correlate strongly with poverty, inequality, environmental degradation, and limited governance and service delivery capacity.
- Investments in local and community-level risk management capacities are still heavily concentrated on preparedness rather than risk reduction, despite increased mainstreaming of resilience into urban and local development plans.
- Risk reduction measures at the local level are mostly ad hoc and not informed by science-based evidence due to poor coordination with national planning frameworks and limited data.
- Spatial/territorial planning approaches at the city level are needed, as opposed to a central government, sectoral approach. Local-level decision-making is more conducive to the involvement of multiple stakeholders and to the kinds of integrated actions needed to make progress on the SDGs, disaster risk reduction, low-carbon development, inclusive city planning and resilience-building. This approach is made easier where national decentralisation processes have taken place and there is an interest in participatory governance and decision-making, and where there is local control over public finance (although accommodating disparate and competing local interests can result in piecemeal approaches and inertia).

The IUR adopts a systems approach to building urban resilience. It defines the ‘urban system’ as “interconnected institutions, functions, assets and resources with multiple and overlapping stakeholders”. These combine into ‘functional layers’ that work together to mediate and regulate various flows, including people, capital, commodities, information, food, water, electricity, transport, solid and liquid waste, and air pollution in cities. The functional layers are:

- Urban governance
- Land-use planning and land markets
- Built environment standards
- Infrastructure and services planning
- Circulation, networks and linkages

⁴⁶ UNDP, ‘Integrated urban resilience framework: an applied guide on UNDP integrated urban resilience (IUR) support’, (2020).



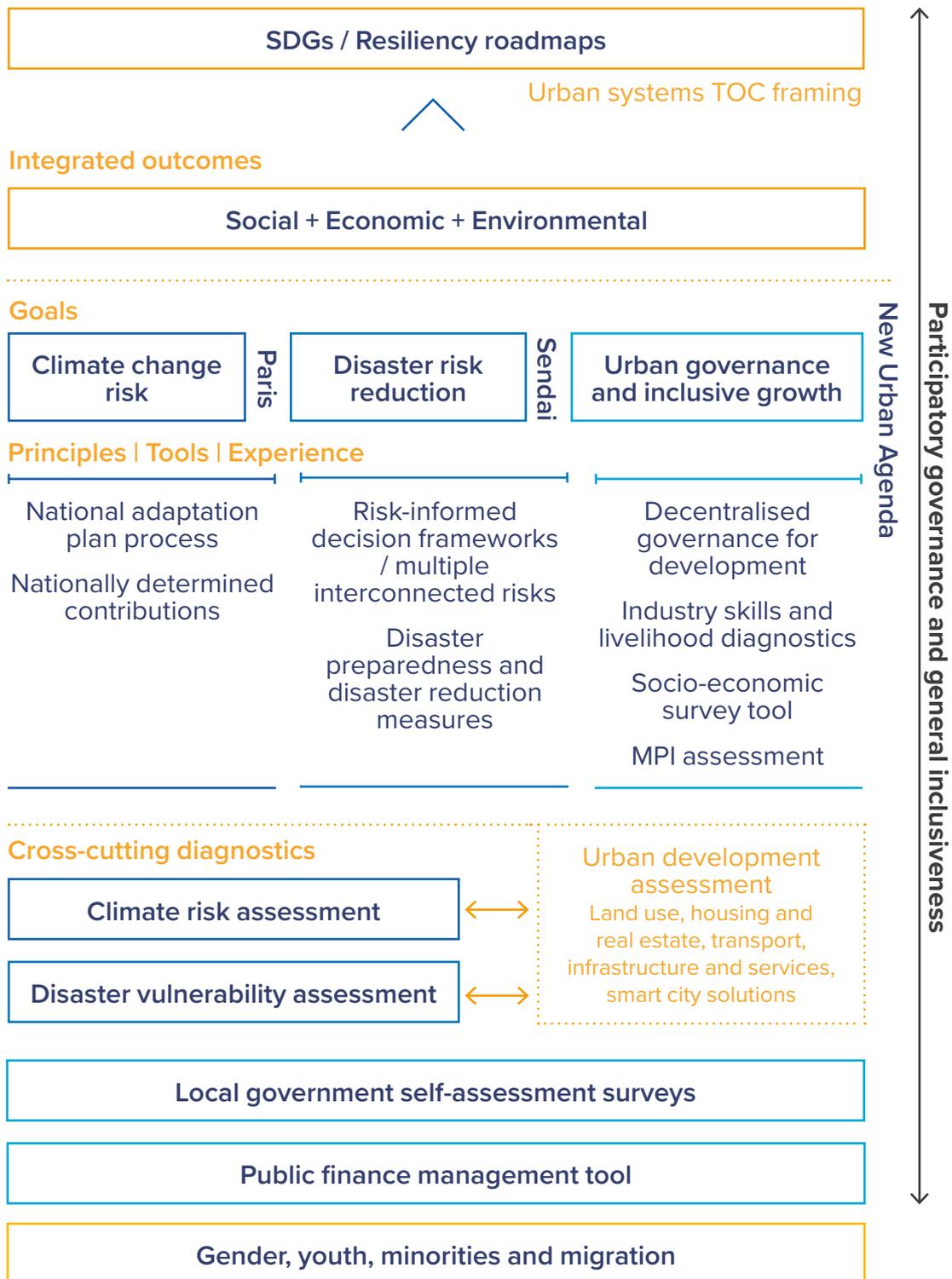
- Spatial distribution of human activities
- Natural resource management
- Own revenue generation and finance
- Public safety and security.

The IUR indicates that building the resilience of the urban system requires processes that “address a range of risks, vulnerabilities and opportunities with direct inputs from and outcomes for people, socio-economic and environmental systems, with the aim of building robust responses and capacities to recover, maintain functions and grow from events, disturbances and trends.” Central to these processes is the acknowledgment and understanding of the complex and dynamically evolving landscape of urban risks. While the focus has conventionally been on single-hazard analytics, cities are in reality exposed to multiple hazards and threats at the same time, giving rise to interconnected risks. As a result, a systematic assessment of these hazards and risks, based on scientific evidence, as well as the opportunities, uncertainties, risk tolerances and potential outcomes of policy options for different groups, are all necessary for taking decisions about urban resilience.⁴⁷

The IUR also stresses that establishing a risk management system requires an architecture that identifies roles and responsibilities, resources, modes of deploying resources, and monitoring systems.

The IUR provides a modular framework with a four-step decision-making process for UNDP, which combines conventional urban and territorial planning practices with scientific tools and approaches from the RID perspective to open up the possibility for spatially targeted policy implementation in line with the Paris Agreement, the Sendai Framework and Agenda 2030. The framework breaks away from the siloed approach while still leveraging the expertise of UNDP sectoral teams in the Asia Pacific Bangkok Regional Hub by involving them in a modular way to develop urban resiliency roadmaps. The key services offered to inform the development of these roadmaps come from several teams, including local governance, climate change adaptation, disaster risk reduction and sustainable urbanization, with inputs from other working groups on cross-cutting issues such as migration, youth, minorities, gender and social innovation. These are incorporated where needed to address all the functional layers of the urban system to build integrated resilience (see *Figure 5. UNDP teams working within the IUR Framework on page 45*).

