Book

Engaging with cities of the future : a perspective

Reference: (2017). Engaging with cities of the future : a perspective. Mandaluyong City, Metro Manila, Philippines : ADB.
doi:10.22617/TIM178822-2.

ENGAGING WITH CITIES OF THE FUTURE

A Perspective

ASIAN DEVELOPMENT BANK

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ISBN 978-92-9257-927-2 (Print), 978-92-9257-928-9 (e-ISBN)
Publication Stock No. TIM178822-2
http://dx.doi.org/10.22617/TIM178822-2

Notes:
In this publication, "$" refers to US dollars.
Corrigenda to ADB publications may be found at http://www.adb.org/publications/corrigenda

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Foreword

The Asian Development Bank (ADB) technical assistance (TA) project Establishing the Future Cities Program in the Asia and Pacific Region aimed to identify new approaches to address the challenges of urbanization. This 2-year TA project was an incubation mechanism reviewing the entire ecosystem of how to develop cities. How do we plan up front to reduce the carbon footprint and increase the energy efficiency in the delivery of public services? How do we engage with city mayors and their constituents so they can realize the unique vision they have for their locality? The TA project served as a testing ground for ideas on how to better interface with city officials and stakeholders to mainstream new or improved solutions into ADB operations.

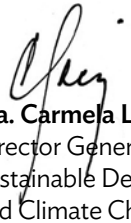
This publication, *Engaging with Cities of the Future: A Perspective*, provides insights into this new type of engagement drawing from work in six cities in the region. The approach emphasized by the Future Cities TA project eschews traditional paradigms of working solely on one sector and instead emphasizes cross-sectoral and thematic collaboration, identifying relevant knowledge and financial resources both within and outside ADB to strengthen the relationship at the city level, support holistic growth, and ensure livability in the future.

There are several highlights and lessons to be learned from the TA project. In Tbilisi (Georgia), for example, various teams—such as gender, digital finance, and smart systems—came together to leverage an existing ADB urban transport investment program to maximize its positive impacts. In Ulaanbaatar (Mongolia), the knowledge partner tapped will provide insights on the proposed Master Plan for Ulaanbaatar and guide the establishment of an institutional structure for capacity building on urban planning. Meanwhile in Mandalay (Myanmar), the international physical planner trained the city's urban planning unit on urban design methodologies. In Bandung (Indonesia), the main takeaway is the importance of flexibility. Some

headway has been made on possible partnerships in an area where there was no previous engagement.

ADB operations staff will benefit greatly from reading this publication. The experiences and lessons learned from the case studies present opportunities they can replicate in their areas of work, to enrich investments and build strong synergies with other sectors, partners, academia, donors, and city leaders.

Building livable cities is the goal of ADB's urban sector operations. The experiences from the implementation of the Future Cities TA is one of several ways to help achieve this, beginning with reading this publication.



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Acknowledgments

This publication was prepared under the regional research and development technical assistance (TA) project Establishing the Future Cities Program (FCP) in the Asia and Pacific Region, implemented in 2016–2017 by the Urban Sector Group of the Sustainable Development and Climate Change Department (SDCC).

It serves as a reference on alternative pathways to engage with cities of the future. Specifically, it provides essential direction for Asian Development Bank (ADB) staff on how to adopt the Future Cities approach, which draws from the experiences of this TA project.

The publication was prepared by Andrew McIntyre, senior urban development specialist and TA project officer, with the support of the FCP team: Ian Hamilton, team leader (2016–April 2017); Imelda Baleta, national urban planning coordinator (2016–April 2017) and current team leader; and Elga Reyes, media and communications coordinator. Vijay Padmanabhan, technical advisor (urban), provided overall guidance on project implementation and the framework for this publication.

The FCP team gratefully acknowledges the project officers of the ADB core projects and associated TA projects that have supported the FCP implementation and for reviewing the contents of this report in relation to their respective projects: Bertrand Goalou, senior urban development specialist (transport), and Mookiah Thiruchelvam, urban development specialist (Central and West Asia Urban Development and Water Division), for the Sustainable Urban Transport Investment Program; Siti Hasanah, senior project officer (urban development), for the Neighborhood Upgrading and Shelter Project (Phase 2); Eri Honda, principal urban development specialist (Southeast Asia Urban Development and Water Division), for the Mandalay Urban Services Improvement Project;

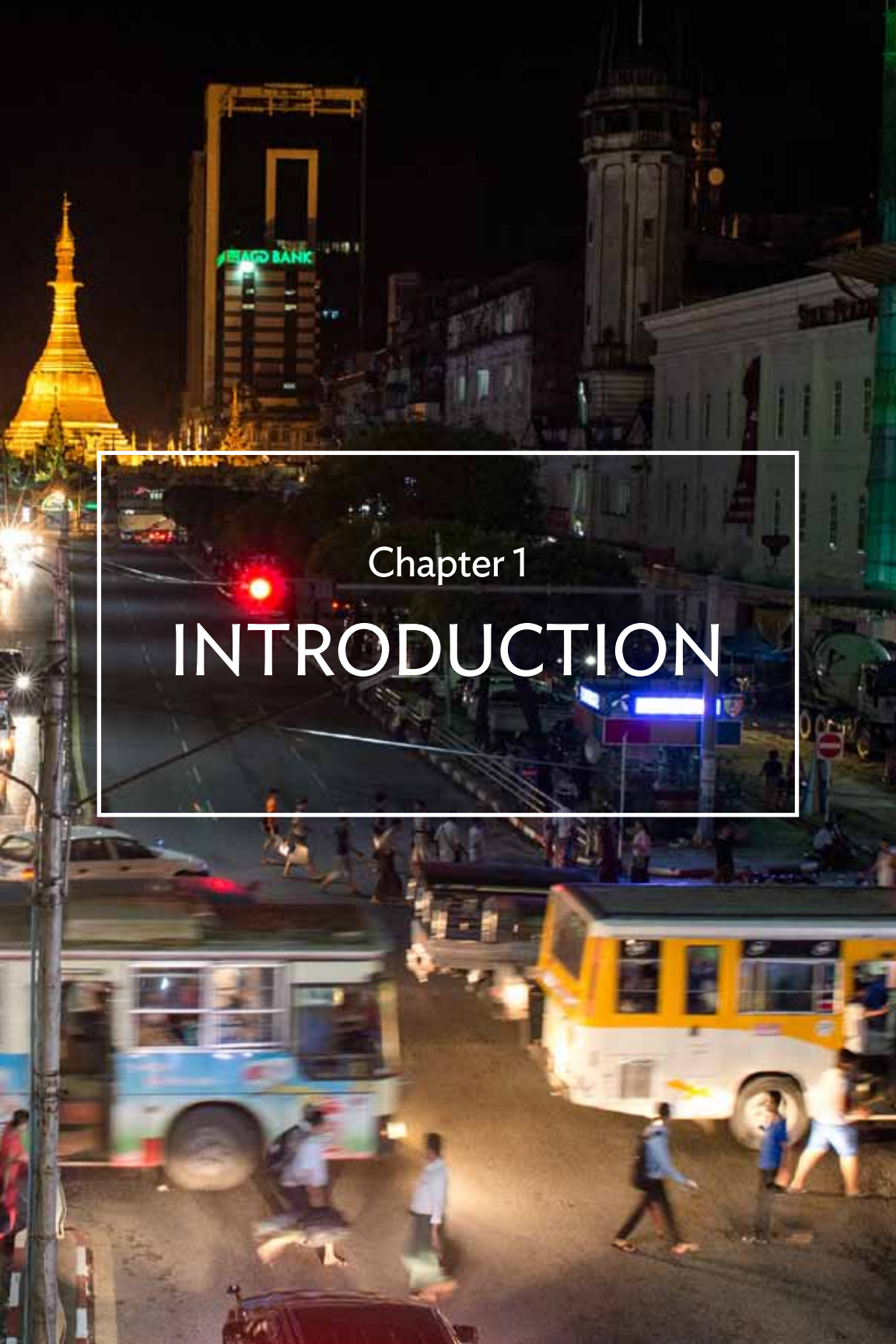
Arnaud Heckmann, senior urban development specialist (East Asia Urban and Social Sectors Division), for the Ger Areas Development Investment Program; Michael Rattinger, climate change specialist, and Esmyra Javier, climate change officer (SDCC), for Financing Low Carbon, Climate-Resilient Urban Infrastructure in Asia; Ritchie Anne Roño, team leader (consultant), for Promoting Smart Systems in ADB's Future Cities Program; Susann Roth, senior social development specialist (social protection) (SDCC), for the Results for Malaria Elimination and Control of Communicable Diseases Threats in Asia and the Pacific; Lotte Schou-Zibell, technical advisor (finance), for Unlocking Innovation for Development–Digital Finance; and Sonomi Tanaka, technical advisor (gender equity), for the Piloting Future Cities Future Women Initiative. David Fay, project administration unit head (Pacific Subregional Office in Suva, Fiji), was also instrumental in the implementation of the TA project.

The team also appreciates the constructive advice of the FCP national urban planners in developing this publication: Nana Adeishvili (Tbilisi, Georgia); Bat-Erdene Gombosuren (Ulaanbaatar, Mongolia); Mann Htun (Mandalay, Myanmar); and Mere Naulumatua (Suva, Fiji).

Lastly, special thanks go to Aldrin Plaza, urban development officer (SDCC), for acting as peer reviewer of this publication.

Abbreviations

ADB	Asian Development Bank
AIT	Austrian Institute of Technology
CDIA	Cities Development Initiative for Asia
CoE	center of excellence
CRCWSC	Cooperative Research Centre for Water Sensitive Cities
DMC	developing member country
GSA	Greater Suva Area
IAU Île-de-France	Institut d'aménagement et d'urbanisme d'Ile-de-France (Paris Region Planning and Development Agency)
NUP	national urban planner
RETA	regional technical assistance (project)
RISE	Revitalization of Informal Settlements and Environment
TA	technical assistance



Chapter 1

INTRODUCTION

Urbanization in Asia and the Pacific

At the turn of the century (1990–2010), the region's urban population grew by 29%, faster than any other region in the world. By midcentury (2010–2050), it is expected to rise from 40% to about 65% of the total population, or almost double from 1.9 billion to 3.3 billion people.[1] While this foretells opportunities for higher productivity and better living standards, there are several risks. An estimated 523 million people across the region live in squalid urban slums with poor services,[1] severe living condition disparities in many cities affect social cohesion, and urban buildings and

[1] ADB. 2015. *Technical Assistance for Establishing the Future Cities Program in the Asia and Pacific Region*. Manila (R-RDTA 9025, for $1.5 million).

Cities are magnets for people seeking a better quality of life, and yet many in the region live in slums with poor urban services.

transport account for significant energy consumption and carbon emissions. The region is increasingly exposed to the risks of climate-related hazards such as droughts, floods, and storm surges.

With about 75% of Asia's gross domestic product (GDP) generated in urban areas, the quality and efficiency of its cities will determine the region's long-term productivity and stability.[2] Asian cities are centers of trade stimulating national economies, and these are integrated into trade corridors that link to global economic networks. They are magnets for people seeking a better quality of life and economic opportunities, and they are loci of regional cooperation.[3] Conversely, inefficient and uncompetitive cities inhibit

[2] ADB. 2011. *Asia 2050: Realizing the Asian Century*. Manila.

[3] ADB. 2013. *Urban Operational Plan, 2012–2020*. Manila.

economic growth and impede inclusive development (footnote 2). Asian municipal infrastructure financing is only 40% of its $100 billion annual maintenance requirement.[4]

Stemming the decline or failure of Asian and Pacific cities, while facilitating their rapid growth, is essential for the region. Integrated urban planning—focusing on managing urban sprawl and providing sustainable, affordable, and climate-resilient infrastructure and basic services—will spell the difference between a future of gloom or glory. The United Nations Sustainable Development Goals (SDGs), which outline a comprehensive global agenda for 2030, clearly emphasize this with SDG 11: "Make cities and human settlements inclusive, safe, resilient and sustainable." This is the universal backdrop for engaging with cities.

With fast-growing, changing, and complex cities, ADB needs to constantly adapt its way of working and engaging with cities so that it reflects a more comprehensive long-term partnership

Evolution of Urban Operations in ADB

The Asian Development Bank (ADB) has been assisting its developing member countries (DMCs) with about $22 billion in funding for over 200 urban development projects since the 1960s. These have improved urban transport, sanitation and waste management, and access to clean water.[5]

During the 1980s, so-called integrated urban development projects were implemented. These saw the need for the construction of a small basket of different infrastructure in order to satisfy a wider set of stakeholders in one or more cities in a focus country. In the 1990s, ADB began developing country urban sector strategies that inventoried key

[4] World Economic Forum and European Bank for Reconstruction and Development. 2014. *Accelerating Infrastructure Delivery New Evidence from International Financial Institutions*. Geneva: World Economic Forum.

[5] ADB. 2016. *Manual for Undertaking National Urban Assessments*. Manila.

infrastructure requirements across all urban sectors in a country, and sought to package them in further bundles of projects to undergo project preparation and processing. In most cases these were restricted to purely physical infrastructure in traditional sectors, and did not include services or social infrastructure that would operationalize, leverage, or utilize the investments. Governments and cities were expected to fill in the gaps themselves or to seek funding from other international financing institutions (IFIs). There was and still is little coordination across sectors at the regional or country level despite significant structural reforms in ADB in the early 2000s.

Overview of the Future Cities Approach

The Future Cities approach emanated from a need identified in the review of ADB's Strategy 2020, which is to develop better ways for ADB to engage with Asian and Pacific cities and ensure better sustainability and development effectiveness. With cities in the region already facing inherent development complexity and growing at such a rapid pace, traditional approaches to sector investment and planning have become inadequate, particularly with other IFIs entering the picture. It was necessary, therefore, to refine the process ADB used to select and engage with cities so that scarce knowledge and financial resources could be used most effectively.

