

Addressing Systemic Barriers for Achieving Sustainable Urbanization in Emerging Economies

Learnings from the 19 Cities of the Global Future Cities Programme

Addressing Systemic Barriers for Achieving Sustainable Urbanization in Emerging Economies

Learnings from the 19 Cities of the Global Future Cities Programme

Addressing Systemic Barriers for Achieving Sustainable Urbanization in Emerging Economies
Learnings from the 19 Cities of the Global Future Cities Programme

1st Edition
All rights reserved ©2019
United Nations Human Settlements Programme (UN-Habitat)
P.O. Box 30030 00100 Nairobi GPO KENYA
Tel: +254-020-7623120 (Central Office)
www.unhabitat.org

HS Number: HS/019/19E
ISBN Number: (Volume) 978-92-1-132837-0

Disclaimer

The designations employed and the presentation of material in this report do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries, or regarding its economic system or degree of development. The analysis conclusions and recommendations of this publication do not necessarily reflect the views of the United Nations Human Settlements Programme or its Governing Council or its member states.

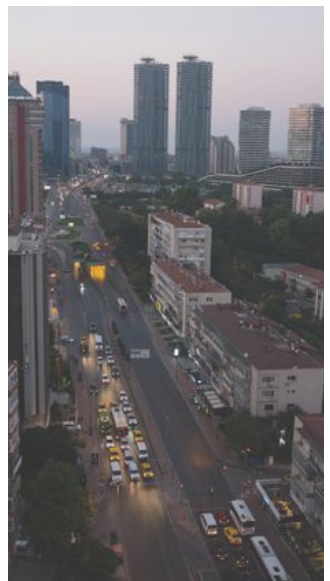
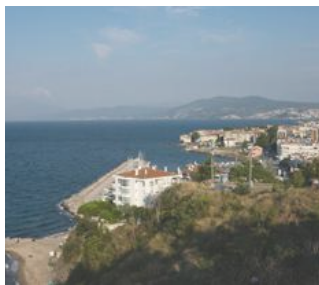
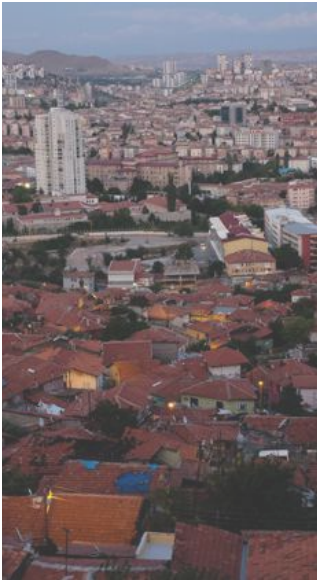
Reference in this publication of any specific commercial products, brand names, processes, or services, or the use of any trade, firm, or corporation name does not constitute endorsement, recommendation, or favouring by UN-Habitat or its officers, nor does such a reference constitute an endorsement of UN-Habitat.

Acknowledgments

Principal authors	Greg Scruggs, Charlotte Mohn, Gabriela Aguinaga
Project Supervisor	Rogier van den Berg
Project Manager	Klas Groth
Contributors	Gabriela Aguinaga, Cecilia Andersson, Rogier van den Berg, Ban Edilbi, Klas Groth, Stefanie Holzwarth, Naomi Hoogervorst, Jacob Kalmakoff, Marco Kamiya, Riccardo Maroso, Mónica Martín Grau, Marcus Mayr, Charlotte Mohn, Laura Petrella, Niina Rinne, Jesus Salcedo, Sara Thabit Gonzalez
Graphic Design and Layout	Ban Edilbi and Mónica Martín Grau

This report has been prepared by UN-Habitat's Urban Lab. The Lab is UN-Habitat's multidisciplinary facility supporting cities and Member States with innovative methodologies and multi-stakeholder processes. The Lab aims to achieve sustainable urbanization through integrated and transformative urban interventions that contribute to the implementation of the 2030 Agenda for Sustainable Development.

Abeokuta
Ankara
Bandung
Bangkok
Belo Horizonte
Bursa
Cebu
Cape Town
Durban
Ho Chi Minh City
Istanbul
Iskandar
Johannesburg
Lagos
Melaka
New Clark City
Recife
Surabaya
Yangon



Foreword

“Addressing systemic barriers for achieving sustainable urbanization in emerging economies” is an effort to aggregate the many outcomes of the Strategic Development Phase of the UK Prosperity Fund’s Global Future Cities Programme.

UN-Habitat’s Urban Lab, as a strategic partner for the UK Future Cities Programme, has over a six-month period developed 19 City Context Reports and 30 Terms of References in 10 Countries defining urban intervention aiming to spur development, in particular driving prosperity and alleviating poverty. The processes and discussions have allowed us to identify of key issues relevant to harness the potential in middle income cities to achieve sustainable urbanization.

This publication cuts across the key thematic pillars of the Programme; urban planning, transport, resilience and data management and showcases common barriers and drivers for sustainability of these urban interventions in the long-run.

Though each of the 19 contexts are unique building upon their local setting, their specific cultural, socio-economic background and their specific urban structure and historic development pattern, systemic barriers for urban transformations showcase many similarities across the Global Future Cities. Addressing these systemic barriers is essential to safeguard the impact of transformative urban interventions on sustainable urbanization. This poses questions on how we best can govern and manage our cities and towns but also how we can make use of available resources in a more efficient and sustainable way.

Building upon the 19 cities, this publication offers a suite of insights that have a value exceeding the Future Cities Programme and that are relevant for actors involved in sustainable urbanization. The process, methodologies and tools applied during the Strategic Development Phase, which is captured in a complementary publication, facilitated the identification of these key trends and barriers across the Global Future cities. We hope that the two documents collectively will be of interest and use for the implementation of the Future Cities Programme, but also for others who have or will initiate similar interventions.

Rogier van den Berg

Head, Urban Lab, UN-Habitat

Acronyms and Abbreviations

GFCP	Global Future Cities Programme
NUA	New Urban Agenda
SDGs	Sustainable Development Goals
UK FCO	United Kingdom Foreign & Commonwealth Office
UN-Habitat	United Nations Human Settlements Programme
WHO	World Health Organisation

Contents

Foreword	vii
Acronyms and Abbreviations	viii
Executive Summary	x
Potential Interventions within the Global Future Cities Programme	xiii
The Global Future Cities Programme	2
The Potential for Sustainable Urbanization in Emerging Economies	2
The Potential of the 19 Global Future Cities for sustainable urbanization	3
Experiences from the 19 Global Future Cities	4
The Power of Strategic Urban Approaches	6
Urban Trends in the 19 Global Future Cities	6
Mobility: Unlocking the Key to the City	11
Risk and Resilience: Preparing for Shocks and Stresses	13
Urban Data Systems: What Measures, Matters	16
Realistic and Implementable Strategic and Urban Plans	18
Systemic Barriers and Enablers for Urban Transformation	18
Effective and Impact-Oriented Planning	24
Enabling Frameworks to Address Informality	26
Inclusive Use of Data and Smart Technologies	28
Strategic and sustainable infrastructure financing	30
The Global Future Cities Programme: a Catalyst for Long-term Impact	36
Bibliography	40

Executive Summary

The Global Future Cities Programme (GFCP) in partnership between the United Kingdom's Foreign and Commonwealth Office (UK FCO) and UN-Habitat supports 19 cities in 10 emerging economies worldwide - Brazil, Indonesia, Malaysia, Myanmar, Nigeria, Philippines, South Africa, Thailand, Turkey, and Vietnam - to promote sustainable, inclusive economic growth. With 30 interventions in the areas of urban planning, mobility, resilience and data management, the GFCP addresses development challenges that arise with increasing rapid urbanization, climate change and urban inequality, which can lower long-term growth prospects of cities.

This report summarizes the experiences across the 19 Global Future Cities gathered during the Strategic Development Phase of the GFCP. Through different processes, analyses and assessments, UN-Habitat Planning and Design Lab with support from an academic partner, the International Growth Centre, and a professional partner, the United Kingdom Built Environment Advisory Group, worked closely with the cities to define and validate 30 different urban interventions that will be implemented over the coming two to three years.

The 19 cities that comprise the GFCP offer a panorama of emerging economies, covering Latin America, sub-Saharan Africa, Western Asia, and Southeast Asia. They vary in size, age and economic basis and offer a comprehensive sample of urbanization in the context of emerging economies. By drawing lessons from scoping studies, stakeholder engagement exercises, planning charrettes and workshops, integrated context analyses, seven cluster papers and six global recommendation papers, the report identifies trends in urban planning, mobility, resilience and data, as well as underlying systemic barriers and enablers for sustainable urban development. It also shows how the 30 GFCP interventions are designed to address the barriers and promote the enablers that will allow emerging

economies the chance to prosper. Looking ahead to the Implementation Phase of the programme, strategic key takeaways are provided that will allow the interventions to increase their impact on the cities' and host countries' capacity to deliver on the Sustainable Development Goals (SDGs) and the New Urban Agenda (NUA).

The GFCP observed urban challenges in these 19 cities across several areas: urban planning, mobility, resilience towards shocks and stresses and the effective use of data systems and new technologies. Among the programme's findings thus far:

- Urban sprawl and a lack of adequate urban plans to guide future urbanization
- Informal settlements suffering high levels of inequality and lacking appropriate infrastructure and adequate housing
- Transport systems that often do not operate efficiently, exacerbating traffic congestion in places where private car use is growing
- Low-income communities especially vulnerable to shocks and stresses as local governments lack resources and capacity to build resilience
- Increasing potential for data systems and new technologies to enhance city management, but often no enabling environment to effectively leverage these tools

Common systemic barriers in the existing planning, legal and financial frameworks of these cities and their host countries constitute an obstacle for Global Future Cities to overcome these challenges.

- Cities suffer from a lack of realistic and implementable urban development agendas, and often fail to plan effectively with impact in mind
- Governance is a major bottleneck and city governments are stuck in siloed structures whereby different departments do not regularly collaborate or share data.
- Without appropriate data and information for evidence-based planning, and without adequate legal and regulatory frameworks, cities struggle to address informality comprehensively
- Emerging economies often lack fiscal autonomy and budgetary capacity to raise own-source revenues, and face difficulties in coordinating strategic investments

The Global Future Cities represent great potential for future prosperity and sustainable development, including opportunities to comprehensively address educational needs, wealth, job creation and inequality reduction. The GFCP interventions aim to maximise these opportunities and contribute to the achievement of the SDGs and the implementation of the NUA. In order to achieve this objective, cities can support catalytic interventions that have transformative impact and address the existing

systemic barriers with regards to governance, planning, legal and financial frameworks. Raising awareness about sustainable urbanization and building capacity in the

cities to identify appropriate impact-oriented strategies is key to achieving the SDGs through the Global Future Cities Programme.



Fig. 1. Typical cityscape in Recife © UN-HABITAT (2018) Francesco Tonnarelli



UK FCO
London



Istanbul



Ankara



Bursa



Lagos



Abeokuta



UNH HQ
Nairobi



Recife



Belo Horizonte



Johannesburg



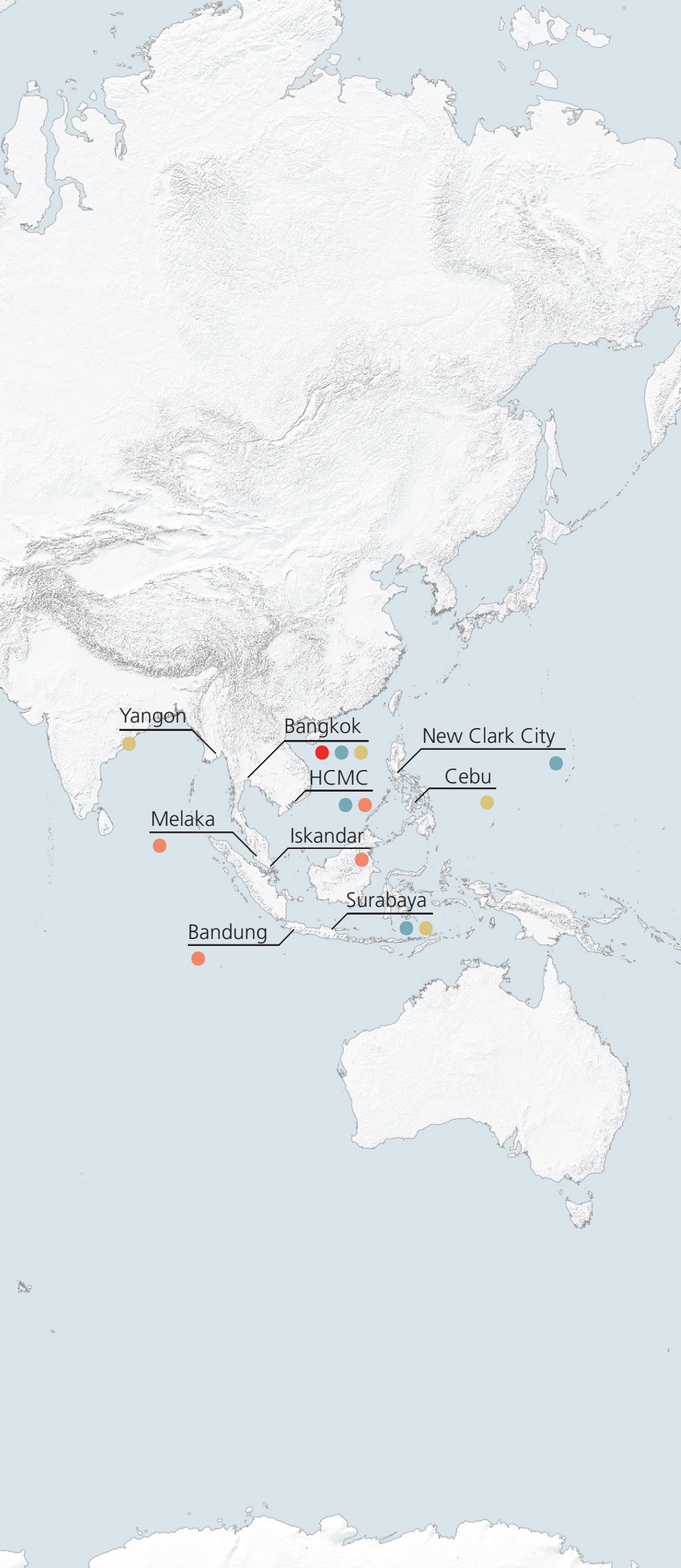
Cape Town



Durban



Potential Interventions within the Global Future Cities Programme



● STRATEGY & PLANNING

Johannesburg	Strategy & implementation
Durban	Governance & alignment
Cebu	SDG city strategy
NCC	Sustainability strategy
Yangon	Revitalizing streetscapes
Surabaya	Urban transformation plan
Bangkok	TOD Plan
Bursa	Sustainable urban transformation
Ankara	Quality and accessibility of streets
Abeokuta	Urban masterplan
Lagos	Urban renewal guidelines

● MOBILITY

Belo Horizonte	Intelligent mobility
HCMC	Smart ticketing system
Istanbul	Sustainable urban mobility
Ankara	Non-motorized transport
Lagos	Water transport
Johannesburg	Review 4IR on mobility
Bandung	Integrated public transport
Iskandar	Mobility management system
Melaka	Green mobility & heritage
Abeokuta	Transport policy

● RISK & RESILIENCE

HCMC	GIS Inventory of drainage system
Bangkok	DSS for flood management
Istanbul	Planning & capacity building
Surabaya	Earthquake Preparedness Strategy

● DATA SYSTEMS

Cape Town	Data for city strategy
Durban	Data for city strategy
Recife	Data for governance
Bangkok	Data hub for planning
Bursa	Smart City

1

The Potential for Sustainable Urbanization in Emerging Economies

Experiences from **19 cities** across **10 countries** give insights into **urban trends** and systemic **barriers and enablers**

The Global Future Cities Programme

A vendor hawks refurbished mobile phones on a street corner in Lagos. A real estate broker polishes her pitch to potential buyers in Iskandar eager to take advantage of new residential properties. A chef at a lauded farm-to-table restaurant hopes key ingredients from nearby farms can thread through Istanbul traffic in time for tonight's dinner rush. A start-up entrepreneur based in Recife's Porto Digital tech cluster grabs a coffee in the city's renovated historic centre to chat with a possible investor.

What do these slices of life in Nigeria, Malaysia, Turkey and Brazil have in common? They represent the potential for urban prosperity to help countries achieve sustainable development, driven by the cities of the world's emerging economies.

These four cities are part of the Global Future Cities Programme (GFCP), a partnership between the United Kingdom's Foreign and Commonwealth Office (UK FCO) and UN-Habitat. The programme aims to promote sustainable, inclusive, and economic growth in 19 cities across 10 countries worldwide - Brazil, Indonesia, Philippines, Malaysia, Myanmar, Nigeria, South Africa,

Vietnam, Myanmar and Thailand - by supporting the development challenges that arise with increasing rapid urbanization, climate change and urban inequality, which can lower long-term growth prospects of cities. The £1.2 billion Global Future Cities Prosperity Fund, funded primarily by the UK's aid budget, was created in 2015 by the UK Government and aims to reduce poverty through inclusive economic growth in developing countries.

Aims of the Global Future Cities Programme

Promote urban environments that:

- Enhance inclusive economic growth;
- Reduce poverty and gender inequality;
- Have cleaner air and safe environments; and,
- Are resilient to disasters.

The Global Future Cities Programme promotes

sustainable urban development and prosperity

Urban interventions that consider systemic barriers and enablers can be

catalytic

and have long-term
transformative impact

Cities in middle income countries show common urban trends in

urban planning, mobility, resilience, and data

The Potential of the 19 Global Future Cities for sustainable urbanization

The United Nations estimates that 55 per cent of the planet lives in urban areas, a proportion expected to increase to 68 per cent by 2050. If those trends remain as predicted, there could be another 2.5 billion urban dwellers by 2050.¹ Those urban dwellers will need adequate shelter, decent work and sustainable transport that will allow them to live, work, study and play at a reasonable cost. Nearly 90 per cent of that growth will take places in Asia and Africa. Within those regions, emerging economies are expected to account for a significant portion of urban growth and serve as a microcosm for global urbanization trends as they represent all types of urbanization. They are home to mega-cities, or those urban agglomerations with more than 10 million people, as well as networks of intermediate cities that range from 20,000 to 2,000,000. There are also countries where a single city has more than twice the population of the next largest city and those with a more diversified network of primary and secondary cities in which economic, cultural and political functions are diversified throughout the country's cities.