⁴⁷ The RID approach is foundational to urban resilience, as it acknowledges that all development and investment decisions involve trade-offs with the potential to generate additional human-made systemic risks, and because it provides a risk-based decision process to evaluate the trade-offs as they relate to impacts on policy and community-determined priorities (Opitz-Stapleton et al., 2019).



UNDP urban resilience policies, initiatives and tools

Key:

- Climate change risk
- Disaster risk reduction
- Urban governance and inclusive growth
- Gender, youth, minorities and migration

Source: Integrated Urban Resilience Framework, UNDP Asia-Pacific Bangkok Regional Hub



Core support services provided through the Integrated Urban Resilience framework

Local Governance Support that aligns institutional structures and processes for community participation, gender-inclusive planning and design, identifies development priorities and coordinates stakeholders and assets toward effective policy design and implementation.

Baseline Diagnostics of demographics and socio-economic and environmental conditions to identify population and community segments by geographical location to help identify vulnerable segments, growth and adaptation opportunities.

Urban Systems Evaluations of functions, including, as needed, land-use patterns and activities, service and infrastructure evaluations for current conditions and future growth projections.

Multiple Risks Assessments that evaluate current and future challenges and vulnerabilities facing cities and local communities addressing concurrent multiple risks, including natural, human-made and hybrid risks.

Policy Trade-off Evaluations of possible risk-informed interventions that help assess their efficacy and the development trade-offs involved in assisting policy design and implementation measures.

RID Policy Integration that takes into account development priorities, cost–benefit evaluations and trade-offs, and implementation solutions for an integrated set of urban system policy interventions.

RID Implementation Support for urban resiliency roadmaps, bringing together public and private sector agencies for systematic and cost-effective interventions.

Financing Evaluations and financing plans that help develop a viable pipeline of bankable resilience-building and risk-reduction interventions, identifying local revenue streams, inter-governmental transfers and multilateral donor contributions (among other financing mechanisms) for project implementation pilots and scaling-up.

Partnerships and Collaborations with the private sector for knowledge-sharing, technology deployment and financing opportunities.

The described core support services provided by the IUR are used at different stages in the four-step decision support process, as follows:

Step 1: Raise awareness of urban resilience with local government partners and stakeholders

- Introduce the Mayor and municipality officials to the concept of the resilience roadmap and risk-informed long-term city planning in alignment with the three development frameworks – the SDGs, Paris Agreement and Sendai.
- Facilitate sessions/training on long-term visioning, systems thinking and strategic approaches to low-carbon resilient urban development in the context of the development frameworks.

Step 2: Establish the Urban resilience baseline

- Conduct baseline assessments of the status of national and local plans and actions toward urban resilience, identifying current gaps and opportunities.
- Evaluate the urban systems context in relation to the target urban sectors, issues and priorities.
- Conduct baseline assessments from the risk and vulnerability perspective of existing information, key stakeholders and at-risk populations, the institutional and municipal policy/regulatory set-up for disaster risk management, and current financing arrangements to implement activities as they relate to the three development frameworks.

Step 3: Consultations and analysis to identify and prioritize risks for the urban resilience framework

- Consultations with local government and key urban stakeholders to establish and agree:
 - » Risk and vulnerability assessments required for integration within urban resilience planning
 - » Data sources, methods and expertise needed to conduct the above analysis
 - » Coordinate local actions with national policy efforts and linkages with the SDGs, Paris Agreement and the Sendai Framework
 - » Evaluate policy, institutional and financial conditions for a functional and effective roadmap
 - » Prepare local capacity development plans.
- Provide support to identify policy actions, intervention areas and associated milestones.

Step 4: Develop urban resilience roadmaps

- Produce a resilience roadmap based on agreement with key stakeholders, aligned with national commitments and ongoing municipal processes, and linked with development priorities.

- Detail key risks identified and areas of intervention including their prioritization (e.g. policy, financial and institutional instruments), periodic milestones and detailed implementation plans with timelines, cost estimations and defined stakeholder roles.

Issues Brief on Urban Climate Resilience (2020)

The UNDP Issues Brief on Urban Climate Resilience published in 2020 is a strategic document that links urban resilience interventions to national and global climate change and disaster risk reduction policies. The objective of this brief is to further programming in this space under UNDP's climate change adaptation team globally. It identifies three areas where substantial gaps still exist to further cities' resilience and outlines the support that UNDP is committing to provide in these areas.

The first area is that many cities, especially secondary and tertiary cities, and smaller urban centres, are still lacking the capacity, data and coordinated planning and programming required to build urban resilience to climate and disaster impacts in the short and long term. This lack of capacity also pertains to the ability to develop investable pipelines of adaptation projects that are risk-informed, as well as attracting diverse financial resources to fund cities' resilience ambitions. The third area is that not enough technological and social innovation (such as AI, remote sensing, smart cities, and the internet of things) has been harnessed to improve risk and vulnerability data and planning processes, or to advance adaptive capacity (see *Gaps in city resilience identified by UNDP on page 49*).

Area	Gaps	UNDP support offer
Enabling environment and evidence base for urban climate risk management	Data and evidence are missing. Often cities lack detailed local risk and vulnerability assessments and the downscaled data with which to conduct these studies.	Support access to and development of quality data, risk and vulnerability information and assessments, and their application in urban policy and development planning.
	Capacity is needed. Cities that are growing the fastest are often those that have the least ability to cope. Increased capacity is needed at both the city and national levels to analyse and plan for climate and disaster risks, develop and implement projects, and secure and manage climate finance.	Strengthen capacity and municipal governance systems to enable resilience planning and to enhance adaptive capacity.
	Policy and coordination gaps persist. Existing national/local policy or fiscal structure can limit action at the city level. Limited vertical integration means city needs are not always represented in national prioritization and planning documents such as NDCs or NAPs.	Strengthen horizontal integration of municipal climate change adaptation and mitigation and disaster risk reduction, and related sectoral policy and planning as well as vertical integration across national, regional and city scales.
Investment in urban climate resilience enablers	Planning and programming are limited. Not all cities have robust, risk-informed climate adaptation and development plans, nor do they have a pipeline of investment-ready, costed adaptation and resilience projects to attract investors.	Support formulation of risk-informed municipal policies, development plans and budgets.
	Funding and investment are critical. Cities have limited funds, and often are confined in their ability to raise/ access funding due to their ineligibility for international climate finance, lack of creditworthiness or lack of autonomy over their own budget and revenue generation. Investment in resilience from the private sector can be leveraged, but without proper policies or incentives, businesses are reluctant to pay for resilience measures.	Technical assistance to project pipeline development and design, and implementation of integrated investments that enhance resilient urban infrastructure, services and livelihoods, and address co-vulnerabilities of both climate and health crises De-risking of city resilience investments by securing and leveraging vertical fund resources to crowd in private finance.
Acceleration and scaling of ambitious urban climate change adaptation action	Cities are the epicentre of technological and social innovation. Advances in media and technology such as AI, remote sensing and cellular infrastructure and the internet of things are grown and tested in urban environments and are changing the way cities work. Opportunities abound to harness the power of the smart city revolution to increase inclusivity of urban planning processes, improve risk and vulnerability data, and advance adaptive capacity.	Work with countries and cities to develop partnerships and to generate and advance ideas for enhancing urban resilience. Cultivate innovation in resilient city development, and capture and share lessons across global networks. Connect cities to national and international climate policy processes (including NDCs and NAPs) and conventions as well as donors and climate finance.