Inspiration from the soft systems design literature[6] for managing complexity and change in human activity systems influenced the Future Cities approach—Asian cities being some of the most complex in the world to date. It is an action-learning paradigm that entails understanding how multiple activities and interactions are joined together within and into a city, with the overt acknowledgment that this is continuously changing,

[6] Key developers of the soft systems methodology are Peter Checkland and Brian Wilson.

and developing over time to some improved, more livable state.

The Future Cities approach was piloted in the research and development technical assistance (TA) project Establishing the Future Cities Program in the Asia and Pacific Region (Future Cities TA).

As tested under the TA, the Future Cities approach is anchored on building a relationship with a city, supported by the identification and assignment of financial and best practice knowledge resources, both from within and outside ADB, applied where they support ongoing activities and where they make the most sense to cultivate broader engagement and to codevelop a city that is livable and ready for the future (Box 1). Cross-sector and thematic support is also a main feature of the approach, which takes after the "One ADB" approach noted in the Midterm Review of Strategy 2020.

Broader engagement in the Future Cities approach pertains to two salient points. First, it is about broadening engagement through increased ADB investments in the city. The aim is to have a mutually strong, diverse, and robust investment pipeline that will lead to a future livable city. Second, broader engagement is about the relationship and support toward the city. The substantive aspect of the approach includes acknowledging how the city is part of a wider network that consists of IFIs, city-to-city and business-to-city links, and most importantly a complex formulation of a diverse and growing citizenry.

The Future Cities approach is a process for establishing and broadening engagement first, *then* applying planning and investment

Selecting the Future Cities

The Future Cities approach starts with overt city selection as opposed to the traditional approach of project allocation by the national government. Cities selected under the Future Cities TA are those with existing ADB projects and networks, and which have leaders and ADB stakeholders willing to expand into a more comprehensive and long-term partnership.

The unique advantage of the Future Cities approach is the way it acts as a hotbed for alternative solutions, an incubator of ideas fusing the relevant knowledge and funding sources that can be eventually mainstreamed into operational thinking and lending.

Box 1: Future Cities Approach Objectives

Outcome: Selected cities and the Asian Development Bank are engaged in an integrated approach to become more livable

- ☑ Long-term engagement with selected cities
- ☑ Harmonize support and delivery of operationally focused funding and technical assistance resources
- ☑ Facilitate a broader urban and cross-sector agenda
- ☑ Encourage quality urban research and practice
- ☑ Provide the time and space to support integrated planning activities and funding over the long term

Source: Author (NUP Presentation, September 2016).

These chosen existing projects are identified as the ADB **core projects** of the Future Cities approach.

It is this initial component from which the concept or analogy of "building the jigsaw" emanates (Figure 1). Too many projects are started in locales and with institutions with no track record of engagement. By utilizing existing networks, it is easier and faster to build those networks and expand into other sectors and departments. Traditionally, ADB urban operations in a city have focused on water, sanitation, or transport. The Future Cities approach also encourages beginning engagement with large finance, health, education, or governance projects, and from there build cross-sector linkages for more effective responses to developmental challenges.

Coordination

Once a city has been chosen, the next step of the Future Cities approach is to actively coordinate resources from within and outside ADB into the city. This is the role of the **national urban planners** (NUPs)

Tbilisi (Georgia)

Mandalay (Myanmar)

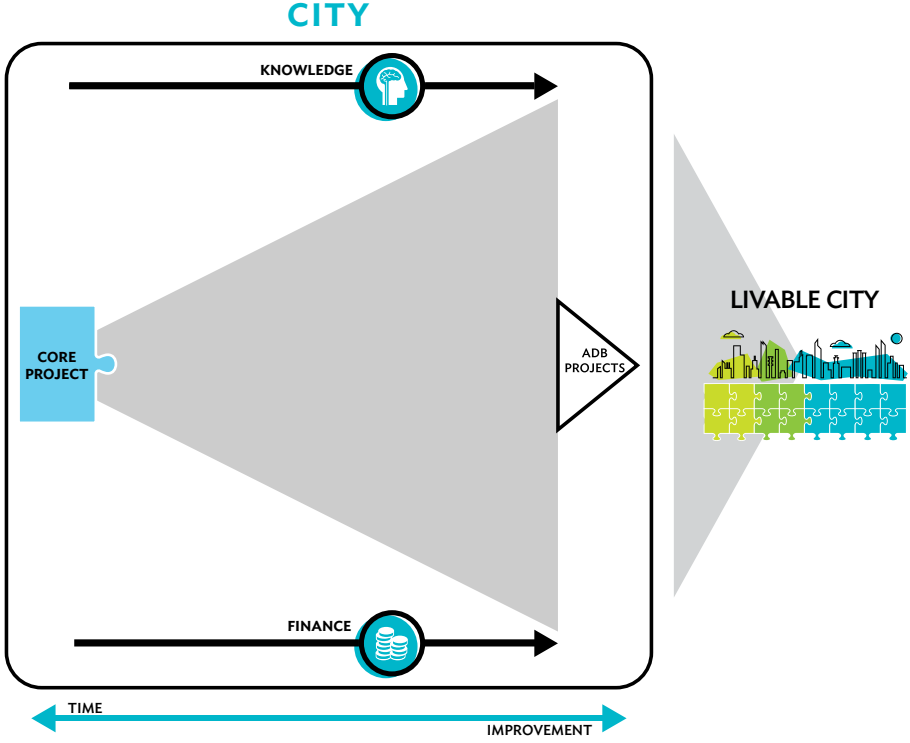
Greater Suva Area (Fiji)

Ulaanbaatar (Mongolia)

Makassar (Indonesia)

Bandung (Indonesia)

Figure 1: Future Cities Approach Begins with an ADB Project that Leads to Broadened Engagement



ADB = Asian Development Bank.

Source: Author.

to be appointed in each city. These NUPs have to be continually aware of building value within each city by understanding ongoing needs. In addition, they have to be aware of available or potential resources and partnering opportunities that could be applied in the city, in so far as it is sensible and relevant.

Furthermore, it is also essential to have an overall coordinator in ADB headquarters. The coordination of knowledge, finance, and TA resources across thematic and sector groups and sector divisions in the regional departments is the most critical function.

The ADB resident mission in a selected city (or in the respective DMC) can also play a significant role

(from left to right, by row)

The ADB core projects for the Future Cities TA are: Sustainable Urban Transport Investment Program (Tbilisi); Mandalay Urban Services Improvement Project (Mandalay); Urban Water Supply and Wastewater Management Investment Program (Greater Suva Area); Ger Areas Development Investment Program (Ulaanbaatar) (Photo: Ian Hamilton); and the Neighborhood Upgrading and Shelter Project (Phase 2) (Makassar).

in coordination. Resident missions are instrumental in ensuring key central and local government connections are made. At a minimum, the country director and senior staff should be able to support the engagement process with cities. The resident mission also imparts ADB knowledge to NUPs to guide them in strengthening relationships with city governments.

Aligning Knowledge and Finance Resources

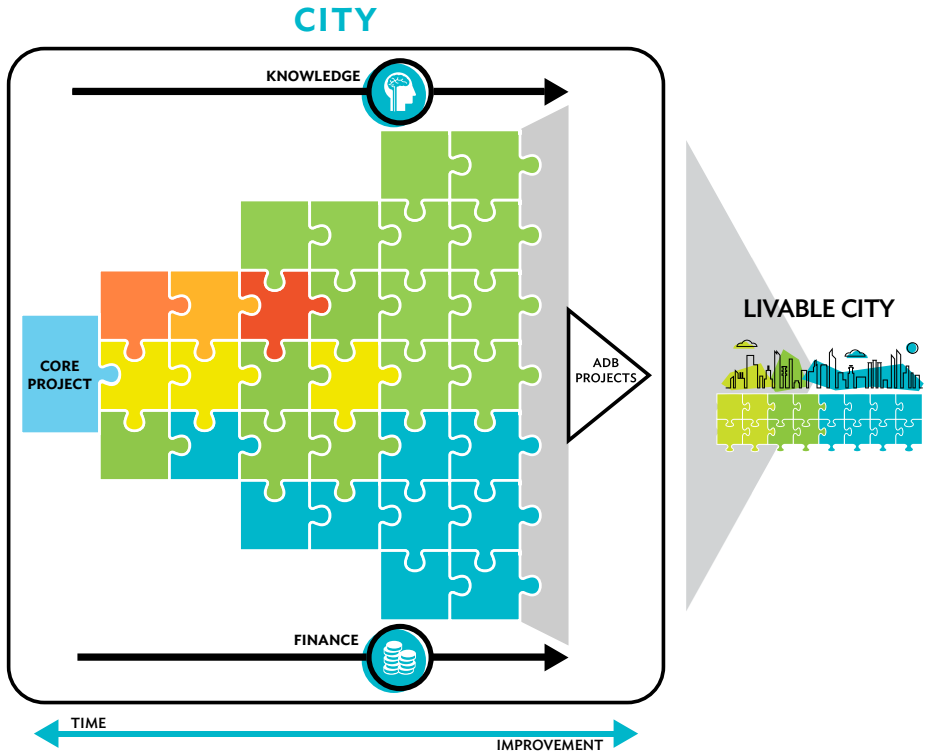
To build a relationship with the city and broaden engagement, the Future Cities approach entails leveraging best practice knowledge and available financing from within and outside ADB. These should enhance the ADB core project in the city so as to widen its positive impacts. The unique advantage of the Future Cities approach is the way it acts as a hotbed for alternative solutions, an incubator of ideas fusing the relevant knowledge, best practices, and funding sources that can eventually be mainstreamed into operational thinking and lending.

Knowledge resources primarily consist of knowledge partnerships and related regional technical assistance (RETA) projects (Chapter 2). It can also include city twinning arrangements, mobilization of interns or long-term voluntary placements, and capacity building. One example of capacity building is the training on the use of the Source System (formerly known as the International Infrastructure Support System), an online project preparation platform (p. 29).

Financial resources can come in the form of internal ADB trust funds (the Urban Climate Change Resilience Trust Fund, Japan Fund for Poverty Reduction, and so on) or external financing. Examples include grants from charity institutions like the Wellcome Trust; pilot and demonstration finance from businesses (Philips Lighting, General Electric, and various utilities); or funding from other IFIs looking to better utilize their own scarce resources.

These various resources represent the different colored pieces in "building the jigsaw," which link to the core project and create cross-sector synergies leading to potential new ADB projects down the pipeline—and toward developing a city that is integrated and future-ready (Figure 2).

Figure 2: Mobilizing Resources to Expand the Pipeline and Develop Future Livable Cities



ADB = Asian Development Bank.

Notes:
1. The ADB pipeline is broadened through the addition and alignment of knowledge and financing resources.
2. The jigsaw puzzles are a general representation of the resources, additional ADB support, and/or new projects arising from the engagement with the city.
3. Green jigsaw pieces are a general representation of interventions from the Future Cities technical assistance.
4. Jigsaw pieces colored light yellow, dark yellow, light orange, and dark orange represent regional technical assistance projects.
5. Dark blue jigsaw pieces represent existing ADB additional support and/or new ADB projects.

Source: Author.


Under

Chapter 2

COMPONENTS OF THE FUTURE CITIES APPROACH

The Future Cities approach is an assemblage of two major components that support city planning, broaden the project pipeline, and deepen engagement. The following outlines these components, including the specific institutions and their contributions.

Knowledge Partnerships

Knowledge partnerships raise the technical expertise of a city, improve urban services, and enhance the delivery of knowledge outputs. Knowledge partners and centers of excellence (CoEs) increase the ability of Asian Development Bank (ADB) to engage with and respond to the demands of its developing member countries (DMCs) and also stimulate innovation. Conversely, knowledge partners and CoEs gain knowledge and lessons from ADB operations.

Applying the Future Cities approach, seven concurrent mission teams (including project officers from regional technical assistance projects and knowledge partners) congregated in Tbilisi to build on the impact of a successful urban transport project.

Cooperative Research Centre for Water Sensitive Cities

The Australia-based Cooperative Research Centre for Water Sensitive Cities (CRCWSC), established in 2012, is one of 33 such centers under the Government of Australia's Cooperative Research Centres Programme. It focuses on changing the way cities and towns are designed, built, and managed by valuing the contribution water makes to economic development and quality of life. In recent years, CRCWSC has developed sustainable and integrated water development approaches for drinking, sanitation, personal and domestic hygiene, flood protection, and environmental stewardship. These enable vulnerable communities and informal settlements to leapfrog traditional trunk connections and gain early access to essential water-related services.

As part of sharing knowledge and expertise, AIT discussed their urban transport study to students and faculty of the Georgian Technical University in Tbilisi. Photo: Elga Reyes.

One application of this is the Revitalization of Informal Settlements and Environment (RISE) Using a Water-Sensitive Approach project. This pipeline project was born from the ADB research and development technical assistance (TA) project Establishing the Future Cities Program in the Asia and Pacific Region (Future Cities TA) (Box 2).

Austrian Institute of Technology

The Austrian Institute of Technology (AIT) is Austria's largest non-university research institute and Europe's premier specialist in the field of urban transport infrastructure. The combination of technological

Box 2: Fast Facts about the Cooperative Research Centre for Water Sensitive Cities

- It is Asian Development Bank's knowledge partner on the Revitalization of Informal Settlements and Environment Using a Water-Sensitive Approach project in Greater Suva Area (GSA), Fiji and Makassar, Indonesia.
- It is supported by the Wellcome Trust to contribute best practice design and supervision to effect improved health outcomes and for the monitoring and quantification of these outcomes.
- It undertook urban diagnostics in the GSA, Ho Chi Minh City (Viet Nam), and Mandalay (Myanmar).

Source: Author.

foresight and policy development competencies allows AIT to provide substantial input for new policy and infrastructure concepts that closely match current transportation opportunities in Tbilisi (Georgia), where AIT is collaborating under the Future Cities TA.