The 19 cities that comprise the Global Future Cities Programme offer a panorama of emerging economies, covering Latin America, sub-Saharan Africa, western Asia, and southeast Asia. They vary in size from mega-cities like **Lagos** (estimates range from 12 to over 20 million) to intermediate cities like **Melaka** (910,000) and in age from ancient (**Bursa** was first settled in 183 BCE) to as yet unbuilt (**New Clark City** is a planned community currently under development in the Philippines). They include cities such as **Istanbul**, which dominates the demographic profile of Turkey, as well as countries like South Africa, where GFCP cities **Cape Town**, **Durban** and **Johannesburg** illustrate a country with a balanced urban demographic distribution. The programme also includes secondary cities like **Recife** and **Belo Horizonte**, which are rising stars alongside Brazil's more established metropolises, and national capitals like **Ankara**. There are coastal cities vulnerable to sea level rise such as **Cebu** and cities in seismically active zones vulnerable to earthquakes such as **Surabaya**. Some cities are ethnically and religiously homogenous, like **Ho Chi Minh City**, while others are more diverse, like **Abeokuta**. **Bangkok** and **Johannesburg** are emerging financial service hubs, while **Recife** and **Iskandar** could become centres of tech start-up entrepreneurship. **Bursa**, **Melaka** and **Yangon** have potential in heritage-driven tourism. **Bandung** is a UNESCO recognised City of Design. **Durban** is Africa's largest deepwater

port. **Istanbul** and **Lagos** are dynamic mega-cities that combine financial services with internationally significant culture and entertainment industries. These cities are among the world's most dynamic economies as well as among those that have not yet realised their full potential.

These urban agglomerations represent enormous potential for future prosperity and sustainable development. By overcoming barriers and enhancing enablers for sustainable urban development, cities have the opportunity to address educational opportunities, wealth, job creation for men and women and reducing inequality. The diverse array of cities in emerging economies positions the countries as essential to delivering on the United Nations' 2030 Agenda for Sustainable Development, namely the Sustainable Development Goals (SDGs), Paris Agreement on climate change, Sendai Framework on Disaster Risk Reduction and New Urban Agenda. Each of these voluntary, non-binding agreements were adopted by United Nations member states over the course of 2015 and 2016. Collectively, they offer a blueprint to a more sustainable planet by 2030 and beyond. As home to the majority of the world's population and growing, cities and local government decisions are vital to meeting the goals of these various agreements, from reducing greenhouse gas emissions to eliminating poverty to ensuring preparedness in the face of natural disasters.

As outlined in *Chapter 2*, emerging economies face common wide-ranging challenges to sustainable urbanization in the areas of planning, mobility, resilience and the application of data and new technologies for city management. These cities are growing in population and land area, while in turn frequently lacking adequate urban plans to guide their future urbanization. That trend can result in sprawling development patterns that consume land at a rate faster than population growth and unsustainable urban models led by market speculation. Informal settlements without appropriate infrastructure, inadequate housing and high levels of exclusion are also a common feature in emerging economies. Transport systems are often ad-hoc, with limited public transport supplemented by unregulated or loosely regulated private transport systems that are not part of a larger mobility system. Emerging economies can be vulnerable to shocks and stresses, from natural disasters to migrant crises to economic downturns. Oftentimes local governments lack the capacity to build resilience to such future risks as they struggle to deliver on daily urban services. Finally, data systems and new technologies often do not have an adequate enabling environment and public investment in order to contribute to effective city management.

In turn, *Chapter 3* analyses the common systemic barriers that the emerging cities of the GFCP face to overcome these challenges. They suffer from a lack of realistic and implementable urban development strategies and plans, and are often failing to plan effectively with impact in mind. One of the contributing factors to this trend is that cities are unable to govern across a metropolitan area, where urbanization challenges cross municipal boundaries. Many Global Future Cities must contend with a siloed mentality even within municipal governance whereby different departments do not regularly collaborate or share data. Without appropriate data and information for evidence-based planning, and without adequate legal and regulatory frameworks, cities struggle to address informality comprehensively. Adding to this challenge, emerging economies often lack fiscal autonomy and budgetary capacity to raise own-source revenues or access international capital markets for new infrastructure and are instead burdened with high maintenance costs for existing infrastructure. They lack the capacity and adequate legal and regulatory regimes to engage with the private sector as a sophisticated client, which hinders their ability to demand accountability and transparency in public-private partnerships.

Experiences from the 19 Global Future Cities

UN-Habitat's Urban Planning and Design Lab recently concluded the GFCP's Strategic Development Phase with support from an academic partner, the International Growth Centre, and a professional partner, the United Kingdom Built Environment Advisory Group. Through a series of scoping studies, stakeholder engagement exercises, planning charrettes and workshops, integrated context analyses, and global recommendation papers, UN-Habitat and its partners worked closely with the cities to define and validate 30 different urban interventions that will be implemented over the coming two to three years. The materials and knowledge created during this dynamic process provide the basis for this normative report.

By drawing lessons from a comparative analysis, the report aims to discuss urban trends in urban planning, mobility, resilience and data, as well as underlying systemic barriers and enablers for sustainable urban development observed across the 19 cities. Looking ahead to the Implementation Phase of the Global Future Cities Programme, the report identifies key topics that will allow the interventions to increase their impact on the cities' and host countries' capacity to deliver on

the SDGs and the NUA. Ultimately, as the New Urban Agenda argues, “We are still far from adequately addressing these and other existing and emerging challenges, and there is a need to take advantage of the opportunities presented by urbanization as an engine of sustained and inclusive economic growth, social and cultural development, and environmental protection, and of its potential contributions to the achievement of transformative and sustainable development.” The GFCP interventions are designed to address the barriers and promote the enablers that will allow emerging economies the chance to prosper.

The report is divided in four chapters that summarize the experiences across the 19 Global Future Cities. While the *first chapter* gives an overview of the programme, the *second chapter* describes the urban challenges and trends observed in urban planning, transport, resilience and data. Analysing these trends in more detail, the *third chapter* discusses systemic barriers and enablers for achieving sustainable urbanization identified across the cities. Throughout the chapters, examples showcase how these systemic conditions are addressed by the interventions of the Global Future Cities Programme. Lastly, the *fourth chapter* analyzes the potential of the interventions to achieve the SDGs and provides strategic key messages as to how the desired impact of the interventions can be increased.

2

Urban Trends in the 19 Global Future Cities

An **effective mobility network**

is key to sustainable urban development and

inclusive growth

This chapter summarizes the main urban trends observed in the 19 Global Future Cities with regards to urban planning, mobility, resilience and data management. Drawing on the lessons from the city context analyses and assessments, different urban challenges were identified throughout the cities. Throughout the cities, challenges such as inefficient transport management, urban sprawl and vulnerability of low-income communities to risks and disasters hinders the achievement of sustainable and inclusive urbanization.

The Power of Strategic Urban Approaches

Strategic and urban planning is an essential tool to ensure that urbanization achieves economically, socially and environmentally sustainable development. As cities grow, increased population put pressure on urban systems like public space, housing and mobility. How cities address growth through strategic thinking and long-term planning will determine levels of social inclusion and equal opportunities for all, how much of the city is public versus private space, whether the urban poor resort to informal settlements and how resilient the city will be to risk and disasters. The choices

of civic leaders can create a city that functions well for all residents, or one that privileges a select few at the expense of the many.

URBAN SPRAWL

In growing cities, a main concern is sprawl: how to plan city extensions in a sustainable and adequate way that balances urban expansion with urban redevelopment initiatives to promote compact cities. According to The Atlas of Urban Expansion, a research project by the Lincoln Institute of Land Policy, New York University Urbanization Project and UN-Habitat, cities in the developing world are poised to triple the amount of land they consume between now and 2050, while only doubling in population.² This inefficient land-use pattern increases travel time for city residents and drive up levels of car ownership, makes the adequate provision of urban services more difficult and costly, and can impact negatively on the environment.

According to the atlas, **Belo Horizonte's** urban footprint has been increasing at an average annual rate of 0.8 per cent since 2000, **Lagos'** at 2.6 per cent since 2000, **Johannesburg's** at 3.2 per cent since 1998, **Istanbul's** at 3.7 per cent since 2002, **Cebu's** at 4.1 per cent since 2000 and **Bangkok's** at 4.8 per cent since 2002. In some cities, the rate of urban expansion even

Strategic approaches

help cities to overcome the challenges of rapid urbanisation

Lack of **risk and resilience management** exacerbates the **vulnerabilities** of lower-income groups

Data management

and (applying) **smart technologies**

offer new opportunities for

day-to-day operations and **evidence-based** planning

exceeds population growth. **Ho Chi Minh City** has been increasing its land footprint by 10 per cent annually since 1999 while its population has grown only by 6.3 per cent. **Iskandar's** population is expected to double between 2016 and 2024, but the population density is expected to drop from 20 to 12 persons per hectare.

The consequences of sprawl are not only higher investment burdens for local government, but also higher costs for the maintenance of utility services, both of which can make the delivery of urban basic services to all residents a challenge for the public sector. Further, sprawl imperils access to affordable housing by increasing household transportation costs. Urban sprawl further exacerbates congestion by increasing travel distances, which reduces connectivity, increases the economic costs and impacts the locational advantages for businesses. Finally, a disconnected and segregated society can face difficulties in establishing a critical mass that can be capable of demanding public investments in infrastructure and services.

HOUSING INADEQUACY, INFORMALITY AND SLUM CONDITIONS

Inclusiveness is a prerequisite for a successful city as it is key for better social, environmental and economic performance. Housing is a basic human right for all,

regardless of age, gender, social or economic status. The UN Committee on Economic, Social and Cultural Rights distinguishes seven elements which constitute adequate housing: (1) security of tenure; (2) availability of services, materials, and infrastructure; (3) affordability; (4) accessibility; (5) habitability; (6) location; and (7) cultural adequacy. Deprivations in one or several of these elements are used to define three kinds of housing situations: slums, informal settlements and inadequate housing.

Access to adequate housing contributes to various economic, social and cultural aspects of development for individuals, households and communities. People living in adequate homes have better health and higher chances to improve their human capital and seize the opportunities available in urban contexts. At the same time, a housing sector that performs well acts as a 'development multiplier' benefiting complementary industries, as well as contributing to economic development, employment generation, service provision and overall poverty reduction. On the other hand, lack of adequate housing significantly contributes to marginalization of populations in a city. Housing inadequacy has also been associated with other social challenges such as low educational attainment, crime, poor well-being and problems of social cohesion³.

Globally, the percentage of urbanites living in slums has dropped this decade, but the absolute number continues to increase. From 2000 to 2015 the numbers have increased from an estimated 792 million people to 883 million with higher numbers recorded in the fast urbanizing sub-regions. In 2015, the bulk of populations living in slum-like conditions was in three major regions—Latin America and Caribbean (105 million), sub-Saharan Africa (210 million) and East and Southeastern Asia (443 million). Among countries studied by UN-Habitat's Slum Almanac 2015/2016, half of all Nigerians who live in cities in turn live in slums. In **Recife**, approximately 22.9 per cent of residents live in favelas. Moreover, housing affordability data from 145 countries analysed by UN-Habitat indicates that the proportion of households without access to affordable housing is higher in sub-Saharan Africa. On average, 55.4 per cent of households in the region spend more than 30 per cent of their income on housing.

Informal settlements are a feature of many GFCP cities. For example, Durban has 569 informal settlements that account for one quarter of the city's population. In such cities, rapid urbanization, a lack of affordable housing and weak governance structures have combined to create a scenario in which some urban poor resort to self-built housing or can only afford housing that does not meet legal requirements like building codes and lot subdivision regulations. Informality can have negative consequences in a city in many different ways: Increased environmental risks, as informal settlements often arise in land unsuitable for construction purposes including risk prone areas such as floodplains or the slope of the mountains. While people living in informal settlements [JS3] often pay for services informally at a higher price than in the formal economy, there is a lack of services and infrastructure. This is further hindered by the difficulties of local governments in charging for the provision of services in informal settlements.

PUBLIC SPACE

Creating and maintaining public spaces, parks and green areas in dense urban areas can be politically challenging, especially when the land becomes valuable for investment and development in the absence of a comprehensive public and green space strategy. Such was the case in the tense battle over redevelopment of Istanbul's Gezi Park in 2013.⁴ While building and preserving public space can be seen as a cost-burdensome challenge, well-managed and maintained open space may enhance the value of the surrounding properties.⁵

Cape Town, South Africa

In Cape Town, there are at least 204 informal settlements that have emerged in response to inward migration and urbanization, which equates to approximately 725,000 people. Cape Town's spatially segregated urban form pushes these low-income communities away from the main urban and economic centres, increasing their travelling time to jobs and schools. One of the main challenges is service provision including housing, health, education, transport, social and cultural facilities. As an example, this reality is reflected by the fact that low-income communities in Cape Town spend on average 43 per cent of their household income on commuting costs. As the needs of a large proportion of the population are not being met, providing informal settlements with better infrastructure and service provision appears critical to promote inclusiveness and enhance sustainable urbanization.

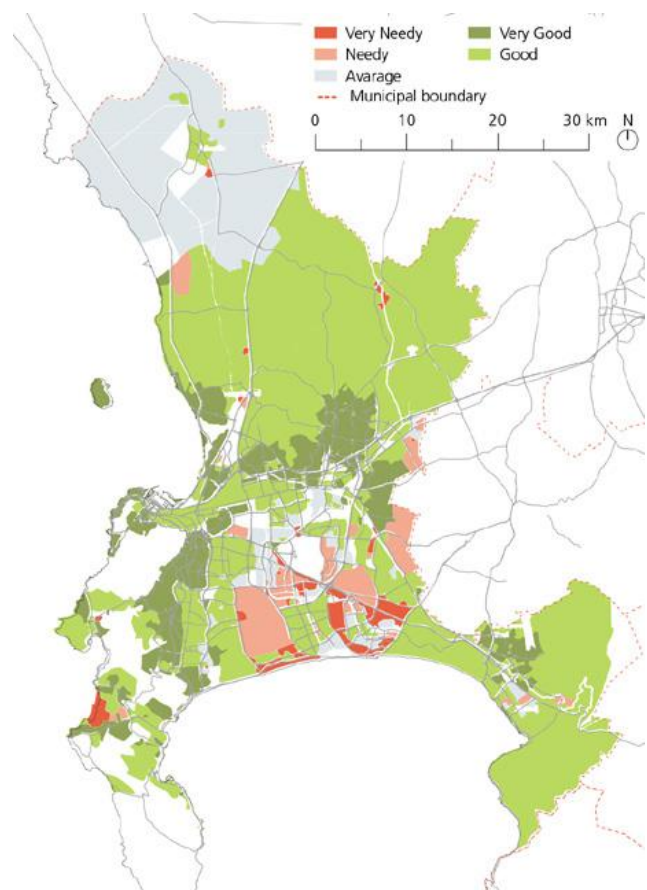


Fig. 2. Cape Town's Socio-Economic Index © UN-HABITAT (2018) Cape Town City Context Report

A 2011 study by the Urban Land Institute, a research and education institute based in Washington, found a general willingness among private sector real estate investors and developers to partner with the public sector and invest in open space because they believe it brings value to their commercial properties.⁶ There are important social, economic, health and wellness benefits for urban dwellers to have ample access to public and green spaces. They can offer space for physical exercise, social encounters, leisure and small-scale economic activities, and they can play a crucial role in risk and resilience management.

However, it is important to note that not all public space is created equal. When left to private developers, such spaces may be an afterthought or not accessible to the public as compared to a park built and managed by local government. Grassroots groups generally appeal to the public sector to build and maintain parks. In **Bangkok**, citizens are urging the state railway company to turn 80 hectares of undeveloped land in the city centre into a park that would alleviate the city's low ratio of green space, just 3.3 m² per person.⁷ A grassroots effort in **Recife** is encouraging the city to develop 30 km of riverfront into the Capibaribe Park.

Putat Jaya is one of the densest neighbourhoods in **Surabaya**, with 35,975 people/km² and a poverty rate of 18 per cent. Once a hotbed of prostitution, in recent years intensive new development on private plots has taken place. The ensuing growth consumed all open space in the neighbourhood besides the road network, such that streets are the only public space left in Putat Jaya. As such, shops encroach onto the right of way, resulting in a public roadway with no sidewalks. While lively, Putat Jaya's streets are congested and potentially dangerous. The city of Surabaya has recently recognized the need for increasing public space accessibility in the city. A new policy has thereby been initiated to reclaim unused spaces and convert them into open and recreational spaces.

URBAN RENEWAL AND HERITAGE

Finally, urbanization can put pressure on heritage sites. Accommodating urban growth while preserving the heritage that made a city attractive in the first place is a delicate balance. Heritage cities like **Bursa**, **Melaka** and **Yangon** are both a constellation of historic sites and a collection of vernacular architecture that give a neighbourhood context to urban heritage. These cities face complex dynamics as tourism development and real estate speculation can alter the urban landscape and need to be balanced with sustainable heritage and urban renewal strategies.⁸

Yangon, Myanmar

The CBD in Yangon represents a valuable historical site for the city, built in 1852 and containing many of the 189 officially listed historic buildings. A piecemeal approach to heritage conservation has led to the demolition and replacement of historic buildings in the city centre. Moreover, increased urbanization has put pressure on the current pedestrian-oriented historic grid system. What used to be a vibrant public space has been invaded with traffic, automobile parking, dumpsters and unorganized electric and sewage infrastructure. Furthermore, the pressure on urban development in the city centre has led to a disappearance of parks and gardens that have been fenced or privatized, limiting access to open public space.



Fig. 3. Streetview in Yangon © UN-HABITAT (2018) Jacob Kalmakoff



Fig. 4. Ho Chi Minh Street Junctions © UN-HABITAT (2018) Naomi Hoogervorst

Mobility: Unlocking the Key to the City

The genius of cities is the proximity of people, places, institutions, parks, schools, jobs, stores and events. The curse of cities is when it becomes impossible to move around the city and take advantage of the benefits that proximity can bring. Mobility, from capital-intensive investment in high-capacity mass transit that moves thousands of people long distances to the simplest maintenance of sidewalk illumination to facilitate safe pedestrian travel at the end of a journey, is essential to a well-functioning city. Here, emerging cities vary dramatically from the 200-plus km of subway and bus rapid transit in **Istanbul** to the paucity of formal transport in **Bandung**.