UNDP-UN Habitat Enhanced Collaboration Framework 2020

In December 2020, UNDP and UN-Habitat signed an enhanced collaborative framework to support member countries in harnessing opportunities, meeting the challenges of rapid urbanisation and speeding up implementation of the New Urban Agenda and Agenda 2030. The new framework will build on the complementarities between UNDP and UN-Habitat in five key areas, to provide enhanced support to countries and cities to recover from COVID-19 and build resilience to future crises. These are:

Support countries to develop National Urban Policies

COVID-19 will require an integrated, territorial and systems approach to recovery that values the potential of urbanization to national development and that takes into account the underlying drivers of risk associated with poverty, lack of education, poor access to health care and environmental degradation. National Urban Policies (NUPs) are tools to ensure an integrated approach⁴⁸ to addressing the vulnerabilities associated with inadequate and poor territorial and urban planning (e.g. poorly distributed job opportunities and public goods, gender disparities, insecurity and crime, disaster risk).

UN-Habitat is already providing support to over 50 countries for the formulation and/or implementation of NUPs. UNDP can contribute to this effort as it remains a strategic partner to national ministries of planning and economic development in more than 100 countries.

Help national and local governments develop effective and innovative financing frameworks to deliver local development agendas and ensure cities' vital role in national economies

COVID-19 lockdowns have impacted local economies globally, which will result in lower tax receipts and resources for cities and will put service delivery and investments for resilience and sustainable development in jeopardy. UNDP and UN-Habitat can join forces to enhance their current efforts to help cities develop effective, innovative and sustainable financing frameworks and instruments to implement urban plans.

UNDP is already leading efforts in 58 of the 62 beneficiary countries of the Joint SDG Fund (\$60 million) and the UN-Habitat SDG Cities flagship programme is enhancing local revenue generation and establishing a city investment facility. More broadly, the UN has developed integrated national financing frameworks by pooling assets across agencies to support countries' COVID-19 recovery in a green, equitable and resilient manner.

Strengthen country and city capacity to fulfil climate action commitments

Cities are increasingly requesting support to integrate NDC implementation into local development plans (e.g. prepare and implement climate action plans, conduct risk assessments and mapping, access climate finance for cities). At the same time, as the locus for climate action, cities also need support to

integrate urban and human settlement issues into national mitigation and adaptation plans, and recovery plans related to COVID-19.

UNDP is rolling out the Climate Promise initiative aimed at helping 114 countries enhance their NDCs by 2020–2021 and to support 20 cities with their climate targets. UN-Habitat has been leading the development of normative tools for strengthening urban dimensions in NDCs and NAPs.

Help adopt integrated approaches to strengthen urban resilience and pursue innovative digital technologies for people-centred smart cities

Over the next 30 years, an estimated \$90 trillion will be invested in urban infrastructure. This provides an enormous opportunity to build resilient infrastructure and to apply the ‘building back better’ approach in the aftermath of COVID-19.

In the Arab region, UNDP and UN-Habitat have already developed joint programmes to address urban infrastructure needs in Iraq, Lebanon, Syria and Yemen.

UNDP and UN-Habitat are partners with the Global Commission on Adaptation’s action track on urban resilience. Within the commission’s different action tracks, UNDP is the lead on the locally led track, which promotes the ‘Principles of locally led adaptation’ aimed at pro-poor communities, and UN-Habitat has a signature initiative on ‘Building climate resilience of the urban poor’ under this track.

UNDP has also initiated the SDG AI Lab, which is applying ‘frontier technologies’, including AI, machine learning, blockchain, 3D printing and drones to improve disaster risk reduction in cities.

Digital transformation

COVID-19 has accelerated a change in the way we live and work, which disproportionately impacts those that lack access to digital technologies. Investments in smart cities initiatives around the world are expected to rise to around \$190 billion in 2023. As cities explore new approaches, they need support in ensuring people-centred approaches to smart cities that advance local aspirations and meet the SDG goals by applying smart technologies to design innovative city efforts, overcome the digital divide and help drive real urban transformation.

4.2 UNDP urban resilience initiatives

Analysis of 24 documented UNDP initiatives aimed at enhancing urban resilience (explicitly or implicitly) demonstrates that most adopt a sectoral approach (See *Analysis of UNDP urban resilience initiatives on page 54*). Most initiatives with urban resilience as the primary objective have been driven by the DRR team, focusing on risk governance, capacity-building, stakeholder empowerment and knowledge management as entry points for intervention. These interventions have targeted the diagnostic and planning stages of urban resilience, with less attention given to implementation of plans, including:



- Mapping hazards and diagnosing urban vulnerabilities and risks
- Awareness-raising and inclusive planning for effective leadership and management of risks
- Mainstreaming DRR and climate change adaptation into city, regional and national plans, policies and regulations
- Development of tools and guidelines for urban risk assessment, and training government officials and stakeholders
- Setting up governance frameworks and improving coordination between city and regional and national governance structures
- Documenting good planning and governance practices, and fostering learning through city-to-city and cross-border coordination networks.

Most projects have been implemented in South-East Asia, South Asia, Arab states and South-East Europe (See *Analysis of UNDP urban resilience initiatives on page 54*). The Arab Cities Disaster Resilience Project and the South-East Europe Urban Resilience Building Action Network have been two prominent regional programmes that generated interesting practice and learning in improving disaster risk governance. In particular, the Arab Cities Disaster Resilience Project, which was implemented between 2014 and 2019, aimed to mobilize local and national authorities to implement the Aqaba Declaration on Disaster Risk Reduction in Cities. The declaration was adopted at the First Arab conference on DRR, held in Aqaba, Jordan, on 19–21 March 2013, which involved mayors, local government representatives and national government officials. This emphasised the importance of reducing disaster risks in Arab cities and called for:

- Sustainable development principles to be closely linked to urban development planning across all sectors, including infrastructure, environment, energy and socio-economic development, in order to increase resilience to disasters;
- Strong disaster risk management policies and functional implementing institutions
- Sufficient investments in disaster risk reduction activities
- The engagement of civil society organizations in strengthening capacities and enhancing community awareness.

The Aqaba Declaration was informed by an earlier UNDP project, ‘Land-use planning for effective urban resilience in the city of Aqaba’, which was hailed by UNDRR as being a model city risk management programme.

Under the Arab Cities Disaster Resilience Project, the ‘Building local disaster risk governance capacities in Ain Draham’ project supported the city to improve risk governance capacities including through organizing city-to-city exchange programmes with cities in the Netherlands to learn about flood monitoring and forecasting, as well as the use of flood early warning systems.