As a best practice knowledge partner, AIT was engaged to work with the municipality to undertake expert studies and capacity development within the transport sector, particularly in connection with the support provided by the Cities Development Initiative for Asia (CDIA) (Box 3). It is expected that this cooperation will lead to closer ties with Austrian cities and to the development of longer-term technical support.

Box 3: Fast Facts about the Austrian Institute of Technology

- This knowledge partner is an important link for future additional funding and expertise from Austria, which is currently providing funding for the transport-related prefeasibility studies conducted by the Cities Development Initiative for Asia.
- There is an opportunity to link Asian Development Bank transport initiatives with the Austrian Institute of Technology's expertise on public transport usage patterns and urban development implications.

Source: Author.

Paris Region Planning and Development Agency

The Paris Region Planning and Development Agency (IAU Île-de-France), a nonprofit organization created in 1960, is the largest metropolitan planning agency in Europe. It has international experience in assessing urban planning frameworks and operations, and as such is ideally placed to provide assistance on planning and regulatory reform in Ulaanbaatar (Mongolia), another pilot city under the Future Cities TA.

This knowledge partner worked with the Municipality of Ulaanbaatar to implement institutional and regulatory changes, to develop exchanges and expert partnerships, and also to support the establishment of a semi-autonomous urban planning research and capacity building unit as well as a professional national planning association (Box 4).

Box 4: Fast Facts about the Paris Region Planning and Development Agency

- It supported a wide range of Asian Development Bank and local agency activities in Ulaanbaatar, which need to be coordinated under the official master plan for the city.
- It coordinated engagement between the Municipality of Ulaanbaatar and international urban planner on capacity building and system recommendations.

Source: Author.

Singapore-ETH Centre

Singapore-ETH Centre (SEC) is a joint initiative started in 2010 between the Swiss Federal Institute of Technology Zurich (ETH Zurich) in Switzerland and the National Research Foundation in Singapore. Its aim is to strengthen the capacities of the two countries to research, understand, and actively respond to challenges of global environmental sustainability by collaborating with universities and researchers to facilitate technology transfer. SEC prepared a diagnostic report for Mandalay City (Myanmar) based on a multiscale (region, city, and site) and integrated multidisciplinary approach (integrated urban densification, active mobility, and urban nature and environmental management). A similar assessment was also started in Bandung (Indonesia), in tandem with the Smart Systems TA project, looking at the interrelationship between economic enterprise, public health, and the physical environment; coordination between planning efforts; and the potential of big data, smart city technologies, and planning principles.

Regional Technical Assistance Projects

Part of the Future Cities approach is leveraging resources like relevant regional technical assistance (RETA) projects to achieve cross-sector and thematic collaboration for more effective results and engagement. The following are some of the main benefits:

- It has enabled city officials to understand the integrated nature of the Future Cities TA wherein the RETA projects are seen as components of an overall strategy.
- It has allowed the various projects to explore possible synergies in future project designs and financing opportunities, since they have been able to operate at the same time and in the same place.

The agglomeration of small marginal amounts of TA resources can have a much more effective impact when combined

To help Mandalay address present and future challenges, the Future Cities TA worked with the RETA project on Mainstreaming Integrated Solid Waste Management in Asia to develop a 10-year ISWM plan. Photo: Ian Hamilton.

- It has enabled the mobilization of significant resources in focused locations.

It will always be a challenge to ensure that a variety of needed and appropriate RETA projects from different sources can be financed and mobilized at the same time. However, the agglomeration of small marginal amounts of TA resources can have a much more effective impact when combined. More importantly, the synergies actualized can have more sustainable and long-reaching impacts.

Box 5: Fast Facts about Mainstreaming Integrated Solid Waste Management in Asia

- This technical assistance (TA) project was mobilized in April 2015 and was completed in early 2017.
- Original countries included the Philippines, Sri Lanka, and Thailand. Sri Lanka was eventually replaced by Myanmar (focusing on Mandalay). The project covered a total of five cities: Quezon City, Sorsogon City, Buriram, Mahasarakham, and Mandalay. Of the five, only Mandalay is an overlap under the Future Cities TA project.
- Outputs include integrated solid waste management plans and prefeasibility studies for one proposed project for each city.
- Scoping missions were also undertaken in Ulaanbaatar and Greater Suva.

Source: Author.

Mainstreaming Integrated Solid Waste Management in Asia

The TA produced in-depth assessments of the current status of solid waste management in five cities in Asia, including Mandalay, one of the pilot cities under the Future Cities TA (Box 5). A citywide integrated solid waste management (ISWM) plan was prepared for the city, as well as a prefeasibility study for Chan Aye Thar Zan Township, which is an area covered by both the Future Cities TA core project (Mandalay Urban Services Improvement Project) and the Future Cities approach support given for urban planning and design.[7]

[7] ADB. 2016. *Integrated Solid Waste Management Plan: Mandalay*. Consultant's report. Manila (TA 8566). http://k-learn.adb.org/materials/20161130/integrated-solid-waste-management-plan-mandalay; ADB. 2016. *Mandalay Prefeasibility Study: Chan Aye Thar Zan Waste Collection*. Consultant's report. Manila (TA 8566). http://k-learn.adb.org/materials/20161201/mandalay-prefeasibility-study-chan-aye-thar-zan-waste-collection

Box 6: Fast Facts about Financing Low Carbon, Climate-Resilient Urban Infrastructure in Asia

- This is a study of low-carbon, climate-resilient urban infrastructure development options, costs, and benefits.
- The main output is a methodology for rapid city appraisal of climate vulnerability and carbon exposure, which can assist cities in identifying priority options for adaptation and mitigation.
- The project covers four Future Cities technical assistance (TA) pilot cities in varying detail: Greater Suva, Mandalay, Tbilisi, and Ulaanbaatar.
- As a technical assistance under the Climate Change and Disaster Risk Management Thematic Group that links with the Future Cities TA, it exemplifies cross-thematic collaboration.

Source: Author.

Scoping missions were also undertaken in Ulaanbaatar, which identified an opportunity to convert a dumpsite to a sanitary landfill and to support national ISWM strategies and policies; and in the Greater Suva Area (GSA, Fiji), where the overall collection and disposal system was examined and government intentions to develop a waste-to-energy facility at the current disposal site were assessed. Both Ulaanbaatar and GSA are pilot cities of the Future Cities TA.

Financing Low Carbon, Climate-Resilient Urban Infrastructure in Asia

This TA is the first attempt to study low-carbon, climate-resilient urban infrastructure investments using climate data and greenhouse gas emission profiles as determinants for project selection and prioritization as opposed to using climate benefit optimization within urban sector projects. The study identified low-carbon, climate-resilient infrastructure options, costs, and benefits in cities across the region (Box 6). Results of the study indicate a strong need for low-carbon, climate-resilient urban infrastructure

investment, estimated at $1.1 trillion to 2030 for the 106 fastest-growing DMC cities alone.

The key deliverable of the TA was a methodology for rapid city appraisal (RCA) of climate vulnerability and carbon exposure in cities, from which priority options for adaptation and mitigation were identified. High-level RCAs were undertaken for Mandalay, Suva, Tbilisi, Ulaanbaatar, and Dhaka (save for Dhaka [Bangladesh], all four cities also belong to the Future Cities TA). For Ho Chi Minh City (Viet Nam), a detailed RCA was complemented with a rapid economic appraisal, a high-level approach to undertaking a cost–benefit analysis. With the development of RCAs and rapid economic appraisal methodologies and producing city profiles, a database was developed for about 200 developing member country (DMC) cities, providing a useful tool for ADB project officers. The results of the assessments also allowed the pilot cities under the Future Cities TA to evaluate the climate resiliency of their infrastructure and determine gaps that should be addressed.

Results for Malaria Elimination and Control of Communicable Diseases Threats in Asia and the Pacific

This RETA project of the Health Sector Group includes capacity building and development of tools and guidelines to undertake health impact assessments (HIA) linked to the ADB Operational Plan for Health's objective of "maximizing health benefits and mitigating negative health impacts from infrastructure projects." The cross-sector collaboration with Future Cities centers on Mandalay, where an HIA was conducted for the core project. This is to ensure positive health impacts from the Mandalay Urban Services Improvement Project are monitored and achieved, and any negative impacts are avoided or managed. This also supports the Mandalay project's goal to improve the urban environment and public health in Mandalay by setting up a monitoring system of project impacts on health (Box 7).

Box 7: Fast Facts about Results for Malaria Elimination and Control of Communicable Diseases Threats in Asia and the Pacific

- This technical assistance project consists of undertaking health impact assessments to assess and maximize health benefits resulting from Asian Development Bank projects.
- It covers Mandalay (in the Thin Gaza Creek and Shwe Ta Chaung and Mingalar canals), monitoring the long-term impacts of the Mandalay Urban Services Improvement Project.
- It links the Health Sector Group with the Urban Sector Group.

Source: Author.

Promoting Smart Systems in ADB's Future Cities Program

This RETA project aims to enhance ADB's operational knowledge of promoting pro-poor, smart solutions in developing cities by producing knowledge and learning materials; facilitating partnerships between cities; and conducting prefeasibility studies on smart solutions with an emphasis on inclusiveness to spark city and business investments and citizen involvement. A twofold RETA project, it is composed of a package geared toward developing potential projects incorporating smart systems and technologies, and another more knowledge-oriented output to share global best practices and create smart city networks (Box 8).

Piloting Future Cities Future Women Initiative

The Future Cities Future Women Initiative is part of the Gender Equity Thematic Group's drive to accelerate gender equality and women's empowerment in urban settings (Box 9). The initiative will support and add value to ongoing Future Cities TA activities in Tbilisi

Box 8: Fast Facts about Promoting Smart Systems in ADB's Future Cities Program

- Mobilized in early 2017, this regional technical assistance (RETA) project covers all cities under the Future Cities technical assistance, as well as Yokohama as a best practice element.
- The RETA project will identify smart solutions to improve the living standards of city residents, focusing on the urban poor and women, and will lead to the preparation of relevant investment projects.
- Key expected outputs are two well-defined smart project concepts for each city, smart city twinning arrangements, and technical support to initiate smart project implementation.

Source: Author.

(urban and transport planning), Mandalay (solid waste recycling in connection with the Mandalay Urban Services Improvement Project), and GSA (service access equality and livelihoods especially in relation to the Revitalization of Informal Settlements and Environment [RISE] project).

Unlocking Innovation for Development–Digital Finance

This RETA project, which will run from 2017 to 2019, has two closely linked outputs: (i) cross-sector innovative solutions to address development problems in DMCs; and (ii) crowd-sourcing platform for pilot testing the development solutions and business models. Under the second output, there are opportunities for scaling up financial inclusion through digital financial services systems. Part of the scope in this output covers two Future Cities TA cities, Tbilisi and Ulaanbaatar (Box 10).

Box 9: Fast Facts about Piloting Future Cities Future Women Initiative

- Mobilized in early 2017, it covers three cities of the Future Cities technical assistance: Greater Suva Area (GSA), Mandalay, and Tbilisi. It is specifically linked to core project activities in these cities.
- The initiative centers on increasing women empowerment in urban settings.

Source: Author.

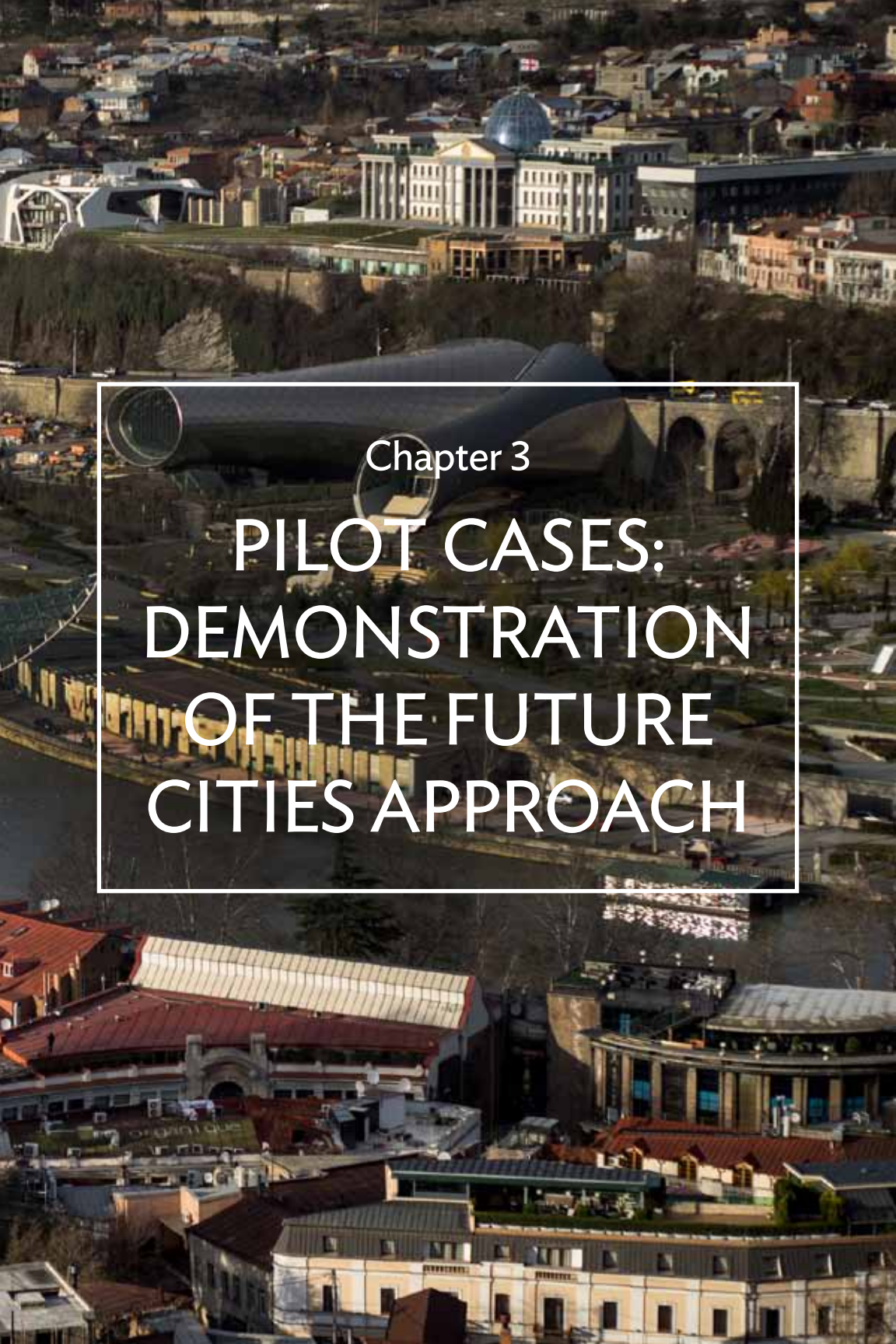
Box 10: Fast Facts about Unlocking Innovation for Development–Digital Finance

- The technical assistance project was mobilized in early 2017.
- It has a specific focus on e-finance opportunities in Tbilisi and Ulaanbaatar.