In 2014, the International Public Transport Association's Future of Urban Mobility index ranked 84 cities across all income strata by analysing their public transport availability and affordability, road density, public transport mode split, cycling networks, traffic fatalities, average commute times and other factors. Six GFCP cities were studied. While **Istanbul**, **Ankara** and **Ho Chi Minh City** were ranked as "average", **Lagos**, **Bangkok** and **Johannesburg** scored "below average".⁹

TRAFFIC CHALLENGES

Private vehicle ownership and use is on the rise in emerging economies. By 2015 an additional 1.2 billion cars will be on the road -- double today's total.¹⁰ World Bank data illustrate a rise in the number of motor vehicles per 1000 people for **South Africa**, **Malaysia**, **Philippines** and **Thailand**.¹¹ **Vietnam**, once famous for the proliferation of two-wheeled scooters as the predominant form of urban transport, is also seeing car ownership rates tick up as more families enter the middle class.¹² In Malaysia, relaxed loan approval processes, low interest rates and subsidised petrol prices have lowered the barriers to private car ownership. **Belo Horizonte** saw the number of registered cars increase 28.5 per cent from 2010 to 2015, making it the Brazilian city with the most cars per capita.¹³

A challenging outcome of growing levels of private vehicle ownership is traffic congestion. The 2018 INRIX Global Traffic Scorecard calculates congestion rankings for several GFCP cities: **Istanbul** (2), **Ankara** (11), **Belo Horizonte** (18), **Johannesburg** (61), **Cape Town** (95) and **Durban** (141). There are two notable exceptions: Bangkok was the 12th most congested city on INRIX's 2017 scorecard but not measured in 2018; INRIX

does not measure **Ho Chi Minh City** but anecdotally the city is known for chaotic traffic. In **Istanbul**, the second most congested city in the world, drivers lose 157 hours annually due to congestion. Traffic jams may cost **Bangkok** up to US\$350 million annually in lost productivity.¹⁴

Increasing road traffic also has costs beyond economic, as vehicles emit greenhouse gases that contribute to global climate change and impact health outcomes. The transport sector contributes 23 per cent of global energy-related greenhouse gas emissions. In addition to emissions, air pollution is on the rise. In 2010, about 184,000 premature deaths - most of them in developing countries - were the result of vehicle-related air pollution.¹⁵ Some portion of that is caused by sooty diesel engines, which are being phased out in major European cities but growing in use in middle-income countries.¹⁶ Poor air quality can also damage heritage sites, as Italian studies have shown of vulnerable monuments in Rome.¹⁷

According to the World Health Organisation, 1.35 million are killed annually in traffic deaths.¹⁸ Road traffic crashes are, on average, the leading cause of death for people between 15 and 29 years of age worldwide.¹⁹ In 2013, road traffic death rates in high-income countries were less than half those in low- and emerging economies.

A city that treats private vehicles as the dominant form of urban mobility ultimately compromises accessibility and limits the independence of those who choose not to travel by car or do not have the financial means to, for example children or low-income populations and in some cases, women. These urban dwellers are facing increasing problems in travelling to work and in accessing health, educational and social services. Ride-sharing and car-sharing services have added a new wrinkle to this narrative, as they provide cars to anyone with a smartphone and therefore have the potential to increase urban mobility access. However, in U.S. cities they appear to be increasing traffic congestion, which could portend a negative outcome in emerging cities.²⁰ As long as transport planners continue to address urban mobility challenges with the conventional approach of building more roads and related infrastructure, sustainable solutions will not be found. New roads are being overwhelmed by increased traffic soon after they are built. With growing urban prosperity, increased use of personal vehicles and rising urbanization, such measures focused on private vehicles are seldom successful. Cities need to seek out other solutions.

ACTIVE TRANSPORT (WALKING AND CYCLING)

Cities designed for cars frequently fail to meet the needs of non-motorized users like pedestrians and cyclists, whose modes are often the first or last mile of a journey that involves public transport. Increasing the share of users on these active transport modes promotes equality in emerging cities, where not every resident can afford to own a car, nor would universal car ownership be desirable from a congestion or climate change perspective.

Active travel in many cities remains the principal means of transportation. This is largely not by choice, but rather driven by the lack of affordable and accessible alternatives, with most pedestrians belonging to lower-income groups. For instance, research in Johannesburg shows a modal split of 31 per cent of people still relying on active travel.²¹ Data for Lagos show that 40 percent of the population walks or cycles.²²

However, in terms of planning and investment, these modes are often forgotten, which imposes severe road safety risks on pedestrians and cyclists. Dedicated corridors are largely absent and, where they exist, they are often at the risk of being encroached upon for commercial purposes or used for the perennial widening of motorized carriageways. Poor lighting, absence of footpaths and overcrowding make walking unsafe. When it comes to urban cycling infrastructure, emerging cities need significant improvement. Only one emerging city (Buenos Aires) made the Copenhagenize Bicycle Friendly Cities Index 2017.²³ However, **Bandung, Bangkok, Belo Horizonte, Recife** and **Istanbul** all have formal bike share programmes with corporate sponsors or venture capital-backed private companies rolling out fleets of bicycles accessed via smartphone and requiring a credit card for payment and security. **Ho Chi Minh City** is also considering a bike share programme. By contrast, **Johannesburg's** low-income townships developed a low-tech, grassroots bike share programme born out of micro-entrepreneurial spirit.²⁴ Urban planning efforts specifically focused on walkability are a relatively new global trend, but cities with extant historic centres like **Bursa, Istanbul, Melaka, Recife** and **Yangon** already benefit from pedestrian-friendly environments.²⁵

Furthermore, limited speed enforcement does little to deter high traffic speeds.²⁶ On a global scale, forty-nine per cent of all road traffic deaths occur among pedestrians, cyclists, and motorcyclists. Road fatalities and injuries - which involve cyclists and pedestrians as well as occupants of motor vehicles - are estimated to reduce GDP by 1 per cent to 5 per cent in some countries.²⁷

PUBLIC TRANSPORT

By global standards, emerging cities are falling short of the need for adequate and affordable public transport for all. At the city level, data analysis company Moovit has tracked public transport journeys in several dozen world cities, including three GFCP members: **Belo Horizonte, Istanbul** and **Recife**. It found that Recife's average round-trip commute was 96 minutes, the longest of any city in Brazil. Istanbul's 91 minutes was the longest in a survey of mega-cities, with 20 per cent of commuters needing more than two hours. In Istanbul, 35 per cent are traveling more than 12 km per trip, also the longest of any megacity surveyed by Moovit.

While cultural factors might influence the travel behaviour of wealthier urban dwellers, transport cost is often an issue for low-income populations. In many developing and emerging economies, a 10km trip on public transport equates to about 30% of the income of the poorest quintile of the population.²⁸ In Brazil, the Movimento Passe Livre (Free Fare Movement) rallied against transit fare hikes that led to nationwide protests in 2013 and remains a social movement in many major Brazilian cities, including **Belo Horizonte** and **Recife**.²⁹ High fares have been attributed to poor ridership figures on South Africa's new BRT lines.³⁰ By contrast, **Istanbul's** investment in the Metrobüs BRT line, integrated with the city's existing rapid transit lines, has been largely successful and proven popular with riders even as fares have risen steadily.³¹

Safety is also a paramount concern on public transport. Although women make up the majority of public transport users worldwide, they are routinely subject to verbal and physical harassment.³² A 2014 Thomson Reuters Foundation poll of the most dangerous transport systems for women ranked **Bangkok** at 8 out of 16 major world cities, with female residents indicating they did not believe someone would come to their assistance if they were abused on public transport.³³ Some responses to that problem include women-only subway cars, which exist in some Brazilian, Indonesian and Malaysian cities. Female-operated taxi companies and ride-share services exist in a select few cities around the world. Finally, transport agencies can try to recruit women bus drivers, such as **Lagos'** current efforts to create gender parity in its BRT driver ranks.³⁴

Seamless transport operations are also key and often compromised by lack of integrated transport options and information. Among GFCP members, **Istanbul** leads with its ten-year-old Istanbulkart, a stored fare card that works on subways, ferries, buses and even public toilets. **Ankara, Bangkok, Belo Horizonte, Bursa, Cape Town, Durban, Johannesburg, Lagos**

and **Recife** all have some form of stored-value card technology, but they vary as to their coverage. In some cities, the cards only work on subways and BRT lines, but not regular city buses. Cebu, Iskandar, Melaka and Yangon all have stored-value cards planned for existing or future transit lines. Such technology also enables cities to track valuable data that can help transport planners understand traveller demand and improve operational efficiency.

 **Belo Horizonte, Brazil**

Belo Horizonte has a solid urban mobility plan, the PlanMob-BH, but it has been less effective in reducing traffic congestion, traffic accidents and pollution. A customer satisfaction survey attributed the decrease in public transport ridership of 10 per cent between 2016 and 2017 to long waiting times and crowded buses.³⁵ Women, who represent 70 per cent of public transport users, raised also concerns about safety. This trend is exacerbated by growing car ownership rates expected to increase private car use to 45 per cent by 2030. If left unchecked, Belo Horizonte's public transport ridership is expected to sink from 43 per cent in 2012 to 18 per cent in 2030, exacerbating already critical traffic congestion and undermining low-income communities' ability to access services and job opportunities.

INFORMAL TRANSPORT

In the absence of reliable, extensive, affordable, well-maintained collective transport administered by a public agency, emerging cities are prone to the proliferation of privately-run informal transit: frequently small buses or vans that ply a route determined by the operator rather than a transport planner. Such vehicles generally do not operate on a fixed schedule and operate with a profit motive whereby the more passengers moved at the quickest rate yields the most revenue. That incentive does have some benefits, as it provides necessary transport options along routes that lack formal transport and intermodal connections with formal transport.

Smaller than full-sized buses or trains, these vehicles can serve communities with narrow or poorly maintained roads and deliver commuters closer to their final destination. They are cheaper vehicles, which means less overhead required for operators to start a transit operation and thus lower fares for customers. Whether *kombis* in **Brazil**, **South African** shared *taxis*, *danfo* in

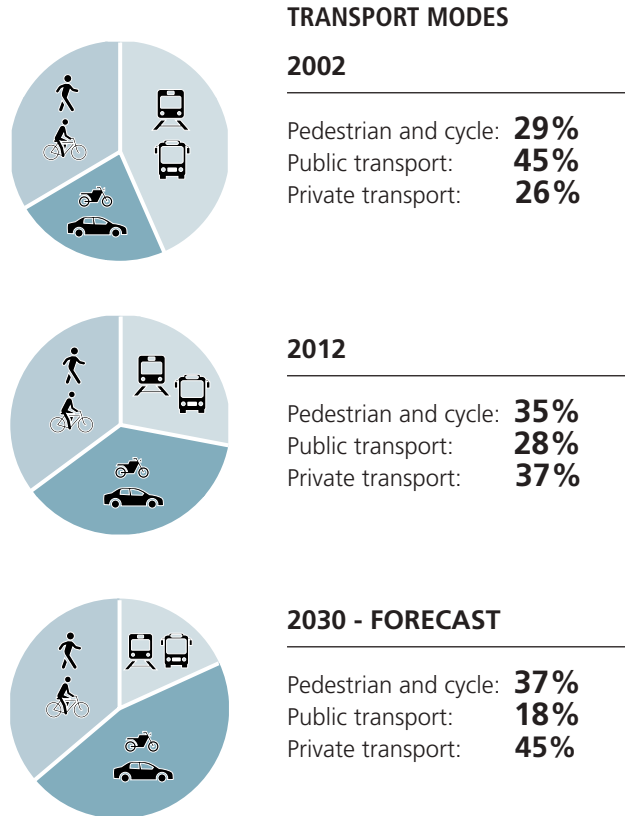


Fig. 5. Trends in Transport Modes in Belo Horizonte © UN-HABITAT (2018) Belo Horizonte City Context Report

Lagos, *dolmus* in **Turkey** or *angkot* in **Bandung**, these supplements to existing inadequate formal transport are vital to the functioning of emerging cities. However, these much needed transport services also come with challenges such as unregulated operations, reckless driving, inadequate comfort and lacking customer service. By their very nature as flexible operations run by individual entrepreneurs, informal transport is difficult to map and eludes data collection. Currently, there is a map of *angkot* routes in Bandung and a tech entrepreneur has mapped **Cape Town's** informal taxi transport network.³⁶

Risk and Resilience: Preparing for Shocks and Stresses

In the era of global climate change, mass migration and economic volatility, cities are increasingly vulnerable to shocks and stresses. Emerging cities are exposed to all of

these risks and must enhance their resilience. The leading international efforts to enhance urban resilience are UN-Habitat's City Resilience Profiling Programme, the World Bank's City Resilience Programme on Infrastructure and the recently discontinued 100 Resilient Cities initiative of the Rockefeller Foundation, which used to fund the city government position of Chief Resilience Officer and help cities develop resilience strategies. Of the GFCP cities, **Bangkok, Cape Town, Durban, Lagos** and **Melaka** all have chief resilience officers, but only Bangkok has prepared a resilience strategy.³⁷

Global sea level rise is an existential threat for most coastal cities. By 2050, over 800 million people will live in cities at risk of flooding from sea level rise and associated storm surges. The global economic costs to cities could amount to \$1 trillion by 2050. Global sea level rise of one metre once predicted for 2100 is now expected by 2070.³⁸ **Bangkok, Cape Town, Cebu, Durban, Lagos, Recife, Surabaya** and **Yangon** are all at significant risk of sea level rise. By contrast, **New Clark City** was specifically designed and planned to avoid major natural disaster risks like sea level rise, coastal flooding, typhoons and earthquakes.³⁹

Ho Chi Minh City, Vietnam

Ho Chi Minh City experiences flooding regularly in around 54 per cent of the city's territory.⁴⁰ Flooding is linked to many different factors including heavy rainfall, sea level rise and inefficient hydrological systems. Urban expansion without accounting for future climate change scenarios has had detrimental effects causing the loss and degradation of valuable natural areas around waterways that channelled water and retained it in flooding events. While built-up areas have increased by 43 per cent, agricultural land loss stands at 7 per cent and rivers and lakes have diminished by 13 per cent due to encroachment. In the absence of any adaptation strategies and resilient urban development, Ho Chi Minh City is expected to increase its exposure to sea level rise by 17 per cent by 2050.

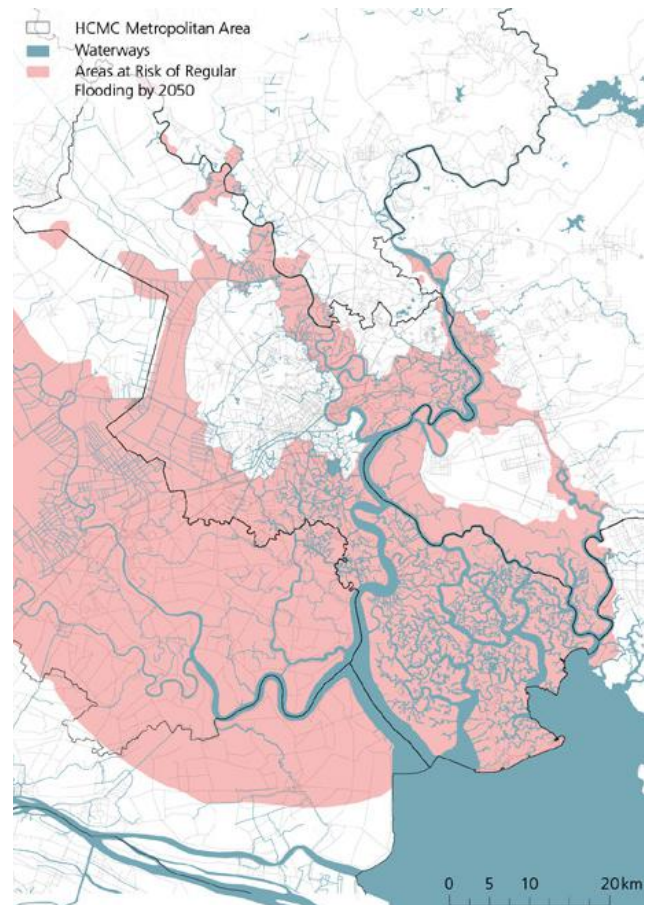
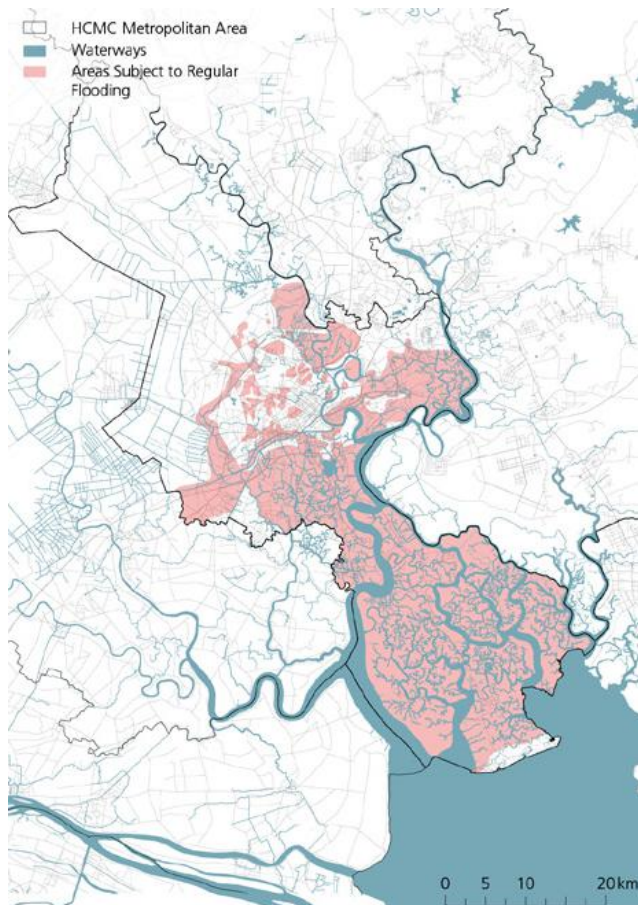


Fig. 6. Flood Risk in Ho Chi Minh City, 2015 - 2050 © UN-HABITAT (2018) Ho Chi Minh City Context Report

In earthquake-prone regions, the high costs of seismic retrofitting or earthquake-proof building techniques mean that lower-income residents are at higher risk of building collapse due to the lack of adequate construction standards. If located on the urban periphery, such residents will also suffer a longer period of time before vital emergency services like food, water and medical care arrive.

Surabaya, Indonesia

Surabaya lies along two active faults. In 2017, the National Earthquake Centre calculated a potential seismic event of M 8.7 in the southern coast of East Java and in 2016 identified 285 active faults, a sharp increase from the 81 faults identified in 2010. Much of the city is built on soft soil susceptible to liquefaction in the case of an earthquake. A considerable number of public facilities in Surabaya are seismically vulnerable, including hospitals, clinics, schools and bridges. Although the local government has taken some action to address earthquake risks, city officials and residents underestimate the destructive potential of these events. Current measures such as awareness campaigns and environmental programmes through building urban forests and parks are insufficient. A growing awareness of the risks and the potential damage and loss in the event of a catastrophic earthquake demands effective solutions.