The project also piloted an innovative resilience benchmarking approach, involving vulnerability assessments, stakeholder consultations and awareness-raising activities, which helped create effective disaster risk governance arrangements with clear roles and responsibilities for prevention, preparedness and response at the municipal level. The support provided to Ain Draham enabled the city to join the UNDRR Making Cities Resilient campaign and become a model of best practice for 12 other cities in Tunisia.

Where urban resilience was a secondary objective or a co-benefit of projects with another primary goal, the focus has been on accessing resources to improve the provision of critical services and to reduce the exposure and fragility of urban systems (such as improving municipal and residential building energy efficiency, implementing sustainable transport schemes, and developing and enforcing construction standards). Most of these activities have focused on hard infrastructure.

A few gaps emerge from this sample of initiatives, some of which are also highlighted in the UNDP internal rapid review 'Overview of urban initiatives in disaster risk management, climate change and energy programmes and projects' carried out in 2015. These are set out below.

First, the initiatives engaged less with the implementation of urban resilience, including creating pipelines of projects, securing the necessary funding, creating quantifiable value propositions for urban resilience to involve the private sector, and evaluating and learning from the outcomes of plans and investments. The focus on planning and governance services plays to UNDP's strengths, but this may have prevented UNDP from working at scale (see next gap).

Second, the activities did not leverage the institutional partnerships that UNDP has with key organisations working in the urban resilience space, such as UN-Habitat, the World Bank, the Rockefeller Foundation and ICLEI. This could have allowed different programmes to be linked or to complement each other to provide support throughout all stages of the resilience-building process.

Third, besides finance there has also been limited attention to both social and digital innovation for urban resilience, though their importance has been recognised in recent UNDP policy documents (see *Section 5. Opportunities and priorities for UNDP engagement on urban resilience and risk management on page 62*). In collaboration with the Government of Singapore, UNDP has also launched the Global Centre for Technology, Innovation and Sustainable Development, which has a dedicated programme on smart cities and digitalisation and which explores disruptive technologies to transform urban resilience.

Fourth, the initiatives did not adopt an integrated development planning approach to explore the interdependencies and trade-offs between different urban systems, as suggested by the 2016 Sustainable Urbanization Strategy. UNDP is shifting towards more joined-up thinking to deliver on urban resilience. The Asia Pacific team has started adopting a 'systems approach' through the



formulation and implementation of the IUR, but this does not appear to be more widely used across regional and country offices.

Fifth, it is not clear how the implemented initiatives link to global processes and dialogues, in particular the New Urban Agenda and SDG 11. (This could be partially resolved through closer coordination with the SDG integration team – see 4.3 *UNDP thematic entry points on urban issues on page 56.*) The contribution to the Sendai Framework is more evident.

Sixth, cross-cutting issues of gender, youth, migration and minorities have been minimal or absent in many initiatives. In light of the analysis earlier in this report underscoring how inequality, exclusion and marginalisation are drivers of vulnerability, these disadvantaged groups demand particular attention in UNDP's resilience initiatives. (Again, this could be partially resolved through closer coordination with the gender team – see 4.3 *UNDP thematic entry points on urban issues on page 56.*)

Analysis of UNDP urban resilience initiatives

Geography		Resilience-building stage	Sectoral entry point												Targeted resilience outcome																							
Initiative			P1	P2	P3	P4	P5	P6	P7	P8	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	O1	O2	O3	O4	O5	O6	O7	O8	O9	O10	O11	O12				
South East Europe Urban Resilience Building Action Network (2017–2018)																																						
1			1	1							1									1																1		
Building local disaster risk governance capacities in Ain Draham																																						
	1											1	1	1						1							1								1	1		
Integrating resilience into city development plans in the city of Saida																																						
	1											1	1	1							1															1		
Land-use planning for effective urban resilience in the city of Aqaba (Jordan)																																						
	1											1	1	1						1							1									1		
Increasing urban resilience by use of ICT for mainstreaming disaster and climate risk reduction in Armenia, FYR of Macedonia and Moldova (2014–2016)																																						
1																					1	1														1		
Strengthening capacities for disaster risk reduction and adaptation for resilience in the Sahel Region (2019–2021)																																						
		1																			1							1								1	1	1
Arab Cities Disaster Resilience Project (2014–2019)																																						
	1																				1	1														1	1	
Global Centre for Technology, Innovation and Sustainable Development (ongoing)																																						
1																					1							1	1	1		1				1	1	
Matching platform for cities and the private sector (ongoing)																																						
																						1	1													1		

Geography	Resilience-building stage	Sectoral entry point	Targeted resilience outcome
Preparatory assistance phase of the Disaster Risk Reduction of Megacities and Complex Urban Metropolises project (2005–2007)			
	1 1	1 1 1	1 1
African Urban Risk Analysis Network project (phases I and II) (2004–2009)			
	1 1 1 1	1 1	1 1
Contribution to increasing urban resilience in the major Cuban cities (2014–2016)			
	1 1 1	1	1 1
Comprehensive Disaster Management Programme (2010–2015)			
	1	1	1 1
Urban Climate Risk Management (2013–2014) – under the umbrella project Safer Communities through Disaster Risk Reduction in Development – Phase II			
	1	1 1 1	1 1
Resilience Capacity Building for Cities and Municipalities to Reduce Disaster Risks from Climate Change and Natural Hazards (phase 1) (2012–2015)			
	1	1 1	1 1 1
Urban Risk Reduction Project (2009–2012)			
	1	1 1	1 1
Urban Earthquake Vulnerability Reduction Project (2003–2007)			
	1	1 1 1	1 1
Promoting Energy Efficiency in Commercial Buildings in Thailand (PEECB) (2012–2015)			
	1	1 1 1	1 1
Sustainable Urban Transport Programme (2009–2014)			
	1	1	1 1
Technology Transfer for Grid-Connected Rooftop Photovoltaic Systems (2012–2016)			
	1	1 1 1	1
Promoting Energy Efficiency in Residential and Public Sector in Nigeria			
	1	1 1 1 1	1 1 1
Local-level resilience and disaster preparedness in Serbia (2015–2016)			
	1	1 1	1 1 1
Green Urban Lighting (2013–2017)			
	1	1 1 1 1	1
Green Cities: ESCO Moldova – Promoting low-carbon growth in cities in Moldova (2014–2018)			
	1	1 1 1	1 1
Uruguay: NAP Cities and Infrastructure (ongoing)			
	1	1 1 1	1
Total			
	1 5 5 1 2 0 2 1 5 6 2 4 17 13 13 4 8 4 1 6 2 6 7 1 1 2 0 0 17 3 1 1 2 8 7 2 0 1 0 10 21 1		



A number of UNDP global policy teams have experience of supporting the specific needs and challenges faced by urban populations, although not necessarily with an explicit focus on urban resilience. They highlighted key areas of work and planned future work (summarised below) which can form the basis of UNDP's urban resilience strategy.