Source: Author.

Source System (formerly International Infrastructure Support System)

The Source System is an online project preparation platform to help DMC governments improve the quality of their project development documents, address information asymmetry, and increase their interface with the private sector.



Chapter 3

PILOT CASES: DEMONSTRATION OF THE FUTURE CITIES APPROACH

TBILISI

Overview of the City

Tbilisi and the adjacent city of Rustavi comprise the capital of Georgia, making it the largest urban center in the country containing roughly 1.5 million inhabitants (about 35% of the national population) and generating 50% of Georgia's gross domestic product. The location of Tbilisi, at the crossing point of the east–west and north–south corridors, is an exceptional asset. Tbilisi is a transit and logistics hub for the country and the South Caucasus. However, Tbilisi has not yet taken full advantage of its strategic location because of inadequate development of transport and logistics infrastructure.

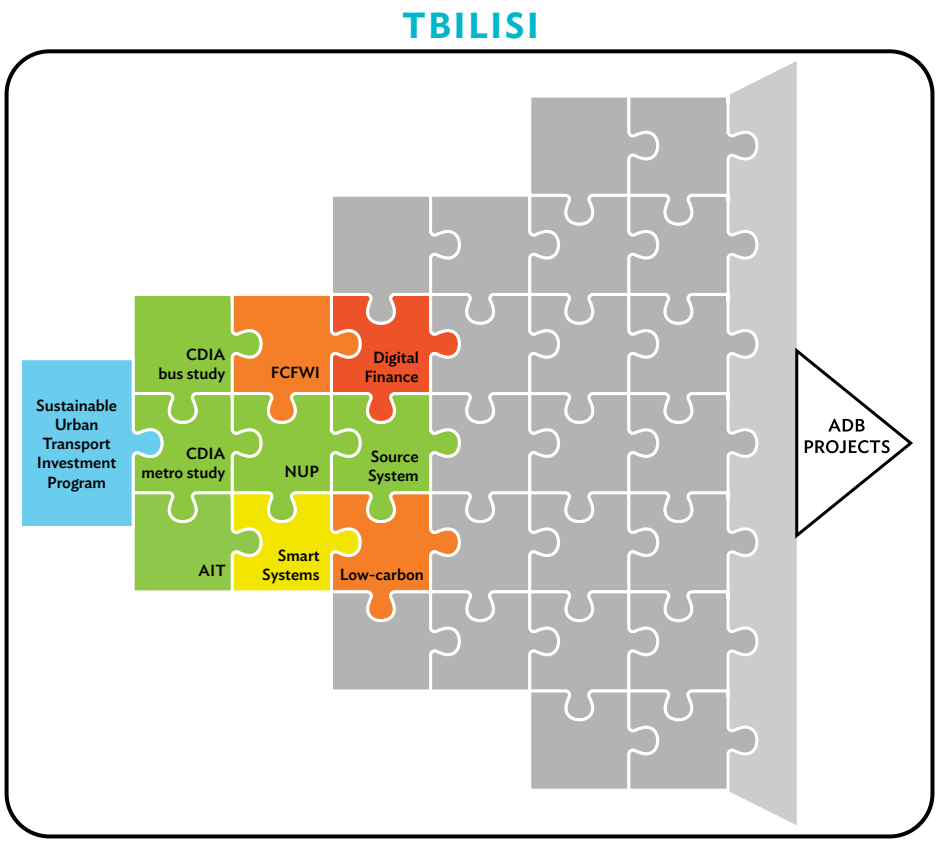
Common urban problems concern transport (traffic congestion, pollution, poor and inappropriate road infrastructure, and inefficient urban transport systems), urban sprawl, and low-density developments along main road networks. The urban vision for Georgia is to develop regionally competitive, well-connected, and livable cities based on integrated urban planning through an inclusive and adaptive approach.

Future Cities Approach in the City

Providing Prefeasibility Study Support

The Future Cities approach in Tbilisi took off from the core project, the Sustainable Urban Transport Investment Program (Figure 3). The program team and the city and central governments requested that a bus rapid transit (BRT) project feasibility study be undertaken for possible ADB funding. At the same time, the city and the Georgia Resident Mission indicated that the rehabilitation of the aging metro system—built during the Soviet era—would also

Figure 3: Building the Jigsaw in Tbilisi



ADB = Asian Development Bank, AIT = Austrian Institute of Technology, CDIA = Cities Development Initiative for Asia, FCFWI = Future Cities Future Women Initiative, NUP = national urban planner.

Notes:
1. Green jigsaw pieces represent interventions from the Future Cities technical assistance.
2. Jigsaw pieces colored light yellow, light orange, and dark orange represent regional technical assistance projects.

Source: Author.

CDIA has conducted a prefeasibility study targeting improvements that will ensure the metro meets present-day technical, operational, safety and accessibility standards, and contributes to the shift to sustainable urban mobility in Tbilisi.

benefit the city in terms of public safety and health, as well as energy and operational cost savings. Overall, this would contribute to the shift toward sustainable urban mobility. Cities Development Initiative for Asia (CDIA) financing was quickly mobilized for these two proposed prefeasibility studies. However, in the case of the metro upgrade prefeasibility study, although CDIA approval was granted within 2 weeks of the request by the city, national government endorsement took a number of months.

Austrian Institute of Technology (AIT) (p. 18), a knowledge partner engaged for Tbilisi, explored big data options that could supplement the CDIA studies and the Sustainable Urban Transport Investment Program. Given AIT's expertise on urban transport technologies and policy development, they assessed ways to better Tbilisi's public transport and increase public usage.

Members of the Future Cities Future Women Initiative and the ADB Georgia Resident Mission met with a representative of the Business Women's Council in Tbilisi to identify development opportunities that are cognizant of gender empowerment.

Integrating Relevant Technical Assistance Resources

To complement the core project and strengthen engagement in Tbilisi, three relevant regional technical assistance (RETA) projects were mobilized: Smart Systems, Digital Finance, and Future Cities Future Women Initiative. These would respectively increase the city's capability in smart systems, especially in transport and other sectors; improve private sector financing; and boost support for women participation in urban planning.

The Smart Systems RETA project undertook detailed inventories of smart systems in each of the city's physical and service infrastructure systems. Discussions were held with a variety of city and central government stakeholders to explore ways technology could improve efficiencies in transport, water supply, sanitation, education, health, building energy efficiency, and so on, with an emphasis on supporting existing efforts and aligning with other donors.

Tbilisi has the strongest smart city ecosystem among the pilot cities. There is a high degree of readiness and comfort among citizens for technology-based solutions

The initial assessment by the project team suggests that Tbilisi has the strongest smart city ecosystem among the pilot cities. Accordingly, there is a high degree of readiness and comfort among citizens for technology-based solutions. Potential project concepts identified for Tbilisi include smart solutions around urban mobility, e-governance, and urban planning.

Digital Finance explored opportunities to leverage existing financial institutions to scale access to cashless transactions, which would enhance ridership and reduce transport transaction costs, thereby broadening the investment pipeline around a transport core. The RETA also looked into digitizing payments for micro, small, and medium-sized enterprises.

The Digital Finance team met with public, private, and multilateral stakeholders, such as major banks, partner financial institutions, utility companies, mobile wallet providers, and other innovation, technology, and smart systems analytics providers. Through their scoping, current uses of digital finance services in Tbilisi were identified, including delivery channels by financial service providers, use of cards, and use of kiosks, online credit, other payment services, alternative credit scoring, innovation hubs, and blockchain technology.

The Future Cities Future Women Initiative examined ways to mainstream gender empowerment in Tbilisi projects. The initiative's team met with various groups including those in city hall, national government agencies businesswomen groups, development partners, and financial institutions. Building on the main areas emerging across the Future Cities TA project, the Future Cities Future Women Initiative will focus future work in areas of urban planning and transport.

Lessons Learned from the City

Tbilisi has emerged as one of the flagship future cities due to the fruitful collaboration of diverse components (Figure 3). While it remains to be seen whether the Future Cities approach does result into Tbilisi becoming a livable city, present evidence points to that direction.

Two key lessons can be taken away from the implementation of the RETA project Establishing the Future Cities Program in the Asia and Pacific Region (Future Cities TA) in Tbilisi. First, respond quickly and adapt to the city's needs to take advantage of opportunities to widen investments in the city. For instance, the ability to work closely with the core project team led to identifying operational needs and rapidly responding with financing and needed studies. However, it is important to note that investment decisions are not instantaneous and require more deliberation. Second, close coordination through proper channels and clear documentation are ingredients for securing prompt concurrent approvals.

In addition, it is important to explore longer-term opportunities in Tbilisi and this could include the following:

- transit-oriented design coordinated with strategic investments in housing, commercial areas, and community facilities such as schools and hospitals;
- collection of citywide data from sensors, smart LED lighting, and mobile phone and financial transactions to enable planners to better provide services, and to feedback relevant information to citizens and customers;
- use of paperless transactions and blockchain technology for transport fares, business transactions, and enhancement of innovation,

Smart solutions that enhance urban mobility and scale up cashless transactions are some of the potential areas that RETA projects are examining to bring Tbilisi closer to the vision of a livable city.

agro-processing, and other entrepreneurial activities;

- governance systems that are fully integrated and transparent, responsive to citizens, and that ensure knowledge development and best practices are the operational norm in the city; and

- physical infrastructure and community services that embody an integrated planning approach and ensure inclusivity in planning, operation, and service for all, especially women.

MANDALAY

Overview of the City

Mandalay, the second-largest city in Myanmar, is located in the center of the country. It functions as a main trading center and transit hub for jade, gems, and agricultural products. It is also an industrial area with most factories involved in agricultural processing and heavy machinery manufacturing. Since it is the country's major city closest to the border of the People's Republic of China (PRC), international trade with the PRC is expected to grow. Likewise, the city's trade and logistics role is projected to increase further. The city could additionally become a pivotal player in the transnational city network that will inevitably emerge between the PRC, India, and Southeast Asia. Mandalay's urban population is expected to grow from 1.2 million people to 2.5 million people in the next 30 years—a strong indication of the city's place in the wider urbanization process.[8]

Future Cities Approach in the City

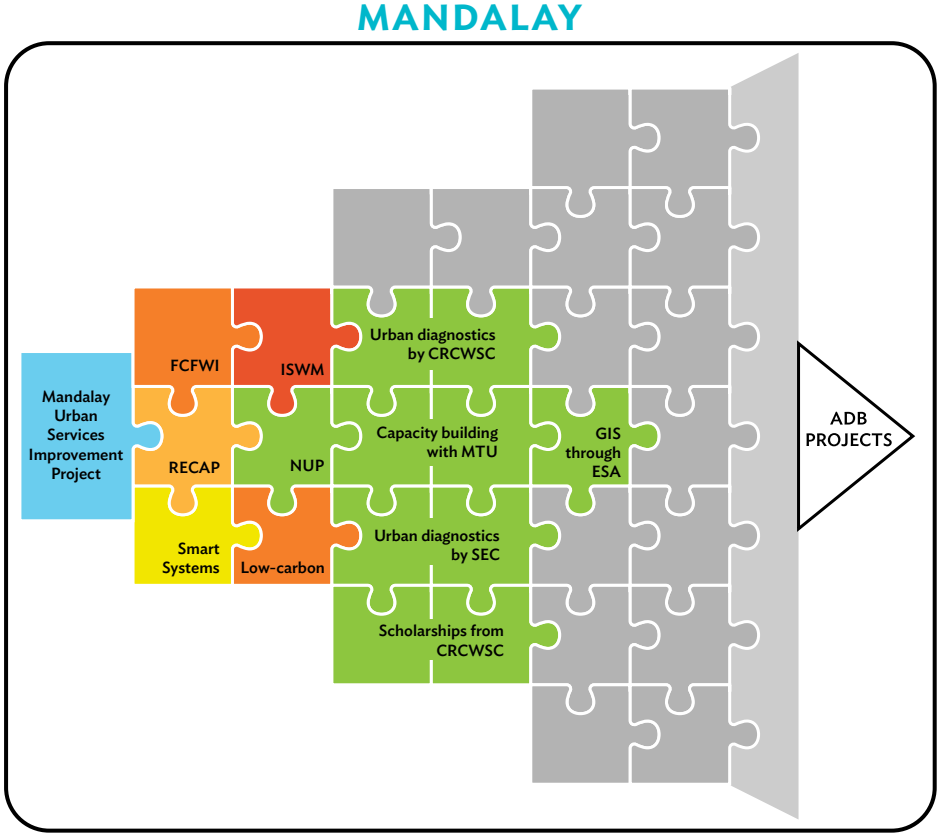
Aligning Relevant Technical Assistance Resources

In Mandalay, the Future Cities TA worked on supporting the Mandalay Urban Services Improvement Project, which began implementation in 2015 and covers wastewater and drainage improvements. Through the Future Cities approach, five RETA projects were brought together to enhance and widen the impact of the ongoing project (Figure 4).