While floods and earthquakes are immediate natural disasters, other slower moving environmental risks exist as well. Urban heatwaves are steadily worsening, especially in mid-latitude, low-elevation and coastal cities, a profile that applies to nearly all GFCP cities.⁴¹ Droughts threaten urban water supplies, which in 2018 raised the spectre of “day zero” in **Cape Town** when the municipal water supply would shut off.⁴² Increased water demand can cause competition with rural areas and trigger food crises. Agricultural needs will conflict with those of cities in 41 per cent of all river basins by 2050.⁴³ These threats offer clear business opportunities for deploying water management strategies and the application of water-saving technology.

There is a significant equity component to urban resilience because lower-income populations are particularly vulnerable and will be more adversely affected in events of shock. For example, as cities expand into hazardous areas like floodplains and river banks, those risky, less valuable plots of land are more likely to be occupied by informal settlements. Despite the risks posed by urban flooding from heavy rainfall, research has shown that in the case of frequent flooding, economic activity does not shift away from danger areas and vulnerable locations are slowly reoccupied.⁴⁴

In addition to residential risk, non-resilient infrastructure can affect neighbourhoods that do not directly suffer from a flood or earthquake if key transport routes and public utilities are affected. Many power stations are in flood-prone areas as they offer a cheap and easy supply of cooling water, but the potential flooding of power supplies affects transportation, heating, air conditioning and hospitals. **Bangkok’s** frequent floods are one example of an emerging city facing this challenge.



Fig. 7. Streetscapes in Putat Jaya, Surabaya © UN-HABITAT (2018) Niina Rinne

Urban Data Systems: What Measures, Matters

“In God we trust, all others bring data,” was a favourite saying of former New York City Mayor Michael Bloomberg. It is a worthy summation of the big data era in urban management, where nearly every aspect of city life can be quantified and such data can be harnessed to improve city services. Cities with high-tech operations centres and data management systems in place are able to monitor real-time data on issues like traffic, water and power consumption, air quality and solid waste collection. As part of a broader “smart city” strategy, **Bursa, Bandung, Belo Horizonte, Ho Chi Minh City, Istanbul and Bangkok** have or are planning some form of a data centre that will monitor city data in real time.

Private sector companies that operate inside city limits are also vast repositories of data. Urban mobility providers like ride-sharing and bikeshare services hold valuable data on travel patterns. Smartphone penetration in emerging markets has crested 37 per cent and will continue to rise.⁴⁵ That trend has created an army of urban data trackers. Even fitness apps that log runs or count steps offer useful data about recreation patterns. Some scholars caution, however, that the “new urban citizen” whose value to civic leaders is the ability to produce useful data could exacerbate social inequalities and digital divides in cities.⁴⁶

Ultimately, data utilisation for day-to-day operations and long-term planning lags behind in developing and emerging cities as compared to developed world cities with robust IT departments, municipal chief data officers, civic hackathons, and open data policies and portals. Instead, emerging cities have invested limited human and financial resources in data infrastructure for data collection and analysis, such as the adaptation of data analytics techniques that could inform long-term urban, transport and resilience planning.

The global movement for open and transparent government data has percolated more slowly to the municipal level in emerging economies. **Cape Town’s** Open Data Portal, with 129 data sets from air quality to wastewater, is the best example within the GFCP cities. **Recife**, a tech-friendly city, also has an open data portal with 67 data sets. Nevertheless, data exclusion remains a significant challenge as marginalized groups especially those in informal settlements lacking geographic identifiers easily captured by GPS often do not have reliable Internet or web-enabled mobile access that allows them to contribute citizen-generated data. As a result, their needs are invisible to city governments.

These products of local government transparency generally come out of open data policies, which facilitate the sharing of information between local government and citizens. Some GFCP cities have adopted open data policies including Belo Horizonte and Durban. Indonesia adopted a national e-Gov policy in 2018 that may eventually yield results at the municipal level.⁴⁷ Myanmar has been studying the adoption of some version of South Korea’s open government data policy.⁴⁸ National open data sources exist in every GFCP country, but national data sources are frequently not disaggregated to the local level. However, civil society efforts remain strong in many GFCP countries and cities, from loosely organized groups like Code for Bandung to more established NGOs like Open Data Durban to the Nigerian chapter of Code for Africa to nascent academic efforts in Turkey and Myanmar.

Finally, even when governments are willing to share information or adopt an open data policy, fragmented data and information scattered across government departments, NGOs, academia and the private sector can be difficult to corral. Sharing of information between departments is also a major issue, hindering comprehensive data analyses and the development of integrated policies.

Recife, Brazil

Recife is a national ICT leader due in large part to its technological hub, Porto Digital, home to some 300 ICT and creative economy-driven companies that contribute more than 9,000 jobs to the city’s labour market. However, this economic cluster has not led to an institutionalised integration of data in long-term decision-making and policy implementation. While open data, increasing transparency and participation are part of the local government agenda, these policies have only been addressed through isolated actions such as information access portals and communication channels on social media. Data is therefore still scattered and difficult to access. Additionally, data literacy levels are low, especially among low-income communities, which excludes them even more from participating in decision and policymaking processes. A failure to include low-income populations and informal economies is one obstacle to representative data sets that aim at reflecting the needs of the city as a whole.

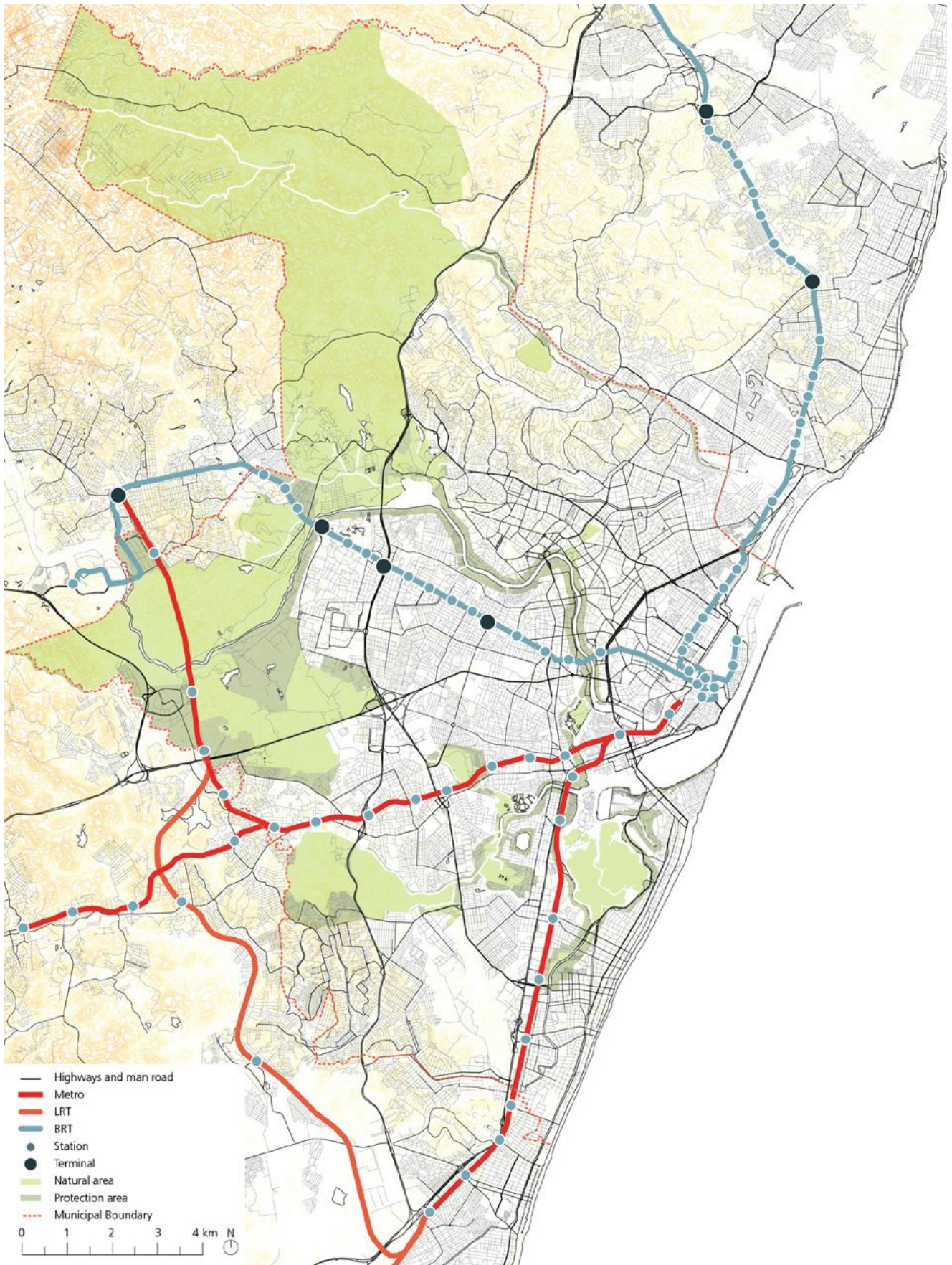


Fig. 8. Recife's Main Transport Corridor and Natural Areas © UN-HABITAT (2018) Recife City Context Report

3

Systemic Barriers and Enablers for Urban Transformation

Addressing siloed structures and promoting integrated planning

is needed for holistic policies and decision-making

This chapter of the report draws on the experiences throughout the 19 Global Future Cities on the main structural barriers to addressing the challenges of sustainable urbanization. The GFCP interventions are designed to address the barriers and promote the enablers that will allow emerging cities the chance to prosper. Specifically, regulation and public spending are needed to balance negative and positive externalities and plan better for urban planning, transport, resilience and data management. Ultimately, as the International Growth Centre argues, “If emerging economies are going to provide economic transformation, then they will need to become adequately planned, better connected and more resilient.”⁴⁹

Realistic and Implementable Strategic and Urban Plans

ENHANCING IMPLEMENTATION

Emerging cities often have difficulties in designing master plans and citywide strategies that respond to the need for sustainable growth and urban development, which can address the challenges of unplanned growth and socio-spatial inequality outlined in chapter two.

Such high-level, forward-looking visions and strategies are necessary to guide urbanization by designating appropriate land use for future growth, supporting economic development and job creation, and aligning them to infrastructure investment needs.

A functioning urban plan or strategy can build confidence among citizens and attract investors by providing long-term certainty of how the city will expand and which land uses will prevail in certain areas. Long-term, proactive planning for city extensions and infrastructure provision can reduce the need to retrofit infrastructure after urbanization has taken place, which is usually more costly and difficult to implement. Plans should therefore account for future population growth as well as plan for the urban periphery and infill densification from the outset in order to avoid leapfrog development.

Most of the GFCP cities already have some form of master plan or strategy. Under South African law, **Cape Town**, **Durban** and **Johannesburg** all have prepared integrated development plans aligned with the national plan. **Istanbul's** development is guided by Turkey's 2023 master plan and **Bursa** has a transport master plan. **Belo Horizonte** and **Recife** both have master plans as required under Brazilian law. **Iskandar** is guided by a comprehensive development plan. As a UNESCO World Heritage Site, **Melaka** has a conservation management

Data and smart technologies
need to consider vulnerable groups and informality to
achieve **digital inclusion**

Strategic investment planning
and **revenue generation**
can contribute to **long-term
financial sustainability**

Alignment
of projects to
strategic plans
can increase the
**transformative
impact**
of investments

plan for the historic city. **Bangkok, Ho Chi Minh City** and **Lagos** all have comprehensive or master plans. The Japan International Cooperation Agency has prepared and updated a 2040 master plan for greater **Yangon**, however the plan has not yet been approved.

Master plans and urban strategies have no value if they sit on a shelf. Implementation relies on the development of realistic plans that can be enforceable by law and economically affordable for cities. Even when plans and strategies exist they are not always enforced or implemented thereby not influencing actual city policy. The best plans and strategies need to be based on realistic data about present and predicted population, economic and spatial conditions and be coherent with the existing capacity and city's vision. Plans and planned infrastructure investments need to be aligned with the municipal budget capacity and should consider the income levels of the population.

Urban plans need to be aligned with other planning instruments such as building codes and land use plans. Proposed changes in land use need to consider existing uses of land in order for plans to be realistic and implementable. Often land use plans and building codes are outdated or do not reflect the existing use of land, thus becoming unenforceable. In order to make sure that plans respond to changing urban development

needs, plans need to be continuously reviewed and updated making sure that they are "living documents". Reviewing a plan does not mean that a completely new plan is generated, but rather updated to recent changes, needs and political agendas. Providing municipalities with the adequate legal mandate for land use planning and regulations, as well as increasing the costs of delinquency can help to enhance enforcement. Other initiatives to enhance enforcement can include reducing the complexity of bureaucracy and land use regulations as well as increasing the municipal government's capacity.

UN-Habitat's Five Principles of Sustainable Neighbourhood Planning

- Adequate space for streets and an efficient street network
- High density
- Mixed land-use
- Social mix
- Limited land-use specialisation

For more information, refer to "A New Strategy of Sustainable Neighborhood Planning: Five principles - Urban Planning Discussion Note 3"

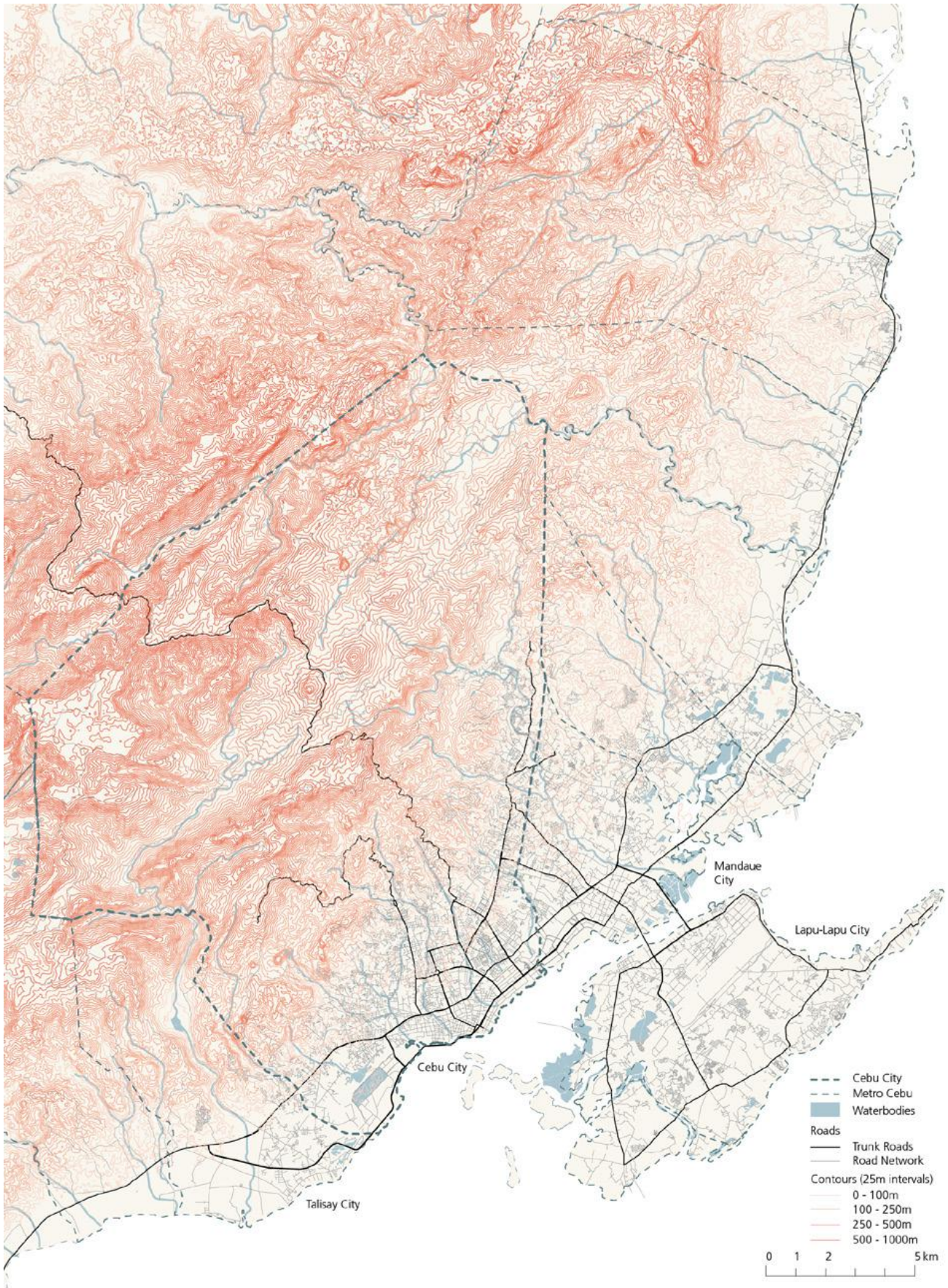


Fig. 9. Urban Footprint and Road Network in Cebu Metropolitan Area © UN-HABITAT (2018) Cebu City Context Report

Cebu, Philippines

In Cebu, the GFCP will support the development of the first-ever city strategy, which will provide a vision for the city to plan effectively for population and economic growth, connectivity, affordable housing and public space. Rapid urban expansion shaped in part by topographic and land hazard constraints has made the city grow beyond its boundaries into other municipalities. The strategy will provide a vision to address the urgent issue of flooding, avoiding urban development in flood risk areas and addressing coastal reclamation. In order to make the city strategy implementable, the intervention proposes to include an implementation plan including the identification of catalytic projects that should be feasible and specifically linked to infrastructure investments. While the current land use plan in Cebu is outdated and faces a lack of enforcement, the city strategy includes updating the Land Use Plan for Cebu, that should align with the strategic vision providing an adequate mechanism for enhancing implementation.

PROMOTING INCLUSIVE CITIES AND NEIGHBOURHOODS

When developing strategies and urban plans it is important to avoid highly specialized urban areas with a singular land use as that trend has been the cause of contemporary urban challenges like congestion, segregation and car dependency. The purpose of mixed land use is to create a vibrant and socially inclusive urban environment. It also contributes to creating local jobs, promoting the local economy, reducing car dependency, encouraging pedestrian and cyclist traffic, reducing landscape fragmentation and providing public services to communities.⁵⁰ This approach can also promote agglomeration economies, or the clustering of firms whose proximity proves mutually beneficial to productivity through the exchange of ideas and inputs.⁵¹ But current efforts do not adequately integrate infrastructure planning and planning for economic growth, as is the case in **Iskandar, Surabaya** and **Cebu**.