- **Disaster risk reduction and resilience** DRT's work on urban risk management has been primarily focused on addressing the incidence and impact of hazards in cities, and addressing one or the other dimension in a linear manner. The key areas of programmatic interventions have been related to disaster data and risk assessment, awareness-raising and advocacy, institutional and regulatory mechanisms for DRR, and training programmes for capacity-building. Despite successful interventions to address specific hazards or risk typologies, more overarching investments in resilience-building have not been advanced at scale. Hence, a need for a comprehensive disaster risk and climate adaptation-centric approach has been felt to reduce and manage risks effectively.
- **SDG integration** The success of the SDGs depends on their roll-out in cities. Many of today's and tomorrow's risks will need to be addressed in cities due to their concentration of people, economic activities, assets and knowledge. At the same time, cities' characteristics provide opportunities to deliver on all development priorities. Hence, the SDGs' successful delivery hinges on 'localisation' at city level. This will require integrated approaches to human development and risk reduction, which is what urban resilience seeks to deliver.
- **Nature, climate and energy** Transition risks are heightened in cities due to concentrations of infrastructure and populations. In addition, many cities are coastal and/or riparian, and so have high exposure to storm surges and flooding, which will intensify with sea level rise. Climate and environmental risks in cities cascade across systems (transport, utilities etc.), often with reinforcing feedback loops. Managing these cascading risks and fostering resilience is therefore a precondition to unlocking development opportunities. Coupled with this, the way in which city transportation and energy needs are addressed now is key to achieving the SDGs by 2030. UNDP is supporting NDCs and NAP design and implementation, linking these national action plans to local urban projects.
- **Crisis and fragility** can be more intense in urban spaces because of the concentration of people, stark inequality and exposure to new ideas. Much of the existing work to build resilience to violence, crime and corruption has focused on the national level and rural areas. There is, however, an opportunity to work directly with cities where governments may not be strong and where private and non-state actors may be more easily engaged to find solutions to fragility problems. It may also be more cost-effective to address some grievances – such as lack of access to services – in urban centres.

- **Nature-based solutions** are critical to urban resilience. Protecting, restoring and sustainably managing natural resources such as forest cover in river basins is key to making cities safer (e.g. to ensure water security and urban cooling) and provide the services that city inhabitants depend on. Actions are also required outside of city boundaries to make nature-based supply chains more resilient, e.g. food security when there is a shock.
- **Gender empowerment** in cities requires looking at the intersecting inequalities, injustices and constraints faced by different people in terms of their safety, mobility and access to labour markets.⁴⁹ The emergence of new risks in urban areas underscores the need to focus on socio-economic resilience, for example through social protection. There is an opportunity to work more closely with local governments to strengthen participatory governance, so the needs of all excluded groups can be better represented in urban resilience decisions.
- **Local governance** UNDP's local governance practice area has been working with city administrations to build their capacity to strengthen coordination across departments and to foster a more cross-sectoral approach to urban development issues. This has involved working with city administration and community representative groups to promote their engagement with city administrations and to encourage them to proactively contribute to decision-making and implementation at city level. Strong local governance capacities are needed in order to adopt systems' approaches to urban resilience problems and for the delivery of urban services to meet the specific needs and requirements of the vulnerable, marginalized and disempowered and groups that are left behind. Taking the needs of these groups on board will be critical for urban resilience-building efforts.
- **Health** The COVID-19 pandemic has underscored the importance of addressing health, including nutrition and food security, and well-being dimensions, as part of urban resilience. A primarily urban disaster, the pandemic has had cross-sectoral and wide-ranging socio-economic impacts. Projections of increasing disruption likely to be caused by health risks highlight the need to treat these not purely as health issues but as critical risks with potential for widespread human and socio-economic or 'systemic' impacts.
- **Human mobility, livelihoods and economic recovery** work recognizes that resilience needs to go beyond sectoral prisms to include dimensions encompassing governance, social, human and physical capital as well as environmental aspects. Context analysis is needed to better understand city and stakeholder needs and to address gaps related to lack of integrated programming, piecemeal application and excluded groups. These common elements should be addressed in a holistic way, bringing diverse elements together and ensuring that no one is left behind in urban resilience programming, particularly where high rural-to-urban migration and

cross-border migration is occurring due to economic, livelihood and other pressures.

- **Smart cities** Technology plays an increasingly important role in urban sustainability and resilience, linking to all nine points above. From vertical farming techniques to intelligent modes of transport and solutions for good waste management, the smart city is a resilient and sustainable city (for the physical environment, the social environment and the ecological environment of the urban system and structure).

4.4 Tools developed and used by UNDP to reduce risk and build urban resilience

UNDP global policy teams have used a variety of guidelines and tools to support their urban work. The following provides an overview of these instruments based on published and internal UNDP documentation. Several guidelines provide guidance on how to frame local governance programmes, including in fragile and conflict-affected settings or in the aftermath of disasters. A few tools help governments to unpack and understand the complexity associated with resilience and support programming, such as digital and visualisation tools and platforms used to identify nature-based solutions, or problem-solving tools used to analyse the bottlenecks in implementing the SDGs.

Analysis, diagnostic, planning and appraisal tools used by UNDP

SDG integration team studio design process

The SDG integration Team has used a studio design process as a disruptive way to address complex challenges, which could be applied to look at urban risks holistically.

Bottleneck Assessment Tool

The Bottleneck Assessment Tool is used to help understand impediments to progress on the SDGs.

UN Biodiversity Lab

Provides spatial data from satellites, mobiles and drones in an online platform that allows policymakers and other partners to access global data layers, upload and manipulate their own datasets, and query multiple datasets to generate maps and provide key information on the Aichi Biodiversity Targets and nature-based SDGs.

SDG AI Lab

A joint initiative of UNDP Nature, Climate and Energy, UNDP Finance Sector Hub and UNDP Istanbul International Center for Private Sector in Development, it studies how ‘frontier technologies’, including AI, machine learning, blockchain, 3D printing and drones can be used for sustainable development. It is applying these technologies to address disasters in urban spaces.

Nature for Safety of Cities

Eco-system Based Development (EBD)

Nature for Climate Briefings

Used in combination with the UN Biodiversity Lab's data, the Nature for Climate briefings aim to support national and local governments to address disaster risks through nature-based solutions. They provide a rapid analysis of the potential for nature-based solutions; a summary of existing nature-related commitments, plans and strategies for both nature and sustainable development; selected spatial data analyses that help determine spatial priorities for nature-based solutions; an analysis of co-benefits from nature-based solutions; and a summary of key recommendations.

DRR, climate, urban risk and security assessments for Eastern Europe, Central Asia and South Caucasus

Integrated DRR, climate and security assessments at regional, national, and urban level have been performed for the ECIS region. The DRR assessments have adopted a multi-hazard approach, including stresses generated by climate change. Assessments of climate change and security explore how climate acts as a threat multiplier, exacerbating existing threats to national and international security.

Integrated Framework for Local Governance and Local Development

The integrated framework outlines how best to frame local governance and local development programmes. It adopts a multi-sectoral perspective to understand the relationships between local development issues and challenges and promotes territorial development that is endogenous and spatially integrated, leverages the contribution of actors operating at multiple levels, and brings incremental value to national development efforts. It sets six areas to improve local governance systems: i) democratic accountability, ii) rule of law and security, iii) administrative capacity to manage development and deliver services, iv) fiscal empowerment and resources, v) spatial information, and vi) social capital formation.