In particular, the TA project Mainstreaming Integrated Solid Waste Management in Asia reviewed waste management practices in the city to address challenges

[8] ADB. 2016. *Mandalay Urban Diagnostics*. Consultant's report. Mandalay (TA 9025).

Figure 4: Building the Jigsaw in Mandalay



ADB = Asian Development Bank, CRCWSC = Cooperative Research Centre for Water Sensitive Cities, ESA = European Space Agency, FCFWI = Future Cities Future Women Initiative, GIS = geographic information system, ISWM = Integrated Solid Waste Management, MTU = Mandalay Technological University, NUP = national urban planner, RECAP = Results for Malaria Elimination and Control of Communicable Diseases Threats in Asia and the Pacific, SEC = Singapore-ETH Centre.

Notes:
1. Green jigsaw pieces represent interventions from the Future Cities technical assistance.
2. Jigsaw pieces colored light yellow, dark yellow, light orange, and dark orange represent regional technical assistance projects.

Source: Author.

RETA projects under the Future Cities TA umbrella are collaborating to improve Mandalay's Thin Gaza Creek, which is also an important part of the ADB core project in the city. Photo: Ian Hamilton.

such as poorly run landfill sites and inadequate waste collection services. For instance, the Thin Gaza Creek in Mandalay, previously considered a major waterway, has since been clogged by garbage. It will be the main northern starting point for the new sewer network interceptors under the Mandalay Urban Services Improvement Project. The ISWM RETA project assisted the local government in updating its 10-year solid waste management plan and agreed actions included public awareness campaigns on recycling and waste minimization as well as establishing a functional and appropriate waste disposal facility.[9]

Coordination and Capacity Building

In addition to the RETA projects, the Future Cities approach supported coordination within the municipal government, especially in the Mandalay

[9] L. Chapple and A. McIntyre. 2017. *Mandalay City: Outsourcing Waste Collection Services*. http://development.asia/case-study/mandalay-city-outsourcing-waste-collection-services?section=0

City Development Committee (MCDC) and its newly formed Urban Planning Unit (UPU), through the deployment of a national urban planner (NUP). This unit is intended to be the main recipient of an Urban Climate Change Resilience Trust Fund grant on climate-resilient urban planning later in 2017.

An international consultant also provided capacity building on urban design. Both the NUP and international consultant, along with the Mandalay Technological University, conducted further training for the UPU.

In terms of challenges, there were delays in coming to an agreement with some of the Future Cities TA activities due to the non-appointment of MCDC members during the last half of 2016. This affected implementation since decisions on undertaking surveys and running training courses had to be postponed.

Capitalizing on Knowledge Partnerships

The Cooperative Research Centre for Water Sensitive Cities (CRCWSC) provided early advice and assessment in Mandalay as part of its original scoping. Many of their initiatives, although not continued under the Future Cities TA, were adopted by the Mandalay Urban Services Improvement Project team and have had significant influence on the thinking behind the design of subsequent tranches and the expanse of work done by project consultants.

Another notable benefit from their initial input is the fully subsidized scholarships for the Master's Program in One-Belt-One-Road Sustainable Infrastructure Engineering at Southeast University in Nanjing, PRC. Administered by CRCWSC, the 2-year course utilizes a water-sensitive cities approach. The first year is dedicated to full-time study, followed by another year of mentored research work back in Mandalay. Two

planners from MCDC received the scholarships and have already completed their coursework. They are set to return to Mandalay in mid-2017.

A new candidate will soon begin her coursework, in combination with two additional candidates from Ulaanbaatar.

Lessons Learned from the City

There are four major lessons from the implementation of the Future Cities TA in Mandalay:

1. Choose limited interventions in a specific geographical area.

2. Ensure continuity and momentum of ADB programs through select activities.

3. In any proposed long-term relationships, there will be delays caused by circumstances beyond the TA project's control. These must be accommodated if support is to be taken seriously by the city.

4. A combination of relatively small interventions, when combined and documented, can provide a compelling record of long-term impact of projects, if planned at the start rather than as an afterthought.

GREATER SUVA AREA

Overview of the City

The GSA is composed of the national capital of Suva City, and the neighboring towns of Lami, Nasinu, and Nausori. It has a total land area of approximately 52.6 square kilometers. Each municipality in GSA has its own distinct character, set of economic and geographical opportunities, and constraints.

Lami to the east is the gateway into the GSA from Nadi International Airport and is subject to coastal and riverine flooding. Industries located in Lami are predominantly maritime-based, such as shipbuilding, bulk storage facilities, and fisheries. Suva City, being the national capital, is the commercial and financial center of Fiji—and, to an extent, the Pacific region. The economy of Suva City is driven by the finance, commercial, and tourism sectors. Nasinu is the dormitory town of the GSA with 87,447 residents, the highest population in the country according to the 2007 census of the Fiji Bureau of Statistics. Its economy is based on manufacturing, the garment industry, and call centers. Nausori is the gateway to Suva City from Nausori International Airport. A commercial center for three provinces, Nausori is predominantly a low-lying delta region prone to flooding. It also has one of the highest rates of urban growth in the GSA.

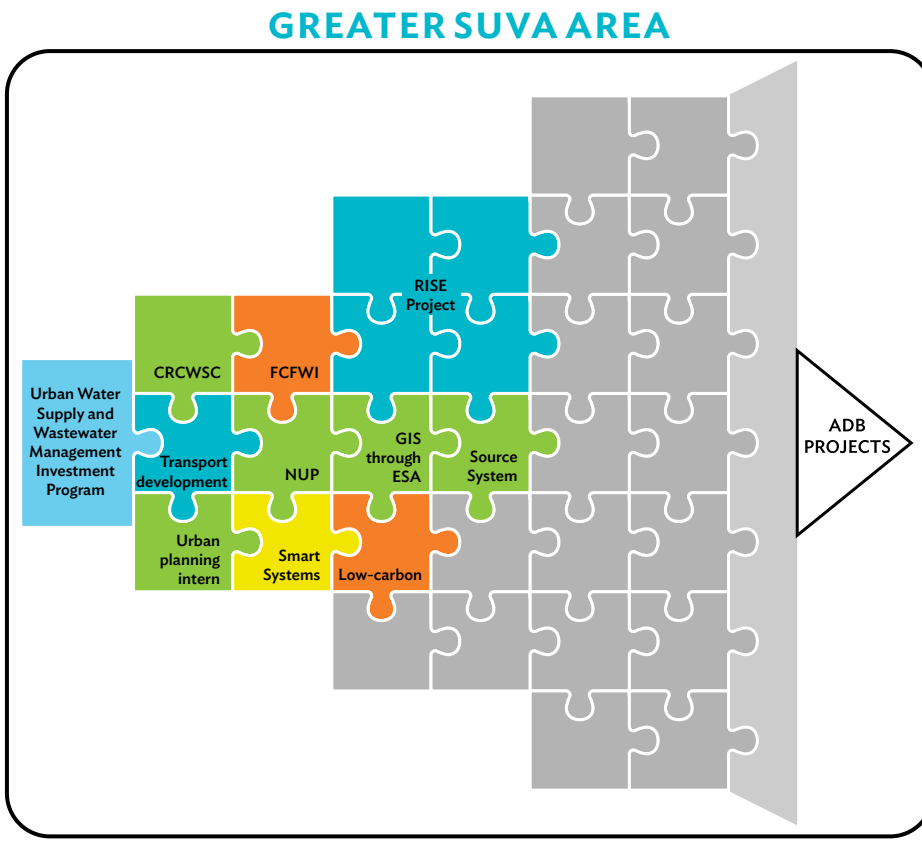
One of the primary challenges in urban planning in the country is the issue of land supply. With native land (or *iTaukei*) mixed with state and freehold land in urban areas and the rapidly expanding periurban areas comprising predominantly native and some freehold land, land supply is heavily distorted by formal and informal land tenure arrangements and institutional shortcomings.

Representatives of the Future Cities team and the Pacific Subregional Office met with a local nongovernment organization to learn about its community mobilization in the Greater Suva Area. Photo: Imelda Baleta.

Future Cities Approach in the City

The first point of entry in the GSA is one of the major ADB investments in Fiji, the Urban Water Supply and Wastewater Management Investment Program. There are several connections between the government's agreed policies—under utilities, strategy, and transport—and ADB's support. These existing links have allowed the Future Cities TA to identify areas it can complement and stakeholder relationships it can strengthen. A center of excellence (CoE) or knowledge partner (CRCWSC), several RETA projects, and staff support (a NUP and urban planning intern) were mobilized under the Future Cities approach (Figure 5).

Figure 5: Building the Jigsaw in the Greater Suva Area



ADB = Asian Development Bank, CRCWSC = Cooperative Research Centre for Water Sensitive Cities, ESA = European Space Agency, FCFWI = Future Cities Future Women Initiative, GIS = geographic information system, NUP = national urban planner, RISE = Revitalization of Informal Settlements and Environment.

Notes:
1. Green jigsaw pieces represent interventions from the Future Cities technical assistance.
2. Jigsaw pieces colored light yellow and light orange represent regional technical assistance projects.
3. Dark blue jigsaw pieces represent existing ADB additional support and/or new ADB projects.

Source: Author.

The RISE project will be the first ADB project born from the Future Cities approach and it emphasizes how the approach can lead to tangible solutions.

The Urban Water Supply and Wastewater Management Investment Program is the core project of the Future Cities approach in the GSA.

Conceptualizing a New Project with a Center of Excellence

The core project for Future Cities in the GSA is the Urban Water Supply and Wastewater Management Investment Program, which is expected to provide about 4,500 wastewater connections to both formal and informal areas. However, those in more isolated or hard-to-service locations are not included. This opened up an opportunity that was seized by CRCWSC, especially after assessing the challenges and needs of the GSA through the urban diagnostics they prepared. They concluded that piloting an innovative water-sensitive approach could benefit such informal urban communities. It supplements the core project while also already broadening the pipeline, as envisioned by the Future Cities approach.

Some of the informal settlements visited by the Future Cities Future Women Initiative team in support of and to enhance the RISE project design. Photo: Gillie Brown.

The solution they conceptualized is the Revitalization of Informal Settlements and Environment (RISE) project, which uses a decentralized design of low-cost community infrastructure and housing upgrades to improve the quality of life of marginalized residents, particularly in the aspects of health, livelihood, and climate resilience. The Future Cities Future Women Initiative is supporting the RISE project to integrate women's empowerment into the project's design and implementation.

The RISE project will be the first ADB project born from the Future Cities TA and it emphasizes how the TA served as an incubation mechanism in which ideas were tested and developed into tangible solutions.

Supplementing Skills and Unifying Urban Plans

The Government of Fiji is in need of more qualified staff, and this was seen as an opportunity that the Future Cities approach could resolve. Aside from deploying a NUP to liaise between the city and ADB, a young urban planner was engaged as an intern for the GSA. The intern, since early 2017, had a short assignment at the Department of Town and Country Planning before being posted at the Lami Town Council to assist with research on the preparation of the draft Report of Survey (transport sector) as an input to the revision of the Lami Town Planning Scheme. She also reviewed the iTaukei Land Trust Board (TLTB) Master Plan. She has been supporting the NUP and activities for the preparation of the RISE project.

In addition, the Future Cities TA assisted in preparing the National Development Plan, which contains project proposals for the next 5 years (medium-term plan) and 20 years (long-term plan). A spatial dimension was added to the development plan by mapping each project to show connections and omissions and thereby help clarify future project opportunities and priorities.

Similarly, the TLTB has been reviewing its outdated GSA Land Use Plan in terms of policy on leases and locations with assistance from the TA project team. Given that 55% of the GSA is native land and that TLTB makes decisions on lease renewals and conditions without the guide of an overall strategy, this has important implications for overall development planning. It also links back to the identification of appropriate communities with no networked water and wastewater connections to be potentially covered by the RISE project.

Given that 55% of the GSA is native land, this has important implications for overall development planning

The GSA councils have also requested through the NUP and urban planning intern to help update current planning schemes and policies in accordance with recommendations from the urban growth management action plans (documents that detail how development plans will be implemented). The city essentially wants to harmonize all the plans, ensure it follows GSA strategies, and from there mobilize appropriate activities. The Future Cities approach in the GSA not only aids in addressing rapid urbanization but also serves to remedy institutional gaps.

More importantly, it must be emphasized that in comparison to other cities under the Future Cities TA—such as Tbilisi, where there is strong showing of engaging with the city and diverse stakeholders—it is in the GSA (and eventually Makassar) that the approach has led to an actual project.

Lessons Learned from the City

Applying the Future Cities approach in the GSA has resulted in three key lessons:

1. Since ADB is operating in more than one sector, specific supporting activities can be identified to enhance overall coordination and bring about integrated city development.

2. Knowledge partners can be a good source of scientific evidence or innovative ideas to reinvigorate practice with quality research and funding which may not be readily available in ADB. The challenge is to determine when and how to use these knowledge partners.

3. Selecting an NUP and intern with skills that match the needs of the local government will lead to more productive day-to-day collaboration that strengthens the relationship with the city.