At a more granular level than master plans and urban strategies with big-picture visions for the future of a city's economy, effective planning can also ensure inclusive neighbourhoods within cities. More localized

neighbourhood plans should promote mixed-use developments that blend residential and commercial activity rather than isolated residential subdivision with separate commercial centres. At the same time, residential areas should not expose residents to environmental risks and hazards. According to UN-Habitat, the optimal land use distribution for an inclusive neighbourhood is 40-50 per cent economic, 30-50 per cent residential and 10 per cent for public services.⁵² In neighbourhoods that are attractive to real estate investors, inclusionary zoning should be implemented to ensure a stock of affordable housing. Inclusionary zoning is a regulatory tool that creates an enabling environment for the market-based provision of affordable housing, whereby developers are compelled to provide a minimum portion of affordable housing units in their developments. This policy ensures that lower-income workers can live in the neighbourhoods near their jobs instead of commuting long distances from the urban periphery.

ENSURING ADEQUATE PUBLIC SPACE

Public spaces are places that are allocated for public use, accessible and enjoyable by all for free and without profit motive. They include open spaces like parks and plazas, streets, public facilities and public markets. Public spaces and streets are multifunctional areas for social interaction, economic exchange and cultural expression for different groups and communities, including the most vulnerable, such as women, children and the disabled. It is incumbent upon municipal governments to allocate and maintain public space rather than allowing urban land to be turned to more privately profitable purposes such as real estate development.

Emerging cities often lack a citywide public space strategy, which is necessary to ensure a balanced network that enhances inclusivity and accessibility. An adequate strategy can correct imbalances in supply, distribution and quality using quantitative measurements such as ratios, per capita distribution and average distance that analyses urban public space.

Not all public space is created equal. A vast, concrete pedestrian-only plaza with no visitors provides far less benefit than a small but lush park along a busy street that is beloved by neighbours. Vibrant public space requires street life, shops, commercial activities, walkable streets, density and diversity in its use and activities. To ensure vibrancy, regulations should consequently be embedded in master plans, such as urban design standards or building codes that ensure ground-floor facades appealing to pedestrians and good lighting at night for safety. Inclusive and accessible spaces need to promote different uses and make space accessible to all city residents including people of different socioeconomic

Ankara, Turkey

The GFCP will intervene in Ankara to overcome these barriers and improve the streets and open public space of the neighbourhoods in Cankaya. The intervention aims to change the streetscape in order to improve highly neglected pedestrian circulation needs and a lack of social interaction in public spaces. This intervention will include the development of living streets, designed primarily for the interests of pedestrians and cyclist. The intervention aims thereby at increasing safety in public spaces especially for children, woman, the elderly and people with disabilities. Participatory approaches will be introduced in order to adapt the design of the streets for people's uses making public spaces livelier and more inclusive for all. Additionally, mechanisms will be introduced to upscale the approach to street and public space design at the municipal level. This scaling up effort includes training and capacity-building strategies as well as the development of guidelines and standards for healthy streets.

backgrounds, women, people with disabilities, elderly, youth and indigenous communities. If a public space succeeds in attracting such a variety of users, it will be more likely to create a sense of community ownership and to promote local economies, which can ensure long term management and maintenance.

Public space is a cross-cutting issue that can enable better outcomes in the interventions of the GFCP. It can improve a city's resilience by providing the right ecosystem of services. As a gathering place, public space enables stronger social bonds between neighbours and can prove essential as meeting and distribution points after natural disasters. Green areas can provide tremendous environmental benefits, including the restoration of ecological systems, enhancement of biodiversity, provision of water retention areas for flood protection, reduction of urban heat island effect and buffers against storm surge and coastal erosion.

Public space in the form of streets is essential to a functioning mobility network by providing right of way for buses, streetcars and light rail systems. Cycle lanes, sidewalks and walking paths are also key forms of public space that promote active mobility and make first/last-mile connections with public transport.

UN-Habitat's 10 Policy Tools for Successful Public Spaces

- Conduct a city-wide public space survey
- Measure the quality of existing public space
- Secure political commitment to public space
- Promulgate legal mechanisms to strengthen and support public space
- Anchor public space in national urban policies
- Upgrade slums with a street-led approach
- Plan public space as a system
- Use public space to lead development strategies
- Encourage participation
- Leverage public space as resource multipliers



Fig. 10. City view of Ankara © UN-HABITAT Klas Groth

Effective and Impact-Oriented Planning

OVERCOMING SILOED STRUCTURES

Strong and coordinated governance structures are essential in order to improve transport, resilience, urban planning and data management in a city. One of the common barriers identified in the GFCP cities is the need to break down the so-called “silo” mentality in government, in which different departments do not cooperate with one another and instead operate solely in their own silos. Integrated planning is only effective with cross-sectoral management. For example, a public works department should collaborate with a parks department when repaving a street that has the potential to accommodate green open space. Likewise, siloed structures and mentalities can be a barrier to proper coordination and data sharing for implementable policies, regulation and planning.

Bangkok, Thailand

The intervention in Bangkok, which aims to reduce flooding through a proposed Decision Support System for Flood Control, has that transformative potential if the Department of Drainage and Sewage can collaborate more effectively with other city departments. Currently, the drainage capacity of the city is not sufficient to retain water in cases of heavy rainfall, making it necessary to allocate retention areas. However, urban development including the construction of transport, infrastructure and residential buildings, is not adequately guided by flood risk adaptation and mitigation measures, which leads to a difficulty in demarcating retention areas. The intervention will result in a flood hazard map, improved rainfall forecasting, an urban water retention model and disaster preparedness strategy. It will engage stakeholders from different departments and will strengthen cooperation between municipal and national level.

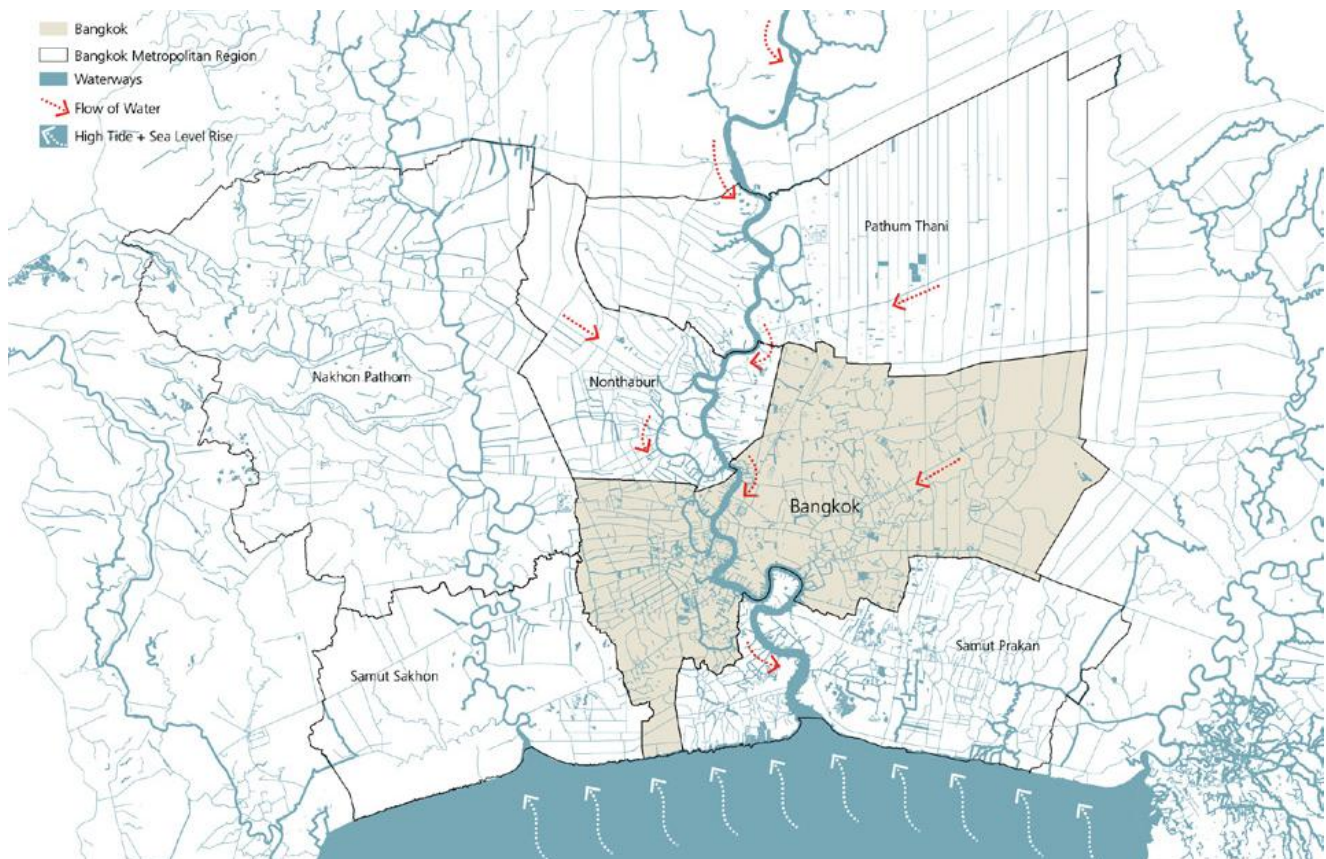


Fig. 11. A Regional Analysis of Flood Risk in Bangkok © UN-HABITAT(2018) Bangkok City Context Report

The lack of integration between urban planning, basic services and transport often has negative environmental consequences for Global Future Cities. When these sectors are not aligned, infrastructure ends up not fit for purpose and more vulnerable to shocks and stresses. For example, it can be harder to secure retention areas for flood mitigation, avoid urban development in hazardous areas and enforce seismic standards in building regulations. Unintegrated municipal governance leads to another barrier for urban resilience in the lack of predictive data to plan proactively and avoid crises. In the case of urban flooding, a sewage and drainage department may have vital data that could help emergency response teams know where to prepare for future floods.

PROMOTING INTEGRATED MOBILITY PLANNING

Congestion, inadequate public transport and poor accessibility are often the result of a lack of effective mobility planning. Integration is key to effective mobility planning; it can reduce the number and length of trips while making those trips as sustainable as possible. In an ideal scenario, residents will be able to take affordable public transport for longer journeys, for example to their job or for private commitments across town. An extended network of public space that provides options for non-motorized transport can facilitate the use of other forms of active transport for daily needs like food shopping, primary and secondary schooling, basic health care and recreation. With integrated mobility, the private car does not serve as the primary way to move around the city and sustainable travel choices are available to all regardless of age, gender, socio-economic characteristics or disability. Integration can be institutional in the form of coordinated management of different transport modes, operational in the form of soft infrastructure integration such as coordinated ticketing systems, fares and consumer information. It can also be physical in the form of hard infrastructure such as transport terminals for different modes of transport. Modal integration – or the coordination of transport infrastructure, services, facilities and spatial configuration to enable seamless links between at least two different transport modes – is an essential prerequisite for enabling multimodal trips, and also by implication for urban accessibility.

One concrete form of coordinated integration is transit-oriented development (TOD), or high-density development corridors zoned around transit nodes with a mix of housing, commerce and employment, sometimes boosted by anchor infrastructure from government. The GFCP promotes such developments in cities including **Bangkok** and **Durban**. In Bangkok, the intervention will seek to enable the city to overcome

entrenched barriers to integrated mobility planning. A TOD plan for the city's Khlong Bang Luang district will promote urban development that integrates the newly constructed mass transit station with local economic development, while implementing safeguards to prevent displacement.

Another method to promote effective and integrated mobility is to promote intermodal transport or complementary modes of transport depending on their suitability to particular areas. In a coastal city or one with many rivers, road networks may be at capacity and capital-intensive grade-separated rail is not an option for financial reasons, but waterways provide a possible alternative. Such is the case in **Lagos**, where the GFCP will support a water transport feasibility study and pilot to test the viability of a new intermodal ferry system incorporating both formal and informal boat operators.

EMBEDDING PROJECTS WITHIN HOLISTIC AND PARTICIPATORY APPROACHES

Sustainable urbanization cannot result from public sector action alone. Dictates from city hall will backfire without meaningful community engagement and private sector participation. Emerging cities may face historic, cultural, political, capacity, resource or other barriers to such collaborative governance, but enabling effective outreach beyond local government offices is essential to creating inclusive urban environments.

Participatory planning that involves everyday citizens, private sector, NGOs and/or academia in municipal visioning and decision-making can ensure that plans address the needs and priorities of all. Such outreach can be a helpful reminder that cities are a two-way street between government and the governed. When citizens are engaged in meaningful consultation, it generates support for the implementation and enforcement of plans and projects. In turn, no city will build out infrastructure and develop urban land without investment from the private sector. In most cities, certain corporations are long-time public sector procurement partners, transferring know-how to counterparts or simply supplying essentials needed for disaster response. Engaging the private sector offers the opportunity to tap into additional know-how and expertise, but cities need the capacity to operate as savvy clients that can ensure certain safeguards are in place to protect public funds.

Participation can also help foster positive behavioural change. No matter how well a city is planned, operated and managed, aspects such as travel remain a question of personal behaviour and habit. Unless mobility options are safe, affordable, accessible and attractive to all,

cities will not see any change in travel and transport patterns. Other integrated mobility policies thus focus on incentivising sustainable modes of transport, for example through subsidised fares for low-income residents. Such incentives can also be coupled with disincentives or restrictions on private vehicles through congestion charges, quantity restrictions on vehicle permits or road space rationing. Such policies encourage private car owners to try collective transport and lessen congestion so that public transport in mixed traffic lanes can move more quickly.

Finally, cities should recognise that residents are likely to use many modes of transport in the same week and even the same day. A cyclist in the morning is a transport rider in the afternoon and a car driver at night. Cities can support a robust mobility network that accommodates all such needs, like Iskandar's proposed Smart Integrated Mobility Management System, that among other features has the potential to manage road traffic as well as sync with public transport apps so that the same resident can seamlessly pay a highway toll when driving and check when the next bus arrives when riding transport.

Participation can also create a sense of ownership in public spaces leading to more responsible use and volunteer maintenance. Awareness campaigns designed with citizen input can encourage use of public transport. Incentives and disincentives in which citizens participate, such as competitions with prizes to reduce household water consumption or drive more safely, can also lead to real-world impacts.

ADVANCING METROPOLITAN GOVERNANCE

Uncoordinated municipal governance becomes an even bigger barrier in cities where the urban agglomeration has expanded beyond the central city's municipal boundaries and into neighbouring municipalities. In such scenarios, which are increasingly common in the world's larger cities, metropolitan governance structures are a key enabler. These metropolitan structures can be created either through a bottom up process driven by local authorities or a top-down process guided by external support. Cebu is a prime example of the need for a metropolitan governance structure, the lack of which may hamper implementation of the city strategy because key issues are not confined just to Cebu's city limits.

Both transport and resilience are issues that often cross municipal boundaries. Municipal coordination is also key to plan for housing distribution, the location of economic activities and urban growth and expansion

strategies. Transport needs correspond to the entire economic geography of an urban agglomeration, namely, all of the places where workers live and work contiguous with a central city. If transport is not coordinated at the metropolitan level, individual efforts may be inefficient due to additional demand and traffic congestion arising from neighbouring municipalities. In terms of resilience, shocks such as urban floods and storm events, and stresses like sea level rise by their very nature simultaneously affect several jurisdictions as they respond to physical geography rather than political boundaries. Neighbouring local governments need to coordinate with other neighbouring municipalities or/and at the regional level. For example, if a town makes significant investments in improving solid waste management in neighbourhoods adjacent to waterways, the metropolitan region's resilience to flooding would not improve until upstream and downstream localities do the same.

However, due to barriers like inconsistent budgetary systems and political discrepancies, such coordination is difficult to accomplish. Local leaders often fail to cooperate because their mandates are confined to their jurisdictions and the payoffs are unclear. Institutions in a higher level of government that enforce cooperation may be helpful to address this barrier. For example, the creation of a municipal council led by the mayor of urban hubs and supported by provincial or national authorities could help alleviate this problem.

Enabling Frameworks to Address Informality

LAND TENURE, RESETTLEMENT AND UPGRADING

In order to prevent the development of informal settlements, strategies need to take place to offer adequate housing options to low-income citizens. A simultaneous twin-track approach with curative (slum upgrading) and preventive (new housing provision) should be promoted. Inclusionary zoning and the provision of affordable and social housing are key policy measures that need to be adopted. Other measures can include supporting the affordability of housing by incentivising banks to provide credit or subsidised mortgage loans to low-income households. Local governments can also use demand controls to regulate the housing market prices by preventing price hikes due to increased foreign investment and speculation.

Access to land remains one of the most pervasive binding constraints to realizing the right to adequate housing.

Location and affordability are perhaps the attributes of housing most vulnerable to land markets. Policymakers often neglect the importance of land as a major input of housing delivery systems and by doing so lose control over the production of urban space. Important aspects determining the affordability of housing, security of tenure and upgrading of slums are intrinsically related and rely on the improvement of land delivery systems.

One of the most common problems related to land delivery systems is the reproduction of mass residential schemes, which are built far away from the urban core where land is cheaper and more readily available.⁵³ This approach has adverse impacts on livelihoods for those consigned to such distant locations and created costly, fragmented and unsustainable urban growth patterns.

Property rights and security of tenure also have a profound impact on the housing sector as whole. The less protected and documented these rights are, the more housing becomes scarce, costly and inaccessible, triggering a buoyant informal land and housing market and propelling slum formation and informal settlements. Lack of land tenure can be further a main barrier to implement plans, strategies and infrastructure projects. Without security of tenure, occupants exist on the margins of society and lack access to the legal and financial benefits of ownership. In order to plan effectively for city development, governments can undertake land tenure regularisation to establish land and property rights for informal landowners.

Policies with regards to Informal settlements may require the relocation of communities to other parts of the city in order to align with resilient land use and strategic planning. A significant barrier for adequate resettlement is the absence of standards and regulations to ensure the rights of these communities are upheld. Resettlement that may be necessary in areas unsafe for habitation or needed for vital urban infrastructure should be accompanied by adequate compensation. This includes compensating land users for the market value of land as well as an amount to cover the loss of social networks and disruption of livelihood due to relocation. Moreover, relocation areas need to be connected to avoid socio-economic exclusion.

Regulations also affect the land supply for housing. Constraints in regulatory environment such as restrictions on multifamily housing, internal subdivision or the addition of new units or new floors increase transaction and building costs. In many countries, women are also disproportionately affected as they lack joint land titles and inheritance rights. This situation contributes to gender inequalities and power imbalances, leaving women with little independence or financial means.