Guide on Local Governance in Fragile and Conflict-affected Settings

This guide comes under the umbrella of the Integrated Framework for Local Governance and Local Development. It aims to support UNDP country offices in countries considered fragile or already affected by high levels of violence, instability and/or conflict (including post-conflict countries) to improve governance. It provides concrete programmatic recommendations, a framework for action, toolkits and UNDP-specific management advice, and can be used for different fragility contexts, including:

- Tackling locally rooted drivers of violence and potential conflict in situations of heightened fragility
- Increasing the resilience of service delivery and conflict management in situations of protracted conflict



- Crafting rapid response interventions to restore local governance systems and starting reconstruction before more long-term programming can be launched
- Supporting a long-term transition from early recovery to sustainable local development and reducing the risks of renewed conflict.

Guidance Note on Restoration of Local Governance Function

This guidance note provides conceptual and practical advice to UNDP country offices on how to plan, design and implement activities that rapidly help to restore local governance systems in the aftermath of a disaster caused by a natural hazard. The specific focus is on local government functions with the aim of resuming service delivery, rebuilding infrastructure and improving livelihoods of affected populations, including: i) the presence of local government leadership; ii) basic functional capacities for multi-sectorial assessments; and iii) planning and management with the active engagement of affected communities and populations. The approach recognises the importance of strong coordination and accountability required in early recovery to 'build back better'.

Local Level Risk Management Manual

Developed within the Strengthening of Disaster Preparedness and Disaster Risk Reduction National Capacities project, the local level risk management module is a comprehensive approach for disaster risk reduction in communities. It comprises several components to be sequentially applied to reduce disaster risk at the community level:

- Identification and classification of communities vulnerable to disaster risks
- Identification and assessment of natural hazards, vulnerabilities and capacities
- Training and raising awareness of the population on emergency management
- Development, publication and distribution of relevant educational and methodological materials for awareness-raising
- Planning and implementation of small-scale disaster mitigation projects and climate adaptation measures
- Inclusion of DRR activities in community development plans
- Implementation, monitoring and evaluation of DRR activities

Local economic assessment tool by gender team

Used to better integrate community and social aspects into urban risk and resilience. It assesses the availability of and access to social infrastructure services to support women, and the capacity of communities to survive and thrive in crises and shocks, including social norms and practices. The goal is to shift the focus from physical infrastructure resilience to more social and economic resilience, including social safety nets and gender-responsive economic recovery after shocks and crises.

Enhancing Nationally Determined Contributions through Urban Climate Action

A guide for including urban climate action in the NDC process. The guide is aimed at NDC teams and provides an assessment framework to engage a range of urban stakeholders and identify actions to integrate an urban lens in NDCs.

Addressing urban and human settlement issues in national adaptation plans

The guide supports the formulation and implementation of NAPs in urban and human settlement areas and is primarily addressed to national-level policy-makers. Different modules propose a way forward from preparatory work to reporting and monitoring.

Source: UNDP project documents



Source: Government of Antigua and Barbuda

5. Opportunities and priorities for UNDP engagement on urban resilience and risk management

Summary

- *Despite increased attention on understanding the drivers and interrelationships that propagate risks in complex urban settings, there are still issues that continue to frustrate efforts to strengthen resilience in urban areas.*
- *There is still a need to increase awareness about the different dimensions of resilience – environmental, physical, economic and social – and how they interconnect, especially in smaller cities and urban areas. Improved understanding will help with better alignment of climate mitigation and resilience projects, pursue more win–win investments that are cheaper and more cost-effective, and avoid trade-offs and unintended consequences.*
- *More support is needed to help cities work more strategically and cross-sectorally on urban resilience. This will require creating spaces for strategic thinking, away from the burdensome daily functioning of a city. To do this properly, international actors will need to understand the local political economy of risk management and resilience, engage with the private sector and civil society, and build political commitment across constituencies to weather political electoral cycles that may threaten progress on urban resilience.*
- *City governments will also need more assistance in undertaking the kind of scenario-based strategic urban planning needed to identify risks, understand interrelationships and address the drivers of urban vulnerability and build resilience. This will require increased focus on social vulnerability assessments at a wider scale than just the community. Many cities, especially smaller ones, will also need technical assistance to build the capacity to raise necessary finance and create pipelines of bankable resilience projects. These could be facilitated via city-to-city peer learning networks.*



- UNDP has a unique role to play in meeting these demands, building on its global presence on the ground, its disaster risk governance track record and the work of its global policy teams, which are already indirectly supporting urban resilience. Specifically, UNDP can:
 - » Prioritise support to marginalised geographies
 - » Support marginalised communities for more equitable urban resilience
 - » Support multi-level governance
 - » Support decentralisation of governance authority
 - » Support cities' transboundary governance
 - » Broker knowledge and advice.

5.1 What are the (unmet) demands from urban stakeholders?

The project analysis and stakeholders interviewed for this report concur on a number of issues that continue to frustrate efforts to strengthen resilience in urban areas, despite increased attention to understanding the drivers and interrelationships that propagate risk in these complex urban settings. These issues relate to a lack of awareness, authority or ability of cities to strengthen urban resilience.

Awareness

External stakeholders consulted in this review frequently highlighted the need to raise awareness about the different dimensions of resilience, how they are interconnected and the co-benefits that investing in resilience can have in terms of development outcomes:

“One of the biggest challenges that I have seen is that nobody actually understands what resilience means. There are so many different contexts in which resilience, as a concept, a word or a theory is thrown at them.... Most of the times when cities think about resilience, it is about climate resilience and environmental resilience, but in recent years they have also heard they need to build social resilience, economic resilience, and consider pandemics, economic transition, growing inequality and increasing need for social justice.... They really don't understand how these different elements of resilience interconnect.

— External stakeholder

In terms of policy-making, stakeholders highlighted the need for greater understanding about how to align their work around climate change adaptation, mitigation, disaster risk reduction, sustainability and resilience at the local level, including through deeper engagement with town and city planning departments:

“A lot of cities and national governments are also wanting to know how they can frame policies that integrate mitigation and resilience projects better, to allow for more win-win investments: investments that are cheaper, more cost effective,

and help them avoid trade-offs and unintended consequences.
 – External stakeholder

In some places and sectors, there remains a lack of awareness about how different risks compromise implementation and progress across all aspects of public administration. Risk reduction is not necessarily seen as an investment. Awareness-raising and advocacy on this point is needed, with further support to identifying interventions with co-benefits, or ‘resilience dividends’, that can jointly contribute to the agendas of several sectoral agencies.

Authority

City governments tend to be overwhelmed with the everyday functioning of a city, including supplying services such as water, electricity, waste disposal, dealing with flooding and so on, and as a result tend to work departmentally, in silos. City officials rarely find the time or have the incentives to work on joint projects that may not contribute directly to these sectoral targets, because institutional objectives and performance targets are generally set departmentally. More support is needed to help cities work more strategically and cross-sectorally on urban resilience. External stakeholders noted that they frequently receive requests to support cities to work in a more multi-disciplinary way:

“City officials often say to us, ‘Look, we are here managing or running a city, we don’t have time for strategic thinking, but we need it. We are too sectorised, we are too fragmented. We want to cut across disciplines, cut across departments – we need you to help us.’