ULAANBAATAR

Overview of the City

The Capital City of Ulaanbaatar is the biggest city in Mongolia. It is currently home to over 1.4 million people and accounts for 45% of the country's population, 63% of the gross domestic product, and 66% of the total urban population.[10]

The city center bears the legacy of Soviet planning and urban design. It follows the socialist super blocks model that mainly uses buildings of 3–4 stories with access to full urban services. Adjacent and surrounding the center are 60% or 800,000 of the city residents living in *ger* areas.[11] These are vast periurban areas where there are no basic services such as water (indoor piped water), wastewater and sanitation, and centralized heating.[12] Residents have to go to state-run water kiosks, dump wastewater on the street, use pit latrines, and burn coal for heating their *gers* or single-family detached homes. These inappropriate practices cause heavy pollution that affect the city residents' health. Furthermore, unimproved individual coal stoves generate greater air pollution during winter[13] and poor sanitation and solid waste collection create highly unsanitary living conditions.

Future Cities Approach in the City

The Ulaanbaatar Urban Services and Ger Areas Development Investment Program, an ADB multitranche financing facility (MFF) approved in

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[10] National Statistic Office of Mongolia, 2016.

[11] Named after traditional Mongol *ger* tents, according to MAD (Make a Difference).

[12] B. Gombosuren. 2016. *Ulaanbaatar Urban Diagnostics.* Consultant's report. Ulaanbaatar: ADB (TA 9025).

[13] This pertains to PM2.5, particle matter smaller than 2.5 micrometers. Rate per cubic meter in winter is seven times higher than allowed by the World Health Organization. Winter in Mongolia lasts up to 5 months.

An example of a *ger* in the city. Supporting the core project will help provide better housing options and access to basic services. Photo: Ian Hamilton.

December 2013, has formulated a redevelopment strategy for *ger* areas. The program proposed an integrated and comprehensive infrastructure and technical support approach to upgrade existing subcenters in these *ger* areas. Better urban planning combined with a network of infrastructure along priority roads will initiate a structural change of the subcenter urban fabric. This will (i) improve residents' access to basic urban services, public space, and socioeconomic facilities; (ii) support local economic development; (iii) allow residents and businesses to take advantage of urban economies; and (iv) provide better housing options. This will lead to a network of subcenters as backbone and driving force of the *ger* areas redevelopment, promoting connectivity and inclusiveness, and a more polycentric development of the city. Four subcenters have been selected for

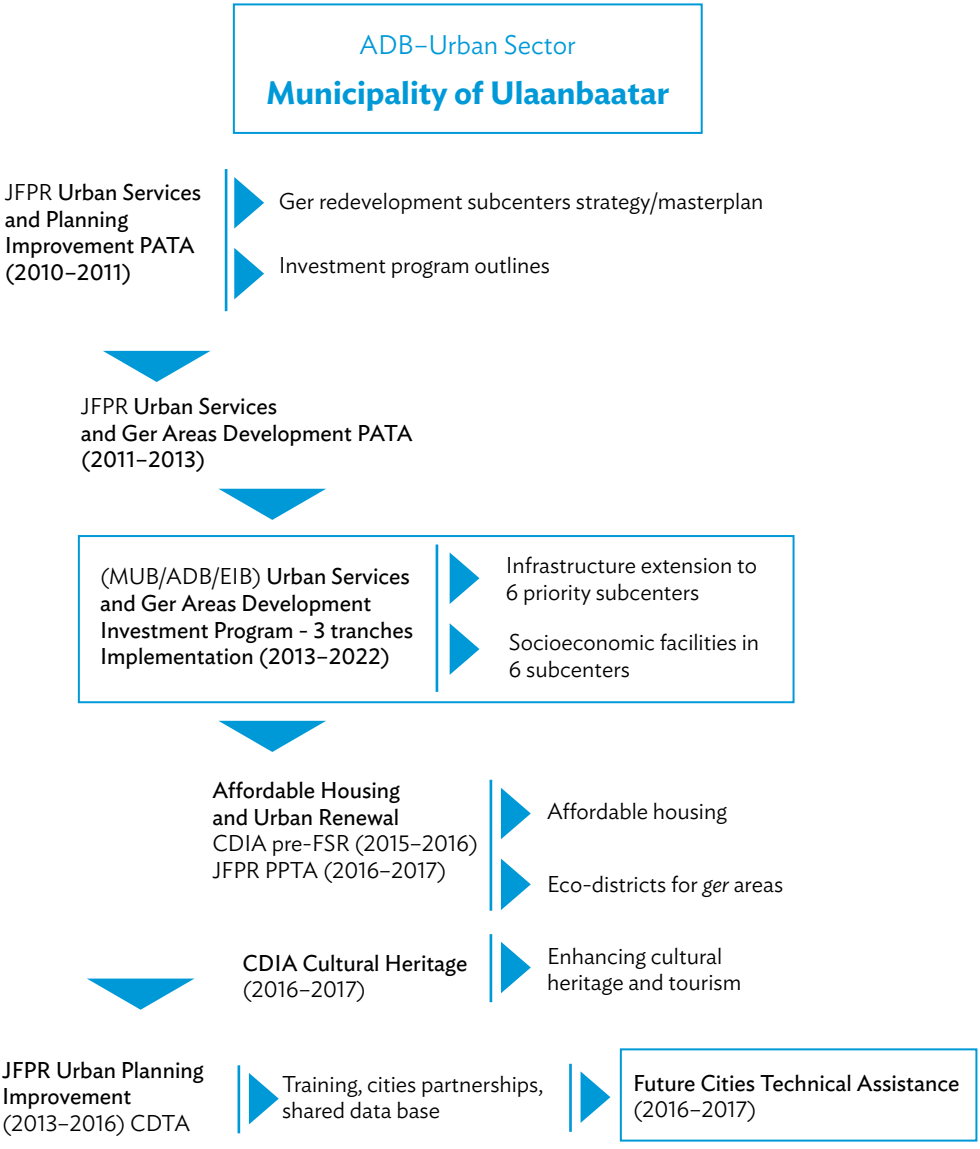
the first two tranches of the MFF: two are under construction and the other two are being planned. Tranche 3 will focus on two more subcenters.

Other ADB initiatives linked with the investment program include a TA for affordable housing and urban renewal (financed by the Cities Development Initiative for Asia [CDIA] and the Japan Fund for Poverty Reduction [JFPR]); a TA for urban planning improvement (funded by JFPR); the Ulaanbaatar Ger Area Cultural Heritage, Tourism, and Community Enhancement Project prefeasibility study (financed by CDIA); and an urban transport MFF (currently under implementation) (Figure 6). The Future Cities TA has adequately complemented these existing activities from different angles, while maintaining a core focus on increasing the impact of the *ger* investment program (Figure 7).

The Municipality of Ulaanbaatar particularly requested the Future Cities team to examine and improve current urban planning responsibilities and arrangements, technical skills, and legal settings, as well as to make recommendations for institutional reform (including a local and master planning exercise) to better implement the provisions of the city's 2030 Master Plan.

One critical issue was to support the change from the Soviet planning system to a market driven economy model that would expose urban planning professionals to international expertise and experiences through partnerships and trainings. The expertise of the Paris Region Planning and Development Agency (IAU Île-de-France) fitted this request (p. 20). Along with an international urban planner, IAU Île-de-France was tasked to assist city planners with technical on-the-job planning on methodology and tools, especially on the formulation of local plans (especially for *ger* areas); work with the Municipality of Ulaanbaatar on urban law and regulation; and support the articulation and vertical integration between planning, design, and regulation among relevant agencies. IAU Île-de-France was also assigned with setting up a long-term

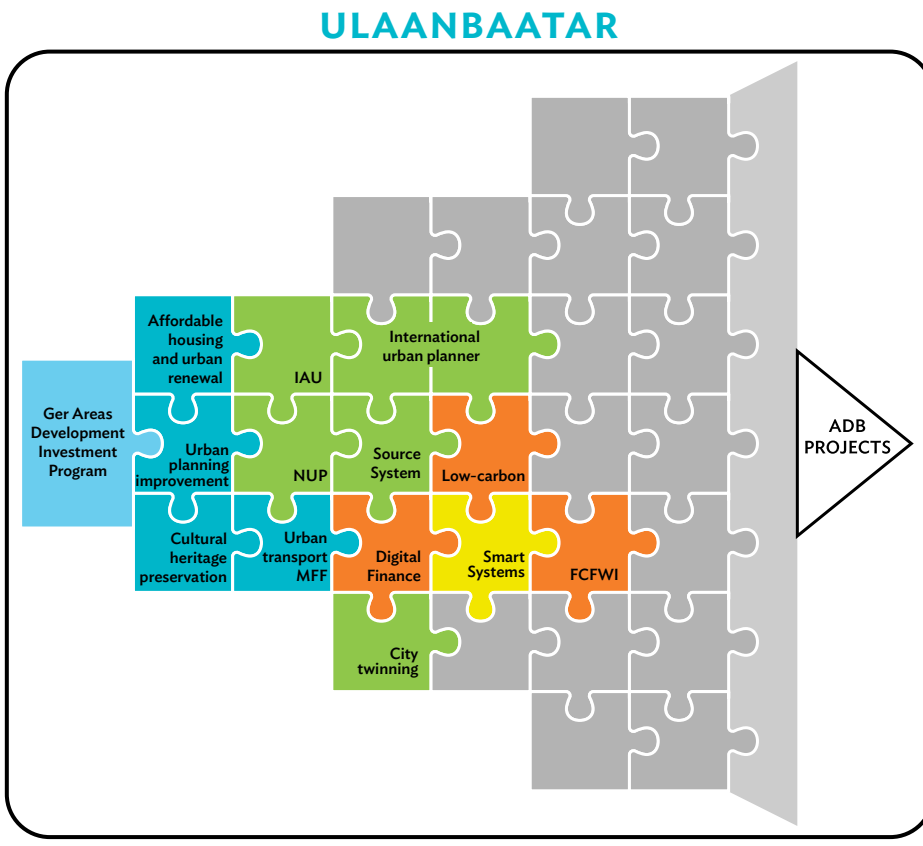
Figure 6: Urban Operations Support to Ulaanbaatar



ADB = Asian Development Bank, CDIA = Cities for Development Initiative Asia, CDTA = capacity development technical assistance, EIB = European Investment Bank, FSR = feasibility study report, JFPR = Japan Fund for Poverty Reduction, MUB = Municipality of Ulaanbaatar, PATA = policy and advisory technical assistance, PPTA = project preparatory technical assistance.

Source: Arnaud Heckmann.

Figure 7: Building the Jigsaw in Ulaanbaatar



ADB = Asian Development Bank, IAU = Paris Region Planning and Development Agency, MFF = multitranche financing facility, NUP = national urban planner.

Notes:
1. Green jigsaw pieces represent interventions from the Future Cities technical assistance.
2. Jigsaw pieces colored light yellow and light orange represent regional technical assistance projects.
3. Dark blue jigsaw pieces represent existing ADB additional support (some through the Cities Development Initiative for Asia and/or the Japan Fund for Poverty Reduction).

Source: Author.

planning and education-related institute, which will be able to further develop local urban planning skills. It will provide training and develop urban planning-related technical assistance proposals for possible funding from development partners.

The Future Cities TA also supported a city partnership with Edmonton City (Canada), initiated during the urban planning improvement TA, to exchange knowledge and practices concerning cold climate infrastructure and public space design. Additionally, to assist with Ulaanbaatar's financing needs, a capacity building session on the Source System (p. 29) was conducted to enable agencies to better prepare project proposals for private sector funding in the future.

Lastly, in the course of the TA project while implementing the Future Cities approach, a channel for an efficient operational dialogue between the city and other ADB sector group programs or projects was opened, creating synergies and better coordination between all ADB initiatives targeting the city. Under the Future Cities Future Women Initiative, a gender violence study was conducted in the *ger* areas. The result of the study was translated into a shelter for gender violence victim subproject that was included in the second tranche of the core project or the *ger* investment program. Other initiative and reconnaissance missions were also implemented to plant future seeds of cooperation between ADB and Ulaanbaatar, such as those by the Digital Finance and Smart Systems TAs.

Lessons Learned from the City

Limited skills and experience in urban planning is common among the pilot cities. Within fragmented and sometimes overlapping institutional settings, fostering trust within the planning department, urban design institute, and city master plan agencies take time. Strengthening an urban planning organization

In August 2016, ADB Mongolia Resident Mission Country Director Yolanda Fernandez Lommen and Ulaanbaatar Mayor S. Batbold signed a memorandum of understanding to implement the Future Cities TA in the city. Photo: Bat-Erdene Gombosuren.

and its functions require a long process to materialize and institutionalize. Improving organizational development should be envisioned for the long term, addressing gaps in the existing planning institution and planning expert education and training. This needs sustained effort and support, especially from development partners.

Opening a city-focused channel within ADB is very useful to converge initiatives from other sectors and departments. It allows easier access for other programs, encourages synergies, and plants the seeds for long-term, city-focused approach. Knowledge partners should lead the exchange of approaches and lessons learned among other knowledge partners and cities.

MAKASSAR

Overview of the City

Makassar is the administrative capital of South Sulawesi province, Eastern Indonesia. With a population of 1.8 million (as of April 2017), it is the fifth-largest city in the country and one of its most densely populated. Makassar's growth comes from its role as the air and maritime gateway to Eastern Indonesia. Urban expansion has been fast, and it has been happening mainly in the city's periphery, where migrants come and stay in informal communities.

The largest slum areas are north, east, and south of the city center, and can be categorized into (i) coastal and riverside communities (houses on stilts above the water); (ii) urban slums and villages, which, in some areas, merge into the coastal and riverside communities; and (iii) new informal developments in formerly rural areas.