INTEGRATING FORMAL AND INFORMAL TRANSPORT

Yellow *danfos* navigate the hectic traffic of Nigeria's economic hub. The small minibuses contribute to the fast-paced life for Lagosians. In many emerging cities, small low-capacity vehicles and different types of semi-formal or informal transport play an integral role in mobility network. However, due to a lack of regulation and enforcement as well as the profit-motivated competition between operators, such transport risks to be poorly maintained, less safe and overcrowded. In cities with significant traffic congestion, low-capacity and informal transport also does not reduce congestion as much as high-capacity vehicles would. As emerging cities transition to formal transport options, complementing formal transport by integrating informal transport, will be a crucial component for solving the mobility challenges of emerging economies.⁵⁴

Intermodal mobility that integrates not just different modes but also formal and informal transport requires careful coordination. In **Bandung**, the GFCP intervention will explore complementarities to exploit the unique advantages of the formal and informal sectors, such as leveraging informal transport to serve as feeders to trunk lines of formal high-capacity transport. In **Lagos**, formal employment opportunities were created during the deployment of its BRT line in 2008, which built trust and support from the powerful transport workers union, laying a foundation for the success of the water transport intervention during the GFCP. Such efforts benefitted from an underlying sector transition strategy that ensured strong participation by the affected paratransit operators during its formulation. Other options to integrate formal and informal transport operations include regulations to improve quality and safety, and credit and training to collectives and operators.

Lagos, Nigeria

Lagos will build on its successful legacy of integrating formal and informal transport with the GFCP intervention to develop a unified, formal water transport system. Inland waterways are a significant feature of Lagos' geography, but thus far they have largely been perceived as a barrier rather than an opportunity. Yet for certain journeys, such as from Lagos Island to the northern part of the city, a ferry takes 40 minutes while a bus takes two hours. A mix of informal and informal boats currently operate routes and the number of passengers increased fourfold from 2012 to 2015. However, informal operators are struggling due to high fuel prices and a limited schedule of travel times. With public investment to construct jetties at key points alongshore, waterways could become a key mobility solution to enable Lagos' future prosperity.

Inclusive Use of Data and Smart Technologies

DATA FOR PLANNING

Data has become the currency of the 21st century city. The potential benefits of robust data systems include increased efficiency of urban operations and services; better integrated urban management; increased local capacity for evaluation and monitoring of plans and strategies; increased capacity to prioritise strategies based on demographic, economic, cultural, environmental and other holistic evidence and projections; increased citizen participation in planning; enhanced monitoring of environmental risks; and increased capability for forecasting. Cities can also leverage data systems and civic technologies in the service of civic participation. For example, online apps and tools can facilitate two-way conversation between citizens and municipal government.

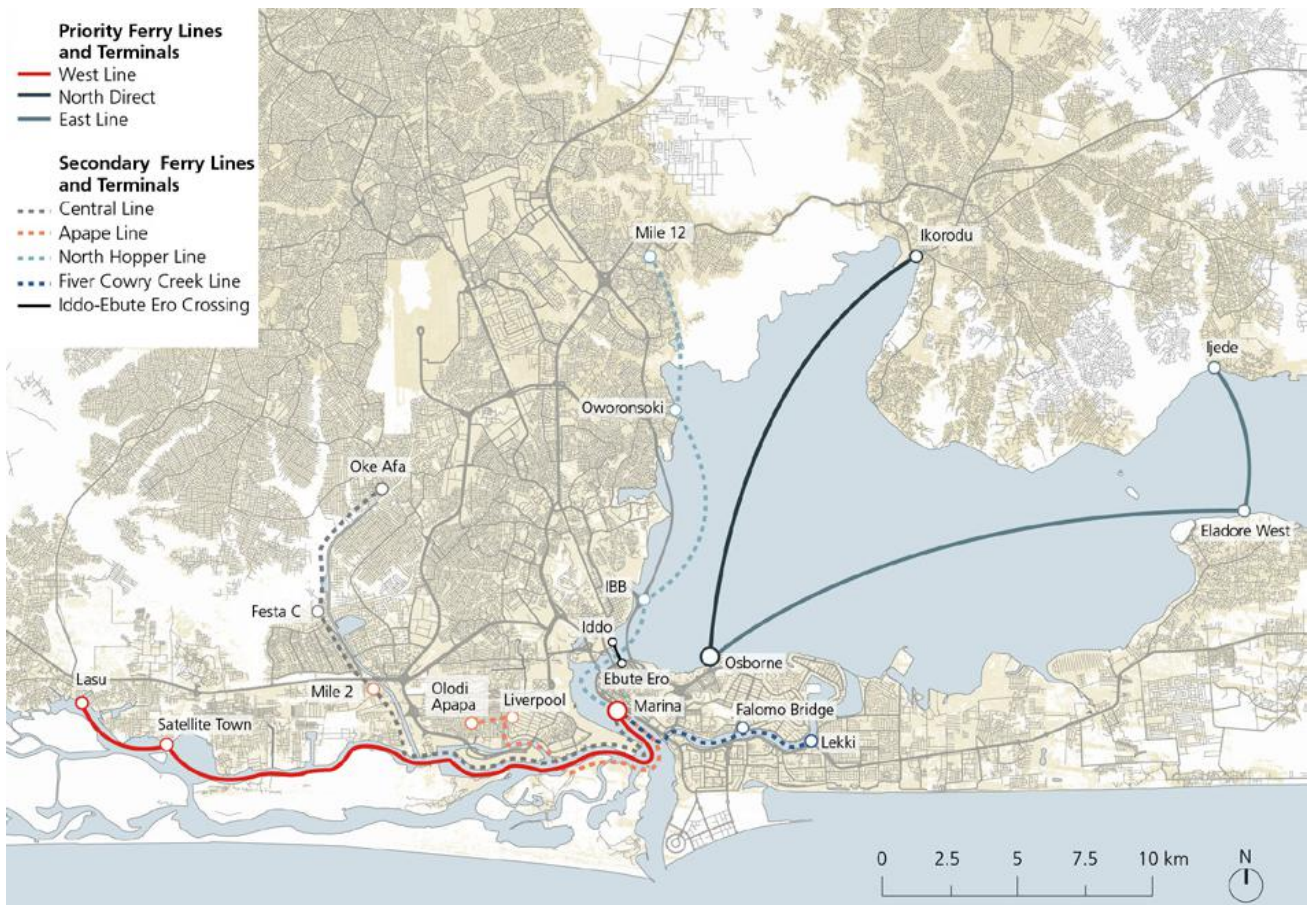


Fig. 12. Water Transport Network in Lagos © UN-HABITAT (2018) Lagos City Context Report

However, there are several barriers to the full realisation of these benefits. Cities frequently lack well-resourced data availability robust municipal databases and experience with Geographic Information Systems (GIS) that would allow them to analyse trends spatially. Without training and data literacy, rank and file staff cannot process big data even if they can access it. In turn, a lack of open or shared data policies hinders data access in the first place. The push for open or shared government data comes from the belief that data access can allow users outside government to improve city life, for example with the development of civic apps. While data sharing and effective use of data for planning purposes is still a novelty, many emerging cities recognise its importance. Finally, a significant amount of data collected by governments and multilateral institutions is done so at the national level and not disaggregated to the city level. Without disaggregated data, key statistical indicators are meaningless to local governments who cannot assume that a national average applies to their city. For example, UN-Habitat research shows that while Brazil's overall inequality decreased from 1990-2010, results varied widely between individual cities.⁵⁵

In order for interventions like Iskandar's to succeed, several governance and legal frameworks must be in place to standardise data and ensure quality. In particular, cities must practice effective custodianship of data to ensure privacy, cybersecurity, appropriate storage and disposal. A lack of privacy laws can prove a barrier for municipal data collection, but strong privacy policies can overcome those barriers and enable data sharing.

Once data collection systems are in place, cities must build and formalise practices to integrate data analysis into decision-making processes. Effective uses of data include real-time data for day-to-day operation of services as well as data for long term planning, such as predicting demand for services. Data can inform service provision and operation on the supply side and improve customer experience on the demand side. It is important to adapt data systems and their use to the planning context, which will be a valuable lesson for **Bangkok**, **Cape Town** and **Cebu**. This includes previously establishing planning needs and identifying associated data requirements. In addition, data tools and mechanisms for evaluating the impact of policies and plans are essential for improving decision-making and city planning at the local level.

Iskandar, Malaysia

One city taking the data-driven approach to sustainable urbanization seriously is Iskandar, which anticipates a flurry of development in the coming years. The Iskandar Malaysia Urban Observatory exists to coordinate and analyse data from social indices to environmental quality. With support from the GFCP, Iskandar will prepare an implementation strategy for its Smart Integrated Mobility Management System. A secondary intervention will create an enabling environment for data utilisation and management for evidence-based urban and transport planning by designing a framework and building the necessary capacity to enable the integrated use of data throughout the Iskandar Regional Development Authority.



Fig. 13. Night markets in Johor Bahru, Iskandar © UN-HABITAT (2018) Charlotte Mohn

DATA FOR MOBILITY

In the transport sector, the application of data analytics will allow cities to assess, predict and plan from a long-term perspective. Big data will allow transport planners to monitor existing conditions, forecast future population growth and predict travel patterns. Traffic impact assessments will allow cities to understand how an investment or development will affect the overall mobility network and surrounding communities through transport modelling. Most importantly, cities benefit greatly from origin-destination data that can be drawn from user surveys, mobile phone tracking or private mobility companies. Such data supports cost-benefit analysis for the prioritisation of investments along certain routes and in certain modes of transport, leading to improved mobility that can lead to higher productivity, social inclusion through equitable access to jobs and a more diverse society as a result of intensified trade. Leveraging data analytics for transport planning requires specific skills and knowledge that might be limited among the transport practitioners in the local context.

DIGITAL INCLUSION

Awareness-raising campaigns and advocacy to trigger behavioural changes, as well as public participation in decision-making through public consultations, planning charrettes and referendums are traditional forms of citizen-oriented and participatory planning. With the growing potential of data to change how cities are planned and operated, participation and representativeness in planning processes can and in fact has to take a new spin entirely - cities should develop a strategy for digital inclusion.

For data and smart technologies to add their full value to sustainable urbanization, data needs to be representative of vulnerable groups and involve bottom-up participation. **Cape Town's** efforts to sharpen data collection for the improvement of informal settlements will rely on such methods. Traditional data collection in the formal city overlooks the residents of the informal city leading to efforts like the Know Your Slum census prepared by NGO Slum/Shack Dwellers International.⁵⁶ Data and digital tools can allow cities to leapfrog certain technological stages and make large efficiency gains; however, there is also a risk of a digital divide leading to inequalities as many individuals may lack digital skills, computer access and network connections. Regulation is needed to ensure that data and smart technologies, whether in the hands of the public, private or third sector, are used to bridge rather than widen divides in cities and societies.

Strategic and sustainable infrastructure financing

MUNICIPAL FINANCE CAPACITY

Municipal finance is the lynchpin for sustainable urbanization. Without the ability to raise revenue and pay for needed infrastructure and public services, cities will never achieve prosperity. But many institutional and political barriers persist in the deployment of financing for sustainable urban development.

One barrier that cities can face is technical capacity, as emerging cities often lack the necessary expertise to expand and work on finance. For example, to design a public-private partnership, manage and record local assets, or implement land value finance arrangements, integrated expertise comprising economists, planners and lawyers is a prerequisite. Smaller municipalities may find it expensive to cover those technical resources.

Another barrier is insufficient budgetary control and fiscal autonomy at the local level, which often correlates to the size and political clout of the city. In the case of the GFCP, smaller cities are more dependent on higher levels of government than larger cities, even within the same country. For example, **Bursa** receives over half of his budget from the national government, while **Istanbul** has a mature, diversified revenue stream. Within a given metropolitan area, the larger central city typically has more fiscal autonomy than smaller surrounding cities. **Cebu**, for example, can raise revenue through property taxes while its neighbours cannot. Some cities remain in a struggle with their national counterparts, such as **Ho Chi Minh City**, which has earned significant independence to raise money, but must turn most of that over to the national treasury. South Africa, by contrast, has devolved fiscal power to its cities and **Cape Town, Durban** and **Johannesburg** all have significant own-source revenues.

This transfer of authority, also called devolution, can enable cities to leverage co-financing that is required for large investments. While such a shift would not negate the need for central government fundraising, cities could be enabled effectively raise own source revenues and directly access international funding streams. Instead many cities in emerging economies depends in more than 70 per cent from national transfers for financing infrastructure investments. If legal authority to raise own-source revenues is established, cities can pursue cross-subsidisation, such as designating revenues from private vehicle permits or congestion charges for

investments in public transport. This policy effectively allows drivers of private cars, which have negative externalities, to contribute to public transport riders, who create positive externalities.

Emerging economies also suffer from a lack of application of land-based finance mechanisms, which is difficult to implement if cities do not have the adequate enabling conditions to apply them. These conditions include proper rules and regulations, a mandate from the national government, adequate fiscal autonomy to raise taxes and an efficient system for land administration. Land value capture is one of the most powerful mechanisms with several success stories in Japan, South Korea, Hong Kong and recently China.⁵⁷ However, it has been little applied in emerging countries outside of a notable application in São Paulo.⁵⁸ When implemented ahead of major infrastructure, land value capture ensures that the public sector captures the value created by its investments in the public realm, such as the increased property values that accompany a new transport line. However, in such scenarios, cities should have mechanisms in place to avoid gentrification or the pricing out of lower-income groups due to increased land value.

Infrastructure in developing countries is often financed through repayable loans as opposed to non-repayable grants and has become a major source of national government debt. Thus, project cost recovery is essential to avoid incurring more debt. More engagement of multilateral and bilateral funding directly with cities can provide effective avenues for potential funding. However, there is a systemic barrier in needed reform of this system.

International markets are increasingly vital sources of municipal finance. Cities in the developed world regularly float bonds to pay for infrastructure, but emerging cities lack the capacity to develop bankable projects, have difficulties identifying funding sources and are not creditworthy. Although not a direct financing mechanism, leveraging international support for project preparation and financing can be critical in environments where there is lower capacity or a lack of creditworthiness. In that case, cities can pool a number of projects together to form a collective group of assets that can be underwritten by issuing a bond. However, this mechanism is not available to all cities as only 5 per cent of the largest 500 emerging cities are creditworthy.⁵⁹

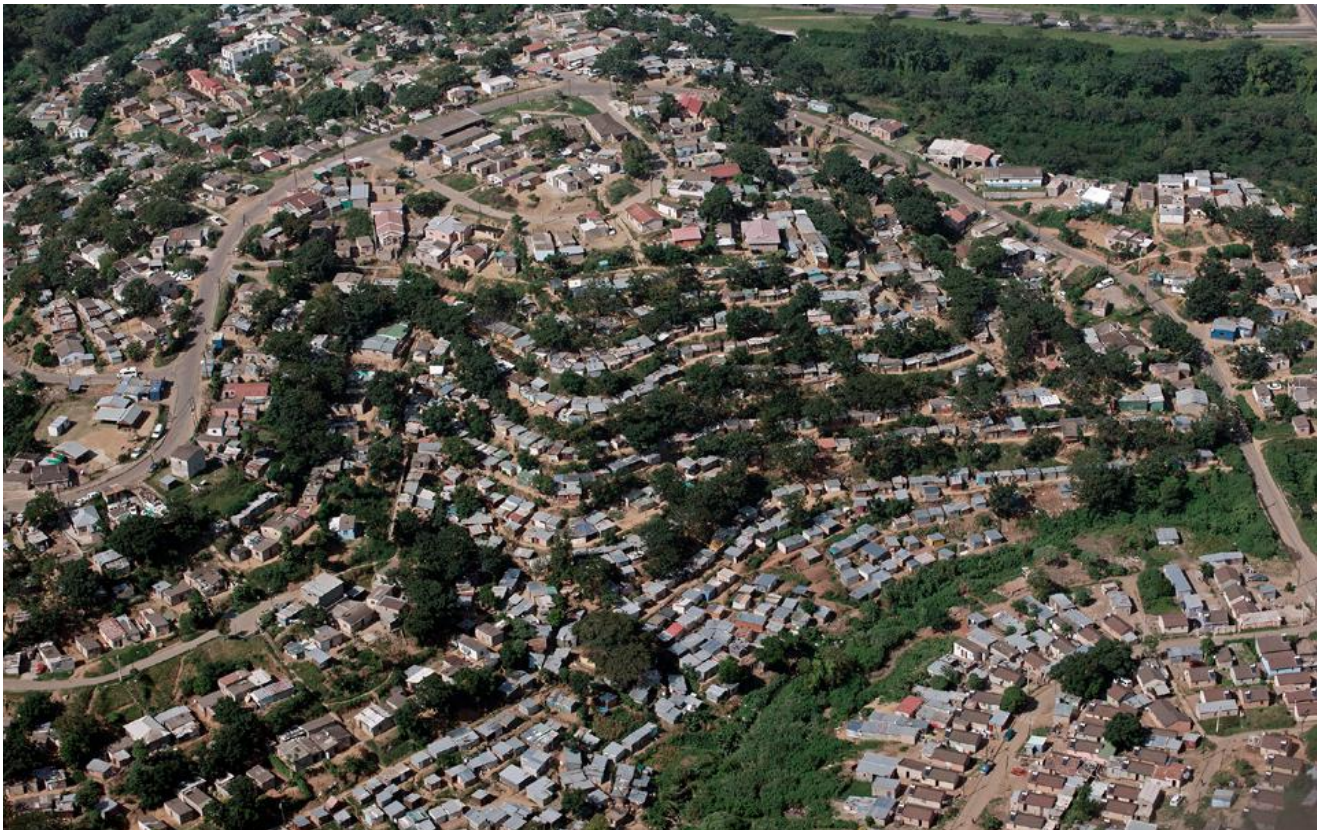


Fig. 14. Durban Townscapes © eThekweni Municipality

LINKING INFRASTRUCTURE INVESTMENTS TO STRATEGIES AND PLANS

Lack of strategic planning leads to insufficient coordination between project investments. Often project investments happen in an uncoordinated way and does not follow any strategic vision. This hinders the application of transformative policies and risks inefficiencies thereby undermining the potential impact of investments. Redirecting and strategically aligning funds can contribute to more efficient infrastructure investment and policy making.

One major barrier is the lack of investment planning in the long-term maintenance of services. This can lead to depreciating assets as well as higher long-term costs and safety concerns when infrastructure falls into disrepair. Strategies, plans and projects need to include long-term finance strategies that identify revenue sources to finance both capital and long-term financing capital expenditures. **Durban**, for example, dedicates 83 per cent of its budget to operations and maintenance, leaving only 17 per cent for capital expenditures.