– External stakeholder

Cities must also deliver on a multitude of existing strategies, such as on biodiversity, environmental protection, climate change and DRR, with their associated plans and sub-sector plans. Even when these are not siloed and are developed as part of a broader vision and higher level plan, they often do not articulate specific roles and responsibilities for those in the targeted institutions to deliver the work. Moreover, there is generally little budgetary provision to allow the delivery of these strategies, and no clear accountability measures in the form of outcome indicators. Resilience strategies face the same risks if clear coordination and leadership across agencies and the right resourcing are not in place.

Development partners, including DRR agencies, which are not burdened by city administrations’ everyday troubleshooting, can initiate support to cities by playing a coordinating role across departments with a neutral voice and start building the strategic overview required for urban resilience. In the past, these international initiatives have shone a spotlight on cities that may not have been on the global radar, which over time led to interest and mobilisation of local actors and funders. Yet, to support city governments properly, international actors need to understand the local political economy of risk management and resilience within which they operate. It is highly likely that engagement and negotiation with private sector groups and civil society will be critical to

advancing urban resilience. Political commitment from across the resilience constituency will need to be built to weather mayoral electoral cycles and ensure that resilience priorities are not abandoned, and to ensure that projects are implemented when a new government takes power. Support from higher levels of government will also be required as local action on its own cannot be sufficient to address the myriad risks facing cities, and because budgets are controlled by higher authorities in many low- and middle-income countries.

Governance is therefore key to enabling urban resilience. 100RC has been widely considered a successful initiative in this respect.⁵⁰ Numerous external respondents highlighted the importance of dedicated city resilience officers, who understand the day-to-day realities of a city and can respond to the local context, while also acting as the focal point for cross-departmental resilience. The city resilience officer can coordinate funding bids and implementation and make sure that any project achieves multiple benefits and contributes towards the resilience of the city overall.

Ability

City governments will need greater assistance in undertaking the kind of scenario-based strategic urban planning needed to identify risks, understand interrelationships, address the drivers of urban vulnerability and build resilience. Stakeholders were clear that what is needed is not a new plan, but rather a different planning and implementation process that is flexible enough to adapt to different contexts. They also highlighted the need to ensure the participation of vulnerable and at-risk groups in urban resilience planning and implementation to avoid creating maladaptive practices. Currently, risk assessments are still dominated by the structural approach, which focuses on physical infrastructure, and tend not to focus on the human side. There is a need for more social vulnerability assessments and an understanding of how these vulnerabilities interact with physical systems.

The lack of quality, timescale-appropriate and at-scale data remains a huge impediment to urban planning generally. But it is specifically challenging for the kind of cross-sectoral, forward-looking planning that takes into account future threats and potential impacts. This is especially important because cities usually plan on the short- to medium-term, when some risks might not yet materialise fully. Having access to non-proprietary data, downscaled at the appropriate level and on different timescales to account for cities' planning cycles and long-term risk, is critical to risk-informed urban planning. In addition, as noted, planning of physical systems needs to be combined with data on how infrastructure is used, who by, access issues and the knock-on effects on incomes, health and gender, now and over time, if parts of the infrastructure network fail. This requires integration of physical and socio-economic vulnerability data, without creating methodologies or data requirements that are too demanding and intensive for most city administrations.

⁵⁰ Resilient Cities, *Resilient Lives: Learning from the 100RC Network*, (2019); L. Bliss, 'The Rise, Fall, and Possible Rebirth of 100 Resilient Cities', (2019); A. Galderisi, G. Limongi, and K.-D. Salata, 'Strengths and weaknesses of the 100 Resilient Cities Initiative in Southern Europe: Rome and Athens' experiences', *City, Territory and Architecture*, 7/1 (2020), 16.



Most cities do not have adequate resources of their own or access to finance (they cannot borrow or issue debt) to implement their urban resilience strategies or climate-resilient infrastructure projects. One of the key challenges for cities is therefore to turn an overarching strategy and ambition into a set of tangible fundable and deliverable projects. These skills are often lacking in local administrations and are usually supplemented by bringing in consultants on short-term contracts, but this fails to strengthen local capacity. The cities that have successfully implemented resilience strategies have benefitted from the long-term presence and support of multiple agencies, which accompany them in implementing and evaluating locally defined initiatives.

International organisations engaged in resilience-building programmes have also highlighted the need for more city-to-city peer learning. This type of interaction, networking and knowledge-sharing between cities is important, particularly when there are some elements of comparability, because it provides cities with a platform to learn from other cities about best practices and to receive tangible technical advice, which can also have a multiplier effect:

“Collaboration between cities always works really well. Because there’s a lot of learning that happens, and it’s easier for cities to see how another city has implemented it ... it gives them a lot of confidence in their ability to adapt that initiative, or innovation, and to be able to implement it [within their own context].

– External stakeholder

While there are already good examples of city networks, increased opportunities for knowledge-sharing between cities would be highly beneficial, particularly between town/urban and development planners across cities. City administrators are always keen to understand how other cities are performing and where they stand, and this can create healthy competition between cities to deliver on their urban resilience agendas.

Finally, any capacity development for local governments should build on the positive experience explored in this section. It should also provide support with a longer term vision (e.g. through professional training programmes) aimed at helping local public officials prioritise and sequence interventions in a resilience plan, develop bankable project ideas and write funding proposals, and produce appropriate results and reporting frameworks.

5.2 What is UNDP’s comparative advantage in meeting these demands?

UNDP has a unique role to play in supporting urban resilience, shaped by its global presence on the ground, its disaster risk governance track record and the work of its global policy teams which are already indirectly supporting urban resilience. UNDP can provide sustained support for urban resilience in marginalised geographies which global initiatives have not yet reached; in marginalised communities, for more equitable urban resilience; by fostering multi-level governance of urban resilience and transboundary issues; and by brokering knowledge and advice.



Prioritise support to marginalised geographies

Much of the focus on urban resilience to date has been on providing direct support to municipal actors and informing local urban planning processes in individual cities. This focus has been driven and consolidated through city networks such as C40 Cities, ICLEI and United Cities and Local Governments (UCLG), which have helped to place climate change at the centre of urban decision making, amplified the profile of city leaders in national and international discourse, and provided a platform and space for peer-learning between cities.⁵¹ However, only limited types of cities have actually been engaged in these urban resilience programmes and networks — mainly capitals or very densely populated ones. Small and medium-sized cities have not been a focus of these initiatives, particularly in lower income countries. UNDP, through the UNDP-UN Habitat enhanced collaborative framework, should focus on those cities that are left behind – for example, in its support to digital technologies for emergency response.

Support marginalised communities for more equitable urban resilience

An increasing number of local governments have access to evidence about the risks facing their urban residents, and many have developed strategies or plans to address those risks. Many also have project preparation facilities or substantive international support to build essential infrastructure. However, there is a critical gap in designing, financing and delivering projects in neglected areas, such as livelihoods and employment, adequate access to quality healthcare, cohesive communities, proactive corruption prevention, effective stewardship of natural resources, and access to safe drinking water and sanitation. Such projects can have a transformative impact on resilience, particularly for low-income and other marginalised groups in smaller cities.