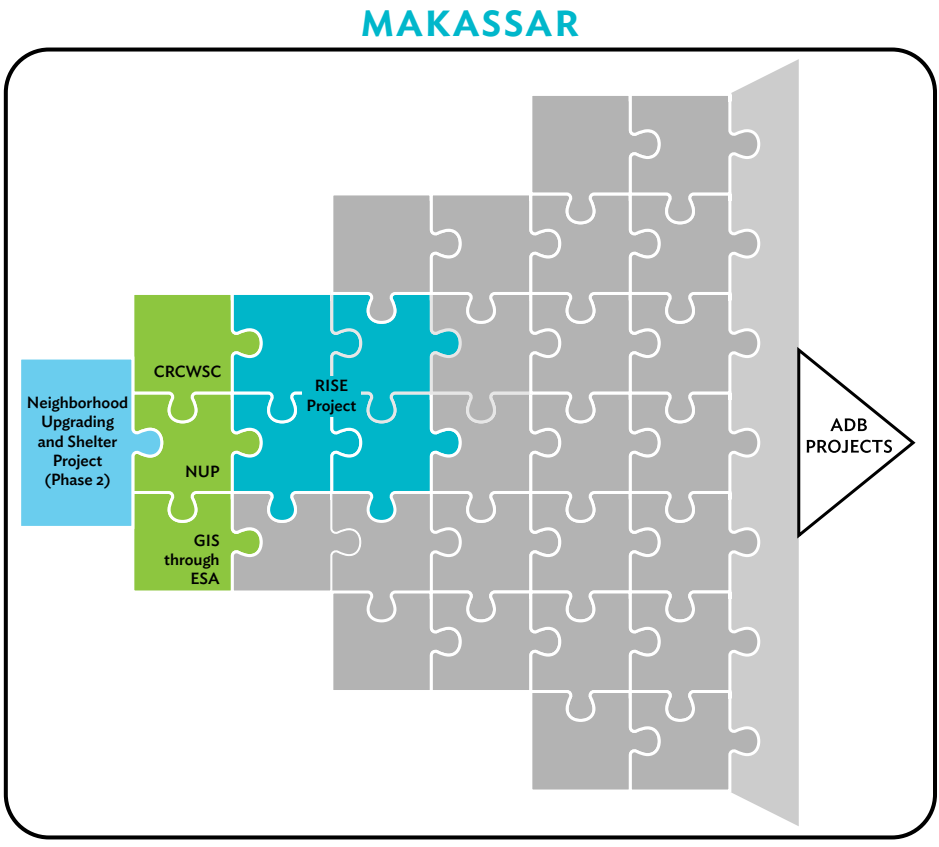
Some of the challenges facing the city include water and wastewater management, flooding, and vulnerability to climate change hazards.

Future Cities Approach in the City

ADB is currently implementing the second phase of the Neighborhood Upgrading and Shelter Project in Makassar as part of a 20-city scope (Figure 8). The project adopts a community-driven development approach to upgrade basic infrastructure and establish new housing sites for people residing in informal settlements.

The Future Cities TA is supporting Makassar through the neighborhood project. Addressing the proliferation of slums in Makassar could have a significant and far-reaching effect on the city's trajectory toward livability, and the RISE project with its green infrastructure services and housing solutions complements this.

Figure 8: Building the Jigsaw in Makassar



ADB = Asian Development Bank, CRCWSC = Cooperative Research Centre for Water Sensitive Cities, ESA = European Space Agency, GIS = geographic information system, NUP = national urban planner, RISE = Revitalization of Informal Settlements and Environment.

Notes:
1. Green jigsaw pieces represent interventions from the Future Cities technical assistance.
2. Dark blue jigsaw pieces represent a new ADB project.

Source: Author.

This slum site in Makassar depicts the typical conditions of informal settlements in the city. Photo: CRCWSC.

Similar to the GSA, the RISE project in Makassar targets informal communities that have not received any form of prior assistance.

Lesson Learned from the City

There is still a lot of room for engagement with the city. The key takeaway from the Makassar experience is the importance of selecting the right and most relevant knowledge partner, which could enrich the development work being accomplished in the city, and, more importantly, open up new or innovative ideas to address long-pressing urbanization problems. In the case of Makassar, the knowledge partner (CRCWSC) became a good source of scientific evidence and research, nontraditional solutions, and even additional funding that were not readily available in ADB.

BANDUNG

Overview of the City

Bandung, the capital of West Java, is the fourth-largest city in Indonesia. It has a population of about 2.5 million people and is well-known for its academic institutions, industries, and recreational and cultural activities. The city is a popular getaway destination for the more than 20 million people living in the nearby Jakarta metropolitan region.[14]

Bandung has witnessed continuous economic growth. This, however, has attracted a steady stream of rural–urban migrants, who often end up in slums and squatter settlements. Still, Bandung is viewed as a good area for investments. Its gross domestic product growth rate has generally been 7%–8%, which is higher than Indonesia's annual growth of 6%–6.5%.[14]

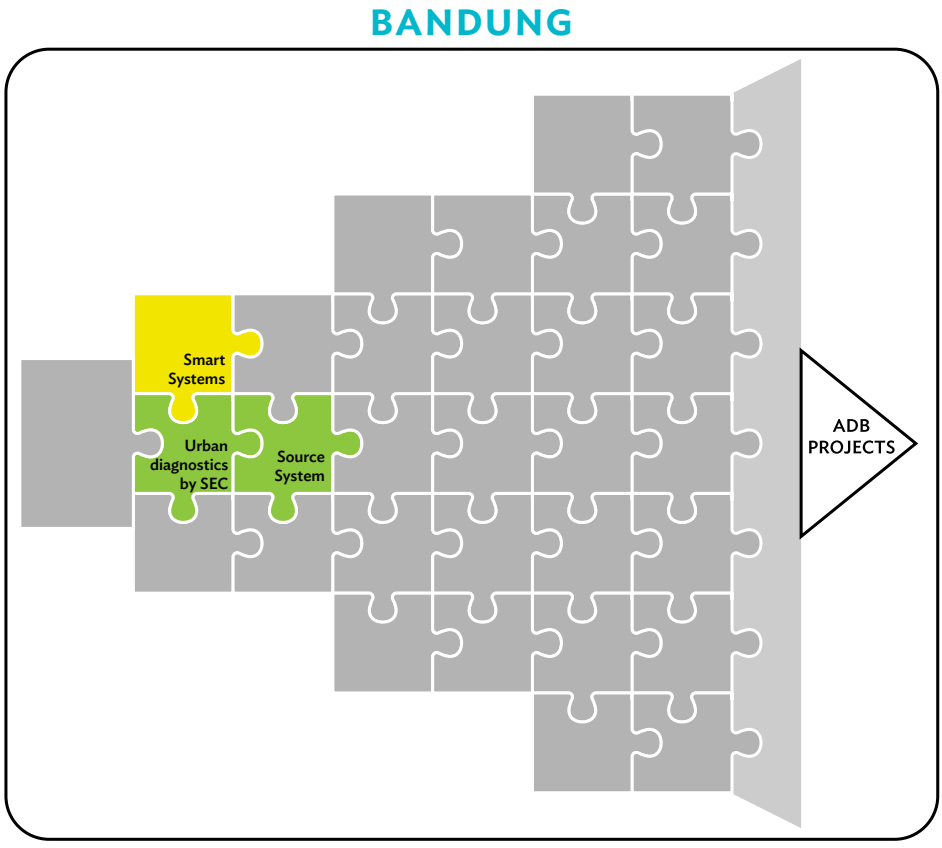
Future Cities Approach in the City

Ideally, the Future Cities approach should start with a core project. In Bandung, however, there was no ADB investment to reinforce (Figure 9). Bandung became a pilot city because of its potential, due largely to its active local government and civil society and private sector interest.

To spark engagement, the Future Cities TA first tapped the World Resources Institute to provide a diagnostic assessment of the city. This knowledge partner highlighted a lot of potential areas for specialization. However, the lack of a core project and stakeholder relationships severely hampered consistency and fluency with the city. There were attempts to start a number of projects that aligned the city's intentions with ADB resources. ADB held discussions with potential solid waste management and waste-to-energy initiatives with the thought

[14] ADB. 2016. *Bandung Urban Diagnostics*. Consultant's report. Manila (TA 9025).

Figure 9: Building the Jigsaw in Bandung



ADB = Asian Development Bank, SEC = Singapore-ETH Centre.

Notes:
1. Green jigsaw pieces represent interventions from the Future Cities technical assistance.
2. A light yellow jigsaw piece represents a regional technical assistance project.

Source: Author.

Creating a regional high technology knowledge and training hub for smart cities is one of the potential areas for wider engagement in Bandung.

to potentially link the RETA project Integrated Solid Waste Management in Asia.

It was only in early 2017 with the Smart Systems TA becoming involved in Bandung that concrete progress emerged. One of the opportunities identified, which could be well supported by the local government, is the city's potential for a public–private partnership with technology companies and the city's universities to create a regional high-technology knowledge and training hub for a smart city. Singapore-ETH Centre was also brought in to conduct research on urban planning systems for an integrated Bandung through (i) grassroots engagement; (ii) smart neighborhood infrastructure (incremental housing and urban planning for tropical cities); and (iii) coordination of smart neighborhood initiatives with other activities of different scales in the city, and regional infrastructure plans.

Lesson Learned from the City

The unique case of Bandung demonstrates how the Future Cities approach can be flexible, organic, and responsive to the potential once analyzed. Moreover, the potential can be realized and the absence of a core project can be overcome.

Chapter 4

LESSONS LEARNED FROM THE PILOT CASES

There are many lessons to be gained and shared from implementing the Future Cities approach, several of which are continuously being learned.

Selection of Cities and Activities

It is essential that there be mature and wide-ranging support from both the Asian Development Bank (ADB) and the government to broaden the investment pipeline in the city and establish long-term engagement. Without assurances from the ADB regional departments, resident missions, and city and national government, it is counterproductive to spend time dealing with uncertainties. Cities that have resident missions benefit from closer ADB oversight of ongoing activities unlike those without.

It is very important early on to execute a long-term memorandum of understanding with a city, laying out the long-term relationship that is to be forged and the expectations that are to be met. This memorandum of understanding needs to be flexible enough to ensure that the process of engagement is responsive and forward thinking, not prescriptive and linear.

Use of Knowledge Partners

Over the course of implementing the Future Cities approach, the means of engaging knowledge partners changed from a contract requiring them to produce comprehensive urban diagnostics to a more limited agreement wherein they provide focused outputs

LESSON

Use core project relationships and identified priority sites when broadening engagement with the city, so as to efficiently focus scarce resources and create bigger impact.

The ADB Georgia Resident Mission and Future Cities TA representatives had a meeting with Tbilisi Mayor David Narmania, Deputy Mayor Irakli Lekvinadze, and other top city officials for a presentation of CDIA studies. Austrian Ambassador Arad Benkö also attended.

based on these diagnostics or a similar analysis by the research and technical assistance (TA) project Establishing the Future Cities Program in the Asia and Pacific Region (Future Cities TA) team.

The right, relevant knowledge partners are needed for each city so that synergies can be generated. Although facilitated with seed resources and support, they need to be separately motivated and self-sufficient to work with the city government (ultimately with their own or additional financing), and well engaged globally in their specialty area. Working with the city, they should assess long-term development perspectives, connections,

LESSON

While one pilot city had no core project, it took more than 18 months to effect any coordinated activities; thus, engaging the city without this vital element is not recommended unless there is strong engagement from another nearby twin city.

and commonalities between ongoing and proposed work, and establish a platform for further discussion of proposed issues, themes, and interventions.

The Future Cities TA team should initiate the urban diagnostics in each city in conjunction with existing ADB projects and teams. Appropriate knowledge partners should be utilized as required based on the team's analyses of problems and opportunities.

Urban Diagnostics

Urban diagnostics is a wide assessment of issues and opportunities in the city that is vital to understanding its needs and how the city can move toward achieving livability. The assessment also presents areas or sectors where investments can be made so that development work is not haphazard. Urban diagnostics can also open up leads to valuable contacts in a city.

Knowledge partners prepared the urban diagnostics for all cities using standardized templates provided by the Future Cities TA team. Outputs contained the following headings: Urban Development Context (Urban Setting, Development Constraints/Issues, Administration, and Current Project or Program Status); and Vision for a Livable City (City's Vision, External Support, and Way Forward).

The diagnostics can be commenced at an early stage using existing ADB resources, such as information in documents of core projects. They can eventually be produced in more detail and regularly updated

LESSON

Knowledge partners are able to address issues in innovative ways. They can also mobilize additional finance and specific technical expertise to support projects. ADB should support and direct them to appropriate opportunities.

with support from the national urban planner (NUP) in liaison with city administrators and the resident mission.

Regional Technical Assistance Projects

In the past, regional technical assistance (RETA) projects have often operated independently of other projects in similar areas. This confuses city administration and wastes resources. Combining and coordinating other RETA projects under one umbrella and title (Future Cities) has enabled better understanding of linked issues and opportunities within the RETA project and the Future Cities TA, as well as in the cities. It is important to realize that coordination between the various RETA projects shows a unified ADB front to city administrations, and it simplifies transaction costs for the city and resident mission, providing more holistic, efficient, and energized resource usage for ADB. There is room for improvement within ADB to ensure the benefits of a coordinated approach are fully understood and that city officials are not overwhelmed or confused.

Delays in fielding some RETA projects, however, have limited coordination and expected synergies. It is essential to ensure both operational and knowledge TA projects are well in sync, even if they are meant to achieve different objectives. More engagement is required, especially by NUPs, to ascertain the ability of cities to absorb different amounts and types of assistance.

LESSON

Coordinating the timing of TA projects (within ADB) will ensure better synergies with other such projects and related activities under the Future Cities approach.

National Urban Planners

NUPs have proven to be critical in enhancing existing relationships between ADB and the cities. Experience suggests that these planners represent a good value investment to both ADB and the cities. They serve as readily available sources of information and technical support to local (and some national) governments without any language barriers and with full understanding of sociocultural issues involved in project identification and development. They are able to supplement local resources in ADB resident missions, especially where they may be located in another city as opposed to the capital (e.g., Mandalay) or where the resident mission has a wider geographical mandate (e.g., Suva with the Pacific Subregional Office). In the future, more autonomy may require small operating budgets to enable them to hold meetings with key local stakeholders as may be necessary.