Participatory budgeting, in which citizens have a direct say in how some portion of public moneys are spent, is a globally popular form of civic participation for inclusive urban environments. Participatory budgeting was invented in Brazil and currently is applied in most of the country's cities. The most successful cases are the ones in both **Belo Horizonte** and **Recife**, though the practice is on the decline in that country.⁶⁰ The Philippines' Grassroots Participatory Budgeting programme won an open government award in 2014. While not yet present in **Iskandar** or **Melaka**, there is precedent in Malaysia, where Penang began participatory budgeting in 2014.

Abeokuta, Nigeria

Abeokuta will embark on a master planning exercise with the support of the GFCP and focus on infrastructure, public service provision and urban renewal. With a plan developed, Abeokuta can simultaneously position itself to make long-term investments by increasing its own-source revenues through tools like land value capture and setting up guidelines to improve its execution of public-private partnerships. In addition to the development of the plan, the service provider will prepare a financial strategy that will quantify the resources needed to implement the plan in the short, medium and long-run. A business plan will be provided that will outline financing and partnership options and will recommend suited procurement models for implementing the identified services and projects.



Fig. 15. Abeokuta House Demolitions © UN-HABITAT (2018) Francesco Tonnarelli

PUBLIC-PRIVATE ENGAGEMENT IN INFRASTRUCTURE FINANCING

Ultimately, the vast wealth of the private sector is a necessary source of municipal financing. But many barriers persist for private sector engagement, starting with minimal capacity to effectively engage due to a lack of guidelines and frameworks for joint ventures (JVs) and public-private partnerships (PPPs). JVs are less complex than PPPs but both partnerships have great potential for complex infrastructure projects where significant private sector-led risk management and innovation would be beneficial. The private sector can assume responsibility for bundling management, operation and maintenance for greater cost efficiency. Private sector concessionaires have also incentives to improve system maintenance and use their market capital to overcome short-term credit constraints.

Transport and mobility are traditionally sectors that are suitable to be financed through public-private partnerships. Increasingly, private sector companies are pioneering new forms of urban mobility backed with venture capital. Ride-sharing services are injecting new mobility options into cities without requiring major

public investments. Rather, cities must regulate such programmes and the private companies will absorb the capital costs. If well planned and executed, including agreements to share origin-destination data with cities so that they can benefit from this new mobility dataset, such partnerships can be win-wins for cities.

However, PPPs come with significant drawbacks as well. Chiefly, they require strong public oversight to work well because cost minimisation can trump quality and the public sector can be subject to renegotiation, disagreements and legal action. Ultimately, PPPs are not a cheap way of delivering infrastructure. Although the private partner leads to some initial lump-sum savings in investments, these savings do not substantially affect a government budget over time as projects must be paid by annual government payments arising from municipal budgets.

Effective public-private partnerships need some enabling conditions for success including the ability of the public sector to contract and effectively monitor and enforce quality, the establishment of clear and reasonable terms for renegotiation and of effective systems for sharing risk. Solid legal frameworks that assure the city's capacity



Fig. 16. Participatory charrette in Melaka, Malaysia © UN-HABITAT (2018)

to undergo clear legal process regarding procurement are necessary to mitigate risks of PPP engagement. In many cases around the world it has been proven that having an independent PPP unit that can review project selection and engagement terms through cost benefit analysis, affordability analysis and procurement options analysis can increase transparency and accountability in the procurement process and make PPPs more effective.

Finally, a potential source of finance are municipal development corporations (MDCs) or municipal development funds (MDFs). These financial institutions can provide loans at the subnational level and function as subnational development banks, providing funds from different sources to finance infrastructure projects. Good examples of these corporations are Findeter in Colombia and Banobras in Mexico. The different modalities of public funds in Indonesia, Thailand and Philippines are also exemplary. These options currently exist or are under consideration in all GFCP countries. If politicisation of the institution is avoided, these banks and funds can either provide guarantees or funds to cities through commercial banks, or direct funds to finance projects, such as in Philippines.

4

The Global Future Cities Programme: a Catalyst for Long-term Impact

Catalytic interventions

can support the achievement of the

SDGs

Emerging cities of the GFCP have a large potential to advance sustainable urban development and contribute to achieve the Sustainable Development Goals. Increasing business opportunities and economic development coupled with a significant share of global population growth position emerging economies to enhance sustainability and contribute to achieve the global 2030 agenda.

The SDGs are a global roadmap to sustainability with profound relevance to local-level action. Countries will not be able to deliver on their commitment to the SDGs without the cooperation of cities, which are home to a majority of the world's population and the locus of global economic activity. Consequently, since local action is the foundation of a successful SDG implementation strategy, the GFCP interventions are designed to serve as a catalyst to propel countries forward in their quest to implement the SDGs.

Currently, the 10 countries represented in the GFCP are not performing as well as they could. The 2018 SDG Index and Dashboards Report ranked all countries on their SDG performance, with the 10 GFCP countries in the middle or bottom third of nations: Malaysia (55), Brazil (56), Vietnam (57), Thailand (59), Turkey (79), Philippines (85), Indonesia (99), South Africa (107), Myanmar (113), Nigeria (150).⁶¹ While most of the

countries are doing better in some SDGs such as poverty reduction (SDG 1), there are considerable challenges in achieving most of the SDGs including governance (SDG 16), reducing inequalities (SDG 10) and good health and well being (SDG 3). The promotion of Sustainable Cities and Communities (SDG 11) is also far from being achieved with Myanmar and Nigeria experiencing especially significant challenges.

Considering the impact potential to reverse this trend through transformative intervention in the 19 emerging cities of the GFCP, each intervention has been calibrated to address certain SDG goals and targets, as well as key items within the Action Framework for the Implementation of the New Urban Agenda (AFINUA).

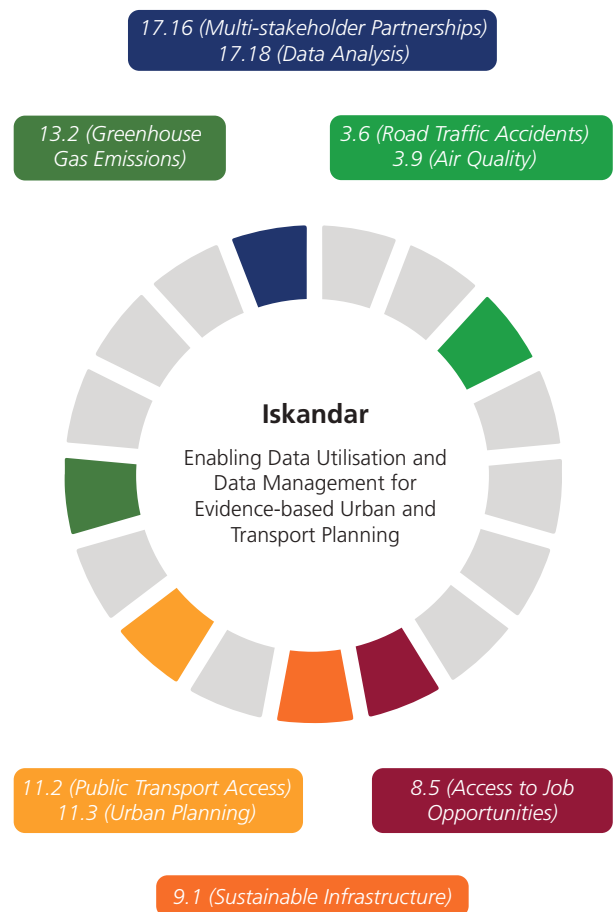
The transformative impact of interventions can be enhanced through appropriate

systemic settings

Raising awareness about the SDGs can empower cities to design and implement interventions that ensure desired impact

Iskandar, Malaysia

For example, Iskandar’s proposed interventions for smarter data management to enhance urban mobility has the potential to help Malaysia deliver on its commitment to SDG 3.6 (road traffic accidents), SDG 3.9 (air quality), SDG 8.3 (entrepreneurship), SDG 8.5 (access to job opportunities), SDG 9.1 (sustainable infrastructure), SDG 11.2 (public transport access), SDG 11.3 (urban planning), SDG 13.2 (greenhouse gas emissions), SDG 17.1 (domestic resource mobilisation), 17.16 (multi-stakeholder partnerships) and 17.18 (data analysis). The intervention also addresses AFINUA key items 3.1 (evidence-based, integrated and participatory planning), 3.4 (sustainable density and mixed-use development), 4.4 (inclusive local economic development), 4.5 (quality basic services) and 5.5 (land value capture).



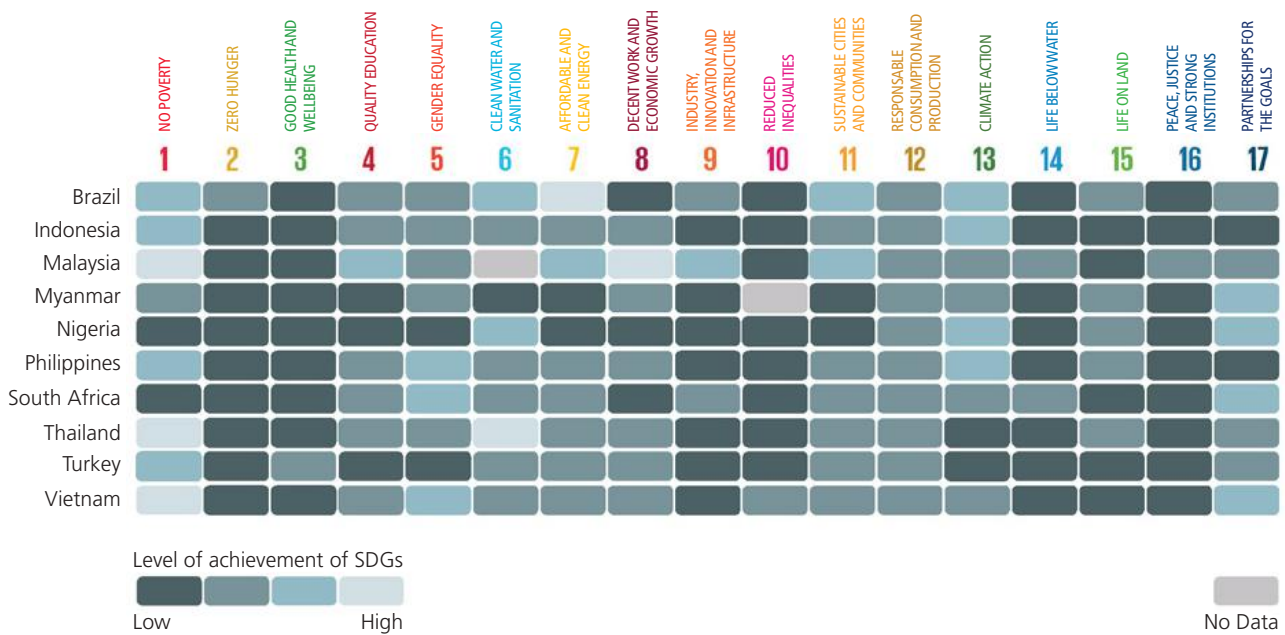


Fig. 17. 2018 SDG Dashboard Results of the GFCP Countries (Based on SDSN SDG Index and Dashboards, 2018)

Ultimately, the 30 interventions will directly contribute to the implementation of 13 of the 17 SDGs, with every intervention supporting SDG 11, which aims to “make cities and human settlements inclusive, safe, resilient and sustainable.” The interventions do not cover only SDGs 2 (food security), 4 (education), 12 (sustainable consumption and production) and 14 (life below water). This impressive scope, touching on nearly every aspect of the SDGs, highlights the integral role that cities play in SDG implementation.

Bandung, Indonesia

Many of the GFCP interventions also have the potential to serve as catalysts for policy transformations in the host city or as models to be replicated in other cities. Most of the interventions have transformative potential, proposing new approaches towards policy making and city management. Bandung, for example, will attempt to integrate the informal angkot transport providers into a formal transport system for the first time in the city's history. If successful, the intervention will transform urban mobility in one of Indonesia's largest cities, with possible repercussions in other cities across the country.

However, while the GFCP interventions have the potential to contribute to achieve many of the SDGs, interventions in isolation will not deliver this transformative change. Interventions in urban planning, mobility strategies, resilience building and data management, need to take several considerations into account in order to achieve sustainable urbanization.

Cities need to link projects to broader citywide planning goals as developed in strategic plans in order to maximize long-term local impact. In this regard, interventions and projects need to be embedded within holistic and integrated approaches in order to increase a project's SDG impact and touch on the widest possible number of SDG goals and targets. This includes wider policy transformations in urban planning, transport, resilience and data management that may require changes in different policy areas and levels of government.

At the initial planning and design phase, policymakers can identify which SDG goals and targets a project will support and use that commitment to help guide a project through financing, political support, public outreach and implementation. If a project is in service of a larger global goal like the SDGs, it has more chance of success and to contribute to the wider goals of promoting sustainability and inclusiveness. Cities must be capacitated to understand how the SDGs can be maximized through project design and implementation and what it means to pursue sustainable urban

development so that partners like the private sector and the general public also share that vision.

Cities must identify which policies need to be in place in order to embed projects in broader policy changes that are impact-oriented and contribute to achieving the SDGs in the long run. They also need to have a clear strategic vision for city development that aims at achieving the SDGs and facilitates strategic investments. This commitment should include linking policies and projects to strategic planning so that it contributes to the city's overall vision. In addition, evidence-based planning and participatory processes can support the development of more rigorous, but also inclusive, strategies and policymaking.

For projects to have a sustained impact in the long run, it is important to ensure the long-term sustainability of planning, mobility, resilience and data management projects so that they outlive short-term mayoral or city council mandates. In order to set the interventions up for long-term success, they must identify and address broader systemic issues, which include changes in their governance, planning frameworks, financial and legal structures. GFCP cities should adopt a project-cycle approach for the interventions from the early stages of project design in order to identify key barriers to the sustainability and viability of projects.

Long-term sustainability can be enhanced by addressing the systemic barriers facing emerging cities identified during the Strategic Development Phase of the GFCP. While strategies and urban plans are essential to guide urban development and investments, these must be realistic and implementable. Solid planning systems that are enforced and that align to the different levels of government are essential for the viability and sustainability of the interventions. Projects will never succeed in the long run if bottlenecks in the governance structure are not addressed. Breaking down siloed structures and promoting integrated planning are needed to plan for urban development, mobility, resilience and data management. Reliable municipal finance that encourages revenue generation and applies land-based finance can contribute to the long-term sustainability of projects. Strong legal rules to regulate the private sector and enforce strict accountability standards will lead to better results in public-private partnerships where the city serves as a client. Although using smart technologies for city planning is at the forefront of city management, its use for effective planning can only be safeguarded by promoting an adequate enabling environment for data governance.

Addressing these barriers can thereby contribute to better policy making in urban planning, mobility, resilience and data management. Firstly, strategic and urban planning interventions should lead to policy transformation through the institutionalisation of master plans and urban strategies. Making such tools a legally binding, regularly updated and an enforceable component of city management will have far-reaching consequences. With effective plans and strategies, cities can create quality public space, foster inclusive neighbourhoods and address urban informality. Public participation will ensure that planning reflects all city residents including the most vulnerable.

Secondly, integrated mobility should lead to policy transformation through the linkage of land use planning with transport needs in the form of transit-oriented development. Responding to the needs of travellers with increased frequency, streamlined fare payment, safe and reliable transport modes and integration of formal and informal transit will increase the use of sustainable transport options across the city. In turn, restrictions and fees on private vehicle use will disincentivise car travel while providing a long-term funding stream for public transport.

Thirdly, risk and resilience management should lead to policy transformation by encouraging metropolitan governance to address shocks and stresses that cross municipal boundaries. Fourthly, urban data systems should lead to policy transformation by necessitating internal IT and cybersecurity regulations and create the evidence-based justification for planning, mobility and resilience policies. Evidence-based approaches and mechanisms for impact assessments can help to design impactful interventions in the long run and, in a positive feedback loop, monitor local advancement of achievement toward the SDGs.

Bibliography

GLOBAL FUTURE CITIES PROGRAMME OUTPUTS

19 CITY CONTEXT REPORTS

Abeokuta City Context Report
 Ankara City Context Report
 Bandung City Context Report
 Bangkok City Context Report
 Belo Horizonte City Context Report
 Bursa City Context Report
 Cape Town City Context Report
 Cebu City Context Report
 Durban City Context Report
 Ho Chi Minh City City Context Report
 Iskandar City Context Report
 Istanbul City Context Report
 Johannesburg City Context Report
 Lagos City Context Report
 Melaka City Context Report
 New Clark City City Context Report
 Recife City Context Report
 Surabaya City Context Report
 Yangon City Context Report

30 TERMS OF REFERENCE

Development of Transport Policy and Capacity Building in Abeokuta, Nigeria
 Abeokuta Master Plan and Guidelines for Urban Renewal
 Bicycle Strategy, Master Plan and Pilot Implementation for Integrated Non-motorized Multimodal Transport in Ankara, Turkey
 Increasing Quality and Accessibility of Streets in Çankaya Neighborhoods in Ankara, Turkey
 Development of an Integrated Public Transport System in Bandung
 Intelligent Mobility in Expresso Amazonas in Belo Horizonte, Brazil
 Integrated Data Hub for Bangkok Metropolitan Administration, Thailand
 Decision Support System for Flood Management for Bangkok Metropolitan Administration, Thailand
 Transit-Oriented Development Plan for Khlong Bang Luang area and Bang Wa BTS Station in Bangkok, Thailand
 Transforming Bursa into a Smart City
 Sustainable Urban Transformation Approach for Bursa, Turkey
 Supporting the Implementation of the City of Cape Town's Data Strategy
 Data and Strategic Foundations for Long Term Planning in Cebu City, Philippines
 Improved Data Integration, Collection and Analysis to Facilitate Collaborative Informal Settlement Action in Durban, South Africa
 Enhanced Institutional Governance Coordination for Supporting Alignment of Stakeholder Plans Working on Transit-Oriented Development on Durban

Development of Geographical Information System for Drainage System in Ho Chi Minh City, Vietnam
 Development of Smart Ticketing System for Public Transportation Network in Ho Chi Minh City, Vietnam
 Implementation Strategy for Iskandar Malaysia's Smart Integrated Mobility Management System
 Enabling Data Utilisation and Data Management for Evidence-based Urban and Transport Planning
 Urban Planning Training and Capacity Development Programme for Resilient Istanbul, Turkey
 Sustainable Urban Mobility Plan for Istanbul, Turkey
 A review of the Fourth Industrial Revolution (4IR) trends and effects on urban mobility in Johannesburg, South Africa
 Strategic Area Framework and Associated Implementation Tools for Soweto "Triangle" in Johannesburg, South Africa
 Development of Guidelines for Urban Renewal Programmes in Lagos, Nigeria
 Feasibility Study for the development of water transport in Lagos, Nigeria
 Green Transport Corridor Implementation Plan
 Heritage Area Integrated Mobility Plan for Melaka, Malaysia
 Integrated Sustainability Plan for New Clark City, Philippines
 Data Ecosystem for Urban Governance for Recife, Brazil
 Urban Transformation Plan for Putat Jaya in Surabaya, Indonesia
 Earthquake Preparedness Strategy for Surabaya, Indonesia
 Thailand City Context Report
 Revitalising Streetscapes: unlocking the potential of Yangon City's assets

GLOBAL RECOMMENDATION PAPERS

Collier, P., Glaeser, E., and Venables, T. (2018) Policies for prosperity in middle income cities: Planning, transportation and resilience. IGC Cities that Work Policy Paper.
 Collier, P., Glaeser, E., Venables, A., and Harman, O. (2018) Embedding resilience: city responses to acute shocks and chronic stresses. IGC Cities that Work Policy Paper.
 Collier, P., Glaeser, E., Venables, A., and Manwaring, P. (2018) Access to opportunity: urban mobility for prosperous cities. IGC Cities that Work Policy Paper.
 Collier, P., Glaeser, E., Venables, A., and Manwaring, P. (2018) Urban planning for productive and liveable cities. IGC Cities that Work Policy Paper.
 Collier, P., Glaeser, E., Venables, A., Delbridge, V., Harman, O., and Blake, M. (2018) Assessment framework for measuring economic success in transport, land-use planning and resilience interventions. IGC Cities that Work Policy Paper.
 UN-Habitat (2018) Lessons Learned & Key Recommendations for Phase 2. UN-Habitat, Urban Planning and Design LAB.