As of 2019, UNDP had an annual budget of nearly \$5 billion a year, distributed across 3,173 projects in 148 countries.^{52, 53}

Many of these projects are located in cities and are influenced by issues stemming from neglected but critical facets of urban resilience, as identified by tools such as Arup's CRI, mentioned above. UNDP should therefore make a valuable contribution by ensuring that its current urban projects align with urban resilience goals and that, in particular, they benefit low-income and other marginalised groups in smaller urban areas who are most likely to be left behind.

Given the potential alignment, rather than looking to develop new programming, a first priority should be to consider ways in which the concepts, gaps and opportunities identified in this paper can be brought to bear on UNDP's existing and planned portfolio of work. A richer understanding of concepts and frameworks of urban resilience would equip UNDP staff to think

51 D. J. Gordon and C. A. Johnson, 'City-networks, global climate governance, and the road to 1.5°C', *Current Opinion in Environmental Sustainability*, 30 (2018), 35–41.

52 UNDP, *Annual Report 2019*, (2020).

53 UNDP has a portfolio of 32 projects with the Green Climate Fund alone, collectively worth over a billion dollars and spanning 71 countries.



more creatively about possible interventions that support those most in need. This would contribute greatly to UNDP's corporate commitment of eradicating multi-dimensional poverty in all its forms and dimensions and leaving no one behind (UNDP Strategic Plan 2018–2021).

Support multi-level governance

Although local governments have a critical role to play in enhancing urban resilience, local action is insufficient on its own. Even the largest and most empowered city governments cannot singlehandedly address the myriad risks facing their residents. This was evidenced by New York City's devastating experience with Hurricane Sandy and then COVID-19. Governments of small and medium-sized cities, which are home to over half the global urban population,⁵⁴ have even less power and fewer resources to enhance resilience. In addition, higher authorities often control the budgets of smaller cities in many countries in the Global South. The support and finance provided, and standards established, by national and state governments are particularly important for these cities.

UNDP can respond to this gap, under the UNDP-UN Habitat enhanced collaborative framework by working with national and state governments to systematically enhance urban resilience throughout their jurisdictions. Today, fewer than two in five countries have an explicit national strategy for cities,⁵⁵ and only a few of those strategies speak to human development and climate action.⁵⁶ Supporting and strengthening urban resilience across all cities facing expanding and intensifying climate and disaster risks will require integrating resilience into national urban policies and applying an urban lens to national disaster risk management strategies, NDCs and NAPs. This is not an argument for recentralisation, but a recognition that the scale and urgency of these global challenges demands collaborative, ambitious action across all tiers of government (see next point).

Support decentralisation of governance authority

Following from the previous point, UNDP should support the decentralisation of (risk) governance authority to elected city governments, while bolstering national urban policies and applying an urban lens to national DRR strategies, NDCs and NAPs. This would ensure that risks are managed closest to the source following the principle of subsidiarity. The institutionalisation of resilience in urban agendas is essentially a governance issue. Improving local governance is something UNDP has been doing for a while, but this has not focused on the kind of cross-sectoral planning and coordination needed for resilience. Working with city governments to establish a multi-sectoral committee for annual risk assessments and scenario/strategic planning could be a critical area of support.

⁵⁴ World Urbanization Prospects 2018.

⁵⁵ OECD and UN-Habitat, Global State of National Urban Policy. 2018

⁵⁶ Coalition for Urban Transitions, *Climate Emergency, Urban Opportunity*, (2019).

COVID-19 has underscored the standard decision-making responsibility that some city administrations assume to deal with complex, systemic risks. It will be important for UNDP to acknowledge these experiences and draw lessons to be applied in its risk governance work. Already, UNDP has demonstrated this awareness in framing the recovery effort, for example supporting the most vulnerable people in cities dealing with economic fallout, such as in the case of Pakistan where UNDP supported the government in creating the COVID-19 Pakistan Socio-Economic Impact Assessment & Response Plan shortly after the onset of the pandemic.⁵⁷

Support transboundary governance across cities

One of the main concerns for the urban resilience community identified by ICLEI in 2019 was “the governance coordination gap between sub-national, national and international levels”. In this respect, UNDP could also support multi-country processes to enhance joint planning/learning and cross-border governance that contributes to resilience for transboundary issues, including for instance where a city straddles a border. UNDP is well placed to help ensure cohesion between UN agencies working on different agendas in cities and bringing together existing frameworks.

Advice and knowledge brokering

The UN is the best actor to play a facilitator role; to connect governments and city planners and provide them with the time and space to share experiences and best practices, so that they can partner with and learn from each other. UNDP is well positioned to serve two functions.

First, UNDP can be an advisor to national governments on their urban resilience agenda, by supporting the selection of cities, harnessing technical knowledge and resources from outside the UN system (e.g. the Earth Observatory Singapore, NASA, Copernicus) and from cities in other parts of the world.

Second, UNDP could support urban planners with educational/skills development and peer-assistance programmes, where they are supported in developing new assessment and strategic planning skills. Recent learning from COVID-19 has shown that online platforms have been incredibly successful in supporting city governments to attend training and peer-to-peer learning events, making barriers of geography, language, distance, time commitment and cost less relevant. UNDP could thus reach a wider network of city planners to support knowledge sharing and learning.

⁵⁷ UNDP, COVID-19 – Pakistan socio-economic impact assessment & response plan, (2020).



6. Conclusion

This background paper has critically reviewed the global experience of implementing urban resilience initiatives of different types over the last decade, as well as relevant UNDP experience and tools to manage risks and prevent crises in cities. UNDP has worked extensively on development policy and practice, local governance and conflict prevention, among other issues, in urban areas, although this has not been guided by an explicitly articulated strategy.

A review of 18 major global initiatives reveals some important gaps and critically, after 10 years or more of urban resilience initiatives, little is understood as to their effectiveness in helping particular cities or groups within cities become more resilient, or their collective contribution globally. This is a major finding of this study, and suggests that efforts to strengthen urban resilience should have a strong focus on data collection, monitoring and accountability.

In the past, initiatives have tended to focus on physical infrastructure, while other sectors and activities that could have a major influence on urban resilience, such as land-use planning, the built environment, human settlements and basic services, natural resource management, public safety and security, have all received less consideration. Without due attention to these issues and the interconnections between them, urban risks will remain.

This is therefore an opportune moment for UNDP to ramp up its support to urban governments, particularly in those smaller cities that have received little or no attention under these global initiatives. This support will need to be structured and focused through an urban resilience strategy. This paper goes some way towards identifying priority issues for UNDP to focus on and its comparative advantage in moving into what might already be considered a crowded field.

Risks are rapidly evolving in urban areas, and are intrinsically linked to processes of urban development and expansion, and shaped by national and local governance systems. Understanding these interrelationships, and supporting participatory and multi-level governance so that it focuses on addressing the drivers of risk in cities, will be critical to the success of any urban resilience strategy.



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