During the Future Cities TA implementation, the available talent pool for NUPs was found to be quite small, given that many such technical staff will either be already working in government or with international agencies. Because of the required expertise (if possible, with an economic, engineering, or project management specialty) and seniority expected for a NUP, this makes finding such individuals extremely difficult. It is also hard to find someone who can be passionate about the aims of the Future Cities approach, and would be able to articulate how this is applied. In the future, it may be necessary to consider hiring someone on a part-time basis (in conjunction with another ADB project perhaps) or assigning the NUP to a larger geographical area if the Future Cities approach will be expanded to more than one city in a country. In some cases, perhaps a current government employee would be willing to take a leave of absence to take up this role.

LESSON

Going forward, the use of a sector-based RETA project with a Future Cities approach should be carefully limited to where a RETA project has real potential value.

The presence of project officers from the RETA projects (from Digital Finance, Future Cities, and Future Cities Future Women) shows a united ADB front to city administrations.

Capacity-Building Practitioners

Individual practitioners have been hired in situations where more detailed and specific capacity building have been required, such as for urban design solutions for Thin Gaza Creek in Mandalay and urban planning training in Ulaanbaatar. This has worked well when the proposed trainees are small in number, relatively junior, and identified in advance.

LESSON

A full-time national urban planner in each city is crucial for coordination with the city and internally within ADB.

Interns (Long-term Voluntary Placements)

Many city administration offices are in need of qualified full-time staff. Appointing qualified interns benefits both cities and these professionals who are often just beginning their careers. Local governments generally welcome external support in nonsensitive situations like writing urban policies or guidelines. During the Future Cities TA implementation, an opportunity to obtain the services of suitably qualified and motivated interns arose. But the experience with the agencies providing the interns has been less than satisfactory due to the quick turnover of their junior staff and lack of internal coordination.

Political Events

The Future Cities approach hinges on a leader of an urban agency who is supportive of ADB and its projects. Ideally, this is the mayor or head of a relevant department. However, experience has shown that political change in cities can be rapid and dramatic, with wholesale changes of departments following elections (such as in Mandalay, Tbilisi, and Ulaanbaatar in 2016). Such events are generally known in advance and need to be considered in the selection process so as to determine whether such short-term disruption outweighs the potential long-term benefits of engagement.

LESSON

To hire the most appropriate national urban planner, flexibility may be required due to the limited availability of individuals with the necessary skill set.

Coordination inside ADB

Coordinating between technical and thematic groups is one of the critical aspects of the Future Cities approach. This enables financial and knowledge resources to be quickly identified and fielded where relevant, and ensure disparate RETA projects can be coordinated and focused where they make the most sense.

Although coordination within the Sustainable Development and Climate Change Department of ADB has been challenging, collaborating with and between regional department divisions has been the most difficult.

Critical support is needed from both the director general and the director of the core project. This support needs to be extended across the regional department and to other relevant sectors and thematic groups.

LESSON

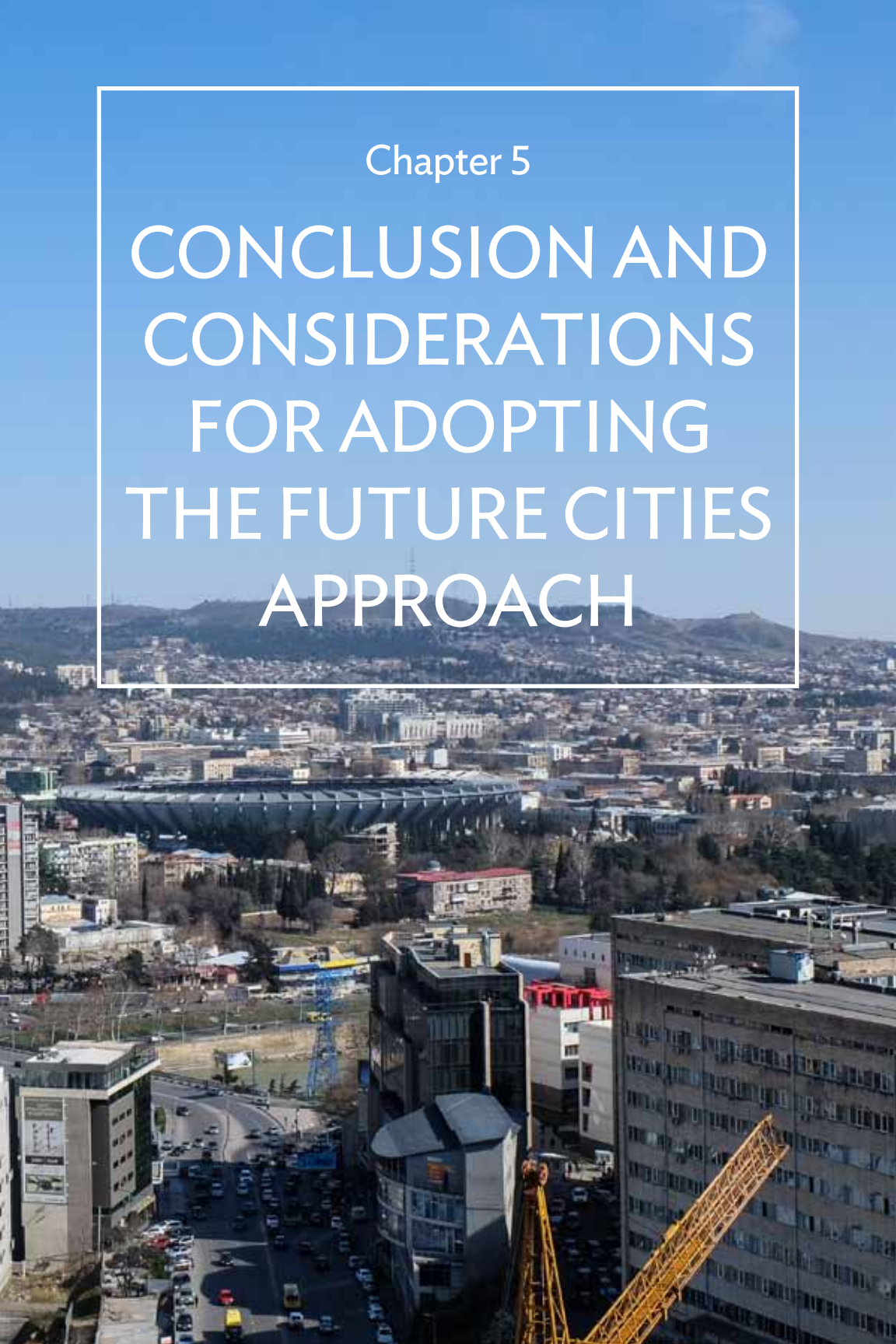
Decision makers in ADB must be able to see the potential for a longer-term relationship between cities and ADB and not base impressions on short-term events and results.

LESSON

The Future Cities approach seeks to break silos and achieve functional change in internal relationships by motivating people within ADB to work together.

Chapter 5

CONCLUSION AND CONSIDERATIONS FOR ADOPTING THE FUTURE CITIES APPROACH



The Future Cities approach is all about engaging with city governments and developing a long-term, forward-thinking relationship that leads to creating livable cities (Figure 10). Aside from nurturing linkages between cities and the Asian Development Bank (ADB), it is also important to cultivate the support of other development partners and stakeholders. While the approach can work well with such collaboration, delays in mobilizing the various components can occur and processes must be flexible enough to deal with occasional setbacks.

The approach is also recommended as a broad framework for future engagements in urban development, bearing in mind the lessons and experiences of the pilot cities. In summary, the Future Cities approach has focused on the following steps:

(i) Base initial discussions with cities that have links with and support **ADB core project(s)** and whose project officers have established relationships with local stakeholders.

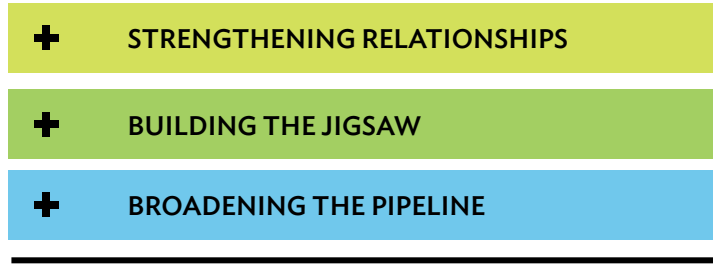
(ii) Select cities that have expressed support for the Future Cities approach and that have the backing of respective ADB regional departments and resident missions.

(iii) Execute a long-term **memorandum of understanding** with the city to set expectations and clear outputs out of the engagement.

(iv) Appoint a **national urban planner** (NUP) who is well connected locally and will be able to provide independent advice to key stakeholders on urban development issues, as well as assess activities, including coordinating missions of related technical assistance (TA) projects.

(v) Undertake an **urban diagnostics** study to supplement knowledge of the current situation, issues, and potential opportunities.

Figure 10: Future Cities Approach Formula



Source: Author.

(vi) Refer to any **vision** or formal development or concept plans that the city currently has to assess future aspirations and directions.

(vii) **Build the jigsaw**. Identify activities that relate to both the core project and the vision of the city, and that can increase investments, preferably on a **location-specific basis** and within the city's scope to control and/or approve.

(viii) Identify **available Future Cities support and additional finance**, which can be utilized to implement these activities, whether through knowledge partners, individual resources, funding facilities, other TA projects, interns, twinning arrangements, or other engagement mechanisms. Over time, the original single sector core engagement becomes wider and stronger.

(ix) Seek views and **feedback from individual cities** and formalize agreements.

(x) **Promote the Future Cities approach** to share its usefulness, raise awareness and support for activities, and share document outputs and lessons learned.

Continuing the Momentum in the Short Term

The approach should be promoted. Raising awareness on how it works and what it has achieved will ensure greater chance of its continuity and getting more institutional support in ADB. Blogs, presentations, and articles can be used in this regard. There is also scope for allocating additional resources to producing video documentaries in selected cities, as and when agreed activities start to take place (e.g., the Revitalization of Informal Settlements and Environment [RISE] Using a Water-Sensitive Approach project).

As for support from the cities, the NUPs should be advocating the approach and its advantages when liaising with local government officials and other stakeholders. The myriad components of the approach, the various linkages involved, and how they all fit can sometimes be challenging to understand. Thus, NUPs have to lead in communicating what the Future Cities approach can do for the city.

One idea is the allocation of small amounts of funding to enable NUPs to organize small meetings to explain the approach and brainstorm potential activities. In addition, contracts of future knowledge partners must have a requirement to promote the approach during reporting, presentations, and discussions to further emphasize the concept to cities.

Continuing the Approach for the Long Term

The Future Cities approach is designed to be ambivalent to the physical, institutional, or cultural form and boundaries of a city. It is a paradigm for sustained engagement, strengthening relationships over time, providing appropriate and relevant financial

The ideal scenario would be to modify the processes of the regional departments using the successes of the approach. This could then shift the way urban development is done.

and knowledge resources, and ensuring development is effective. It is also a safe space for creating ideas and solutions that can be eventually embedded into ADB operations.

These virtues aside, the verdict on adopting the Future Cities approach has yet to be finalized. Future options include (i) continuing some or all of the current pilot cities (Phase 1); (ii) starting Phase 2 with new urban areas in regions and countries that fully support the aims of the approach; (iii) mainstreaming the approach into standard operational practices of ADB regional departments; or (iv) a combination of any of these.

Out of the four options, the Future Cities approach has always had the possibility of being mainstreamed or operationalized into the regional departments' standard practices. This was how it was designed. The question now is whether this should be the case or should the Sustainable Development and Climate Change Department retain ownership of the approach. Since it still has the scope to do so, it would then maintain coordination with each city.

Still, the ideal scenario would be to modify the processes of the regional departments using the successes of the approach. This could then shift the way urban development is done. One concern, though, would be how to manage and maximize the benefits from the use of knowledge partners. Based on the pilot demonstration, particularly the development of the RISE project, there is a wealth of innovative thinking and research outside ADB that can be harnessed to conceptualize solutions in conjunction with standard ADB operating procedures.

As a whole, there are many ways to proceed with continuing the Future Cities approach, apart from the other option of letting it naturally subside. However, if the gains and any of the lessons from the pilot cases have any weight, then there is good reason and solid validation to take up the approach in any form possible. The Future Cities approach resulted from a

TA project that served as an incubation of ideas, an experimental space to find the optimal way to engage with local governments and open up opportunities to make cities livable in the future. Now is the time to take it further. The future of Future Cities lies with ADB project officers and regional departments in whether they will apply the approach, especially in light of the global development agenda. The Future Cities approach could be that critical piece to help complete the jigsaw puzzle of urban livability.

Engaging with Cities of the Future

A Perspective

Inefficient and uncompetitive cities inhibit economic growth and inclusive development. Integrated urban planning will help stem the decline of Asian and Pacific cities, spelling the difference between a future of gloom or glory in the region. The technical assistance Establishing the Future Cities Program in the Asia and Pacific Region identifies new approaches, particularly the Future Cities approach, to address the challenges of urbanization. The program reviewed the entire ecosystem of how to develop livable cities and served as a testing ground for new or improved solutions. This publication captures insights from work in six pilot cases in Tbilisi, Mandalay, Greater Suva Area, Ulaanbaatar, Makassar, and Bandung.

About the Asian Development Bank

ADB's vision is an Asia and Pacific region free of poverty. Its mission is to help its developing member countries reduce poverty and improve the quality of life of their people. Despite the region's many successes, it remains home to a large share of the world's poor. ADB is committed to reducing poverty through inclusive economic growth, environmentally sustainable growth, and regional integration.

Based in Manila, ADB is owned by 67 members, including 48 from the region. Its main instruments for helping its developing member countries are policy dialogue, loans, equity investments, guarantees, grants, and technical assistance.

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