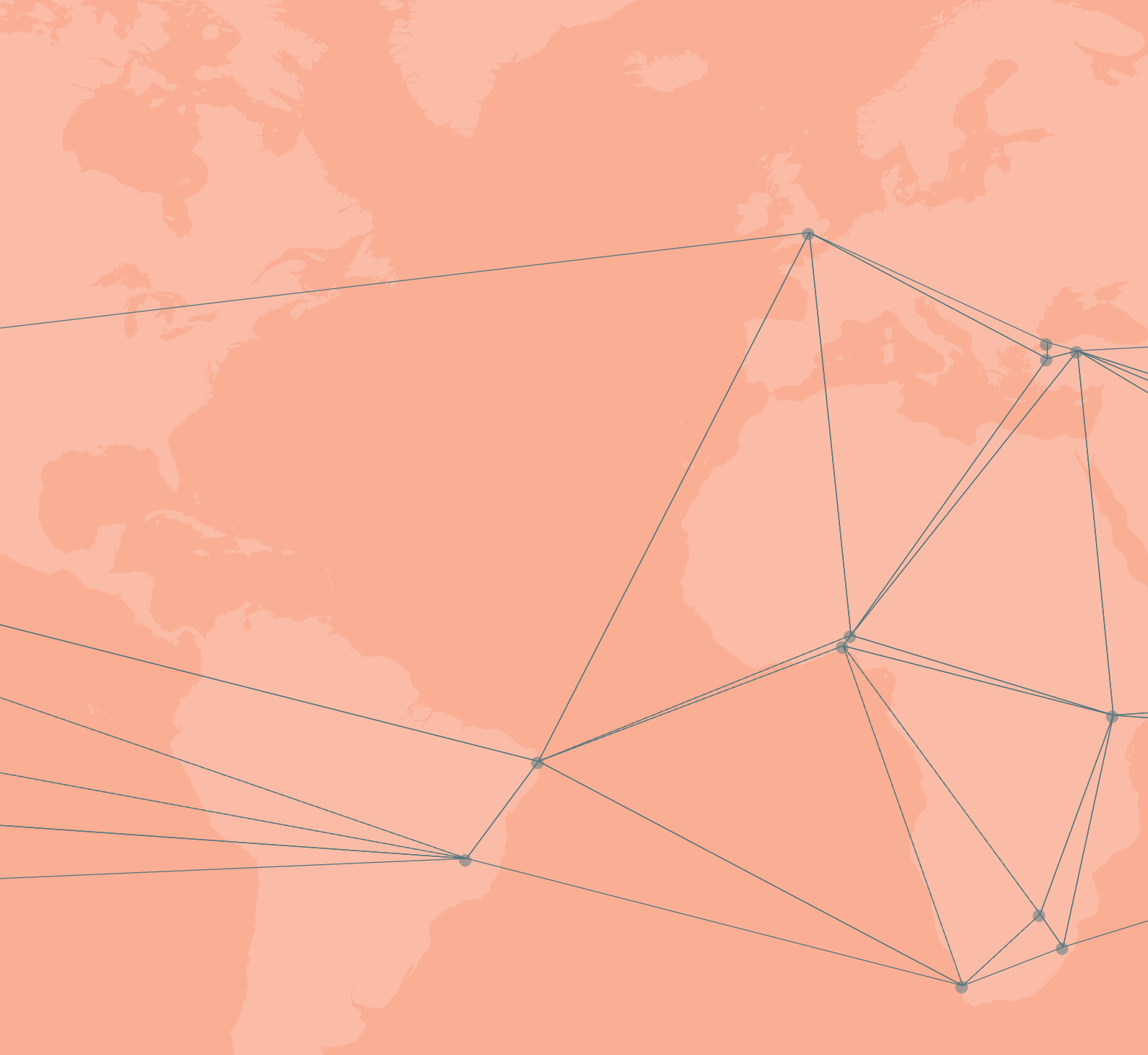
CLUSTER PAPERS

- Delbridge, V. (2018) Development of urban strategies and master plans. IGC Cities that Work.
- Graham, D. J., Hoercher, D., and Martinez, J. C. (2018) Data-oriented urban transport reform in middle-income and developing cities. IGC Cities that Work.
- Haas, A. R. N. (2018) Key considerations for integrated multimodal transport planning. IGC Cities that Work.
- Landry, J.-N., (2018) Data Systems for Urban Planning and Land Management. UN-Habitat, Urban Planning and Design LAB.
- Malik, A. (2018) Can cities become more resilient? Improving flood management through improved governance, private sector partnerships and open data. IGC Cities that Work.
- Siemiatycki, M. (2018) Strategies for effective procurement and public-private partnerships in the transport sector. IGC Cities that Work.
- UN-Habitat (2019) City revitalization efforts located within urban renewal practices. UN-Habitat, Urban Planning and Design LAB.
- UN-Habitat (2019) Developing new public spaces in cities in emerging economies. UN-Habitat, Urban Planning and Design LAB.

ENDNOTES

- 1 United Nations Department of Economic and Social Affairs (2018), 2018 Revision of World Urbanization Prospects.
- 2 Lincoln Institute of Land Policy, New York University and UN-Habitat (n.d.), The Atlas of Urban Expansion
- 3 Eurofound (2016). Inadequate housing in Europe: Costs and consequences. Luxembourg: Publications Office of the European Union. Accessed online at <http://nmd.bg/wp-content/uploads/2016/08/Inadequate-Housing-in-Europe-Report.pdf>
- 4 "Gezi Park Has Been Cleared, But Turkish Protesters Still Stand Up for Public Space." Next City. Jun. 24, 2013. Accessed by <https://nextcity.org/daily/entry/gezi-park-has-been-cleared-turkish-protesters-public-space>.
- 5 Wachter, S. M. and G. Wong (2008), "What Is a Tree Worth? Green-City Strategies, Signaling and Housing Prices," *Real Estate Economics* 36(2): 213–39.
- 6 Gensler and The Urban Land Institute (2011), *Open Space: An Asset without a Champion?*
- 7 "Mall or Park? In Crowded Bangkok, 'Last' Open Space Stirs Debate." Thomson Reuters Foundation. Feb. 11 2019. Accessed by <http://place.trust.org/i/?id=9b64319c-07e2-4cc7-bbc7-a2a6e81f8b87>.
- 8 Cartier, C. (1998) 'Megadevelopment in Malaysia: From Heritage Landscapes to 'Leisurescapes' in Melaka's Tourism Sector', *Singapore Journal of Tropical Geography* 19(2): 151–76.
- 9 Van Audenhove, F., O. Korniiichuk, L. Dauby and J. Pourbaix (2014) *The Future of Urban Mobility 2.0: Imperatives to Shape Extended Mobility Ecosystems of Tomorrow*.
- 10 SUM4All, 2017. <https://openknowledge.worldbank.org/bitstream/handle/10986/28542/120500.pdf?sequence=6&isAllowed=y>
- 11 The World Bank (2014), "Motor Vehicles (per 1,000 People)", accessed by <https://web.archive.org/web/20140209114811/http://data.worldbank.org/indicator/IS.VEH.NVEH.P3>.
- 12 "Vietnam Gets Behind The Wheel As Car Ownership Soars." *Forbes*. Feb. 12 2016. Accessed by <https://www.forbes.com/sites/davisbrett/2016/02/12/vietnam-gets-behind-the-wheel-as-car-ownership-soars/#796445193dcb>.
- 13 Estado de Minas Gerais (2017), "BH Is the City with the Highest Vehicle/Inhabitant Ratio Among 17 Capitals in the Country," accessed by https://www.em.com.br/app/noticia/gerais/2017/10/22/interna_gerais,910469/bh-e-a-cidade-com-maior-relacao-veiculo-habitante-entre-17-capitais.shtml.
- 14 Kasikorn Research Center (2016), "Impacts of Traffic Congestion on Bangkok's Economy and Life."
- 15 World Bank (2014), "Transport for Health: The Global Burden of Disease from Motorized Road Transport." Washington,DC: World Bank.
- 16 "More than 90% of the World's Children Breathe Toxic Air Every Day," World Health Organisation. Oct. 29, 2018. Accessed by <https://www.who.int/news-room/detail/29-10-2018-more-than-90-of-the-world's-children-breathe-toxic-air-every-day>.
- 17 "Air Pollution Puts Cultural Heritage at Risk," United Nations Economic Commission for Europe. Accessed by <http://www.unece.org/info/media/news/environment/2015/air-pollution-puts-cultural-heritage-at-risk/air-pollution-puts-cultural-heritage-at-risk.html>.
- 18 World Health Organization (2018), *Violence and Injury*

- Prevention: Global Status Report on Road Safety 2018.
- 19 WHO (World Health Organization). 2015. Global Status Report on Road Safety 2015: Supporting a Decade of Action. http://www.who.int/violence_injury_prevention/road_safety_status/2013/en/. Geneva: WHO.
 - 20 Schaller Consulting (2018), *The New Automobility: Lyft, Uber and the Future of American Cities*.
 - 21 LSE Cities (2015).
 - 22 Future Lagos (2015), *Rethinking the Future of the Lagos Lagoon*.
 - 23 Copenhagenize Design Company (2017), *The Copenhagenize Bicycle-Friendly Cities Index*.
 - 24 "Bike Sharing Helps Johannesburg Township Commuters Beat the Traffic." Reuters. Oct. 16, 2017. Accessed by <https://www.reuters.com/article/us-safrica-township-cycling/bike-sharing-helps-johannesburg-township-commuters-beat-the-traffic-idUSKBN1CV02A>.
 - 25 "Where is the World's Most Walkable City?" The Guardian. Sep. 12, 2017. Accessed by <https://www.theguardian.com/cities/2017/sep/12/walkable-city-worlds-most-new-york-melbourne-fes-el-bali>.
 - 26 UN-Habitat (2013), *UN-Habitat Global Report on Human Settlements*.
 - 27 Ibid and iRAP (n.d.), *3 Star or Better*.
 - 28 Carruthers, R., Dick, M. and Saurkar, A. (2005), *Affordability of Public Transport in Developing Countries*, World Bank.
 - 29 "Brazil Bus Protests Illustrate Broader Malaise." The Wall Street Journal. June 14, 2013. Accessed by <https://www.wsj.com/articles/SB10001424127887324688404578545611011526102>.
 - 30 "South Africa Needs to Revamp Its New Public Transport System." The Conversation. Oct. 12, 2017. Accessed by <https://theconversation.com/south-africa-needs-to-revamp-its-new-public-transport-system-84930>.
 - 31 Babalik-Sutcliffe, E. and E.C. Cengiz (2015), "Bus Rapid Transit System in Istanbul: A Success Story or Flawed Planning Decision?," *Transport Reviews* 35(6): 792–813.
 - 32 International Transport Forum (2018), *Women's Safety and Security: A Public Transport Priority*, OECD Publishing.
 - 33 "Most Dangerous Transport Systems for Women." Thomson Reuters Foundation. Oct. 31, 2014. Accessed by <http://news.trust.org/spotlight/most-dangerous-transport-systems-for-women>.
 - 34 "Transport Is Not Gender-Neutral." The World Bank. Jan. 24, 2018. Accessed by <http://blogs.worldbank.org/transport/transport-not-gender-neutral>.
 - 35 Moovit (2017), *Global Cities Public Transit Usage 2016 Report*.
 - 36 "Mapping movement: How data experts track informal transport." Apolitical. Nov. 7, 2018. Accessed by https://apolitical.co/solution_article/mapping-data-experts-help-cities-informal-transport.
 - 37 100 Resilient Cities (2017) *Resilient Bangkok*.
 - 38 Ibid.
 - 39 "The Philippines' New Clark City Will Be Green and Disaster-Resilient." CNN. Jul 23. 2018. Accessed by <https://edition.cnn.com/style/article/new-clark-city-philippines/index.html>.
 - 40 Vi t, T. (2010), *Ho Chi Minh City Adaptation to Climate Change: Summary Report*, Asian Development Bank.
 - 41 Coffel, E.D., R.M. Horton, and A.de Sherbinin (2017) 'Temperature and Humidity Based Projections of a Rapid Rise in Global Heat Stress Exposure during the 21st Century', *Environmental Research Letters* 13(1): 014001.
 - 42 "Why Cape Town is Running Out of Water, and the Cities That Are Next." National Geographic. Mar. 5, 2018. Accessed by <https://news.nationalgeographic.com/2018/02/cape-town-running-out-of-water-drought-taps-shutoff-other-cities>.
 - 43 Collier, P., E. Glaeser, T. Venables, and O. Harman (2018), *Embedding Resilience: City Responses to Acute Shocks and Chronic Stresses*, International Growth Centre.
 - 44 Ibid.
 - 45 Poushter (2016), *Smartphone Ownership and Internet Usage Continues to Climb in Emerging Economies*, Pew Research Center.
 - 46 Caprotti, F., R. Cowley, A. Datta, V.C. Broto, E. Gao, L. Georgeson, C. Herrick, N. Odendaal, and S. Joss (2017) 'The New Urban Agenda: Key Opportunities and Challenges for Policy and Practice', *Urban Research & Practice*, 10(3): 1753–5077.
 - 47 Open Data Labs (2018), *Why Is the New E-Gov Policy in Indonesia Critical for Open Data?*
 - 48 Lee, J. H., S. Lee, S. Y. Lee, and Y-S. Lee (2017), *Consultation on Open Government Data Policy in Myanmar*, Korea Information Society Development Institute.
 - 49 Collier et al. (2018).
 - 50 UN-Habitat (2014a) *A New Strategy of Sustainable Neighbourhood Planning: Five Principles*
 - 51 Glaeser, E.L. (2010) 'Introduction', in E.L. Glaeser (ed) *Agglomeration Economics*, The University of Chicago Press, Chicago.
 - 52 UN-Habitat (2014a).
 - 53 UN-Habitat (2015), *Land Tenure Security in Selected Countries*.
 - 54 Gauthier, A. and A. Weinstock (2010) 'Africa: Transforming Paratransit into BRT', *Built Environment* 36(3): 317–27.
 - 55 UN-Habitat (2014b), *Construction of More Equitable Cities*.
 - 56 SDI (2018), *Know Your City: Slum Dwellers Count*.
 - 57 World Bank (2015), *Financing Transit-Oriented Development with Land Values*.
 - 58 "How São Paulo Uses 'Value Capture' to Raise Billions for Infrastructure." Atlantic CityLab. May 22 2014. Accessed by <http://www.citylab.com/cityfixer/2014/05/how-sao-paulo-uses-value-capture-to-raise-billions-for-infrastructure/371429>.
 - 59 "A New Market for Infrastructure Financing Helps Izmir Thrive." International Finance Corporation. Jun. 2017. Accessed by https://www.ifc.org/wps/wcm/connect/news_ext_content/ifc_external_corporate_site/news+and+events/news/cm-stories/a-new-market-for-infrastructure-financing-helps-izmir-thrive.
 - 60 Bezerra, C. and M. Junqueira (2018) 'Why Has Participatory Budgeting Adoption Declined in Brazil?', *Democracy and Its Discontents: 114th Annual Meeting of the American Political Science Association*, American Political Science Association, Boston.
 - 61 Sachs, J., Schmidt-Traub, G., Kroll, C., Lafortune, G., Fuller, G. (2018), *SDG Index and Dashboards Report 2018*, Bertelsmann Stiftung and Sustainable Development Solutions Network (SDSN), New York.



A vendor hawks refurbished mobile phones on a street corner in Lagos. A real estate broker polishes her pitch to potential buyers in Iskandar eager to take advantage of new residential properties. A chef at a lauded farm-to-table restaurant hopes key ingredients from nearby farms can thread through Istanbul traffic in time for tonight's dinner rush. A start-up entrepreneur based in Recife's Porto Digital tech cluster grabs a coffee in the city's renovated historic centre to chat with a possible investor. What do these slices of life in Nigeria, Malaysia, Turkey and Brazil have in common? They represent the potential for urban prosperity to help countries achieve sustainable development, driven by Global Future Cities.

Through a comparative analysis of the 19 cities of the Global Future Cities Programme, the report shares experiences and knowledge gained during the Programme's Strategic Development Phase. It identifies common urban trends in urban planning, mobility, resilience and data, as well as underlying systemic barriers and enablers for sustainable urban development observed across the Global Future Cities. Strategic key takeaways are provided that will allow the Global Future Cities Programme to increase its impact on the cities' and host countries' capacity to deliver on the Sustainable Development Goals and the New Urban Agenda.

HS Number: HS/019/19E

ISBN Number: (Volume) 978-92-1-132837-0

UN HABITAT
FOR A BETTER URBAN FUTURE

www.unhabitat.org

UNITED NATIONS HUMAN SETTLEMENTS PROGRAMME

P.O. Box 30030 00100 Nairobi GPO KENYA

Tel: +254-020-7623120 (Central Office)

Email: updb@unhabitat.org