WORLD BANK GROUP

What Makes a Sustainable City?

A Sampling of Global Case Studies Highlighting Innovative Approaches to Sustainability in Urban Areas

Acknowledgements

This compilation of case studies was assembled and edited by a team led by Valerie Santos and composed of Drilon Gashi and Fernando Armendaris.

Significant contributions were made by Ahmed Eiweida, Andre Bald, Angelica Nunez, Carter J. Brandon, Elif Ayhan, Etienne Kechichian, Farouk Banna, Gary Goliath, Guido Licciardi, Habab Taifour, Hoa Thi Hoang, Ibrahim Dajani, Jaafar Sadok Friaa, Joe Lloyd Leitmann, Jose Luis Acero, Joshua Gallo, Laura Bonzanigo, Linh X. Le, Madhu Raghunath, Makiko Watanabe, Mansha Chen, Maria Sarraf, Martin Onyach-Olaa, Maximilian Hirn, Noriko Oe, Nupur Gupta, Onur Ozlu, Patricia Lopez Martinez, Stephen Karam, Victor Mulas, Victor Vergara, and Wendy Ayres.

The team thanks Anna Wellenstein for her guidance and ongoing support. The cases also benefitted from editing and information design by Steve Hirsch and Sheena Yoon respectively. Carolina Hammond provided support.

What Makes a Sustainable City?

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Foreword

The majority of the world is now urban. Cities are attracting people because they are centers for economic activity and can offer a higher quality of life: there are more jobs, more services available, transport options to move within the city, trade, knowledge exchange, and connections to other cities and countries. As a result, in 2050, two-thirds of the world population is expected to live in cities.[1]

Many countries are looking at their cities as engines for advancing national growth. Cities alone account for approximately 80% of GDP generated worldwide.[1] As the world continues to urbanize, the highest concentration of growth is expected to be in Asia and Africa[1], regions that are home to some of the poorest countries in the world. Inequality is highest in urban areas – one out of three urban residents in the developing world lives in a slum.[3] Cities are the highest consumers of energy and responsible for 70 percent of greenhouse gas emissions.[2] Shocks and stresses such as natural disasters and economic crises tend to hit cities the hardest, as the concentration of people and assets makes them particularly vulnerable.[4]

Cities around the world are implementing innovative ideas to efficiently manage urbanization. They are facing challenges head on and placing themselves on a path toward sustainability. Increasingly, city governments are becoming empowered administratively and financially to be able to serve their growing populations, offering good public transport options, access to clean water, effective waste management, and other essential basic services. As national governments recognize the importance of urban areas to their overall economic growth, the World Bank Group is increasingly being asked to support city sustainability worldwide, whether it's by helping improve own-source revenue collection, creating urban infrastructure and access to transport, or adapting energy efficient options for city industries to run cleaner and at a lower cost.

This booklet of case studies showcases cities in developing countries that are implementing bold ideas with the objective of achieving environmental, economic and social sustainability. In all the stories included, the World Bank Group has been able to work alongside the cities to help them meet their goals by offering a number of services. These case studies show what a wide variety of cities have achieved in this endeavor, with clear and measurable results. Cities have responded to the new challenges and opportunities of rapid urbanization by spurring innovation to improve services, create jobs, and enhance livability for future generations.

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3 UN-Habitat (2014) Background Paper: World Habitat Day 2014, Voices from the Slums. UN-Habitat: Nairobi, Kenya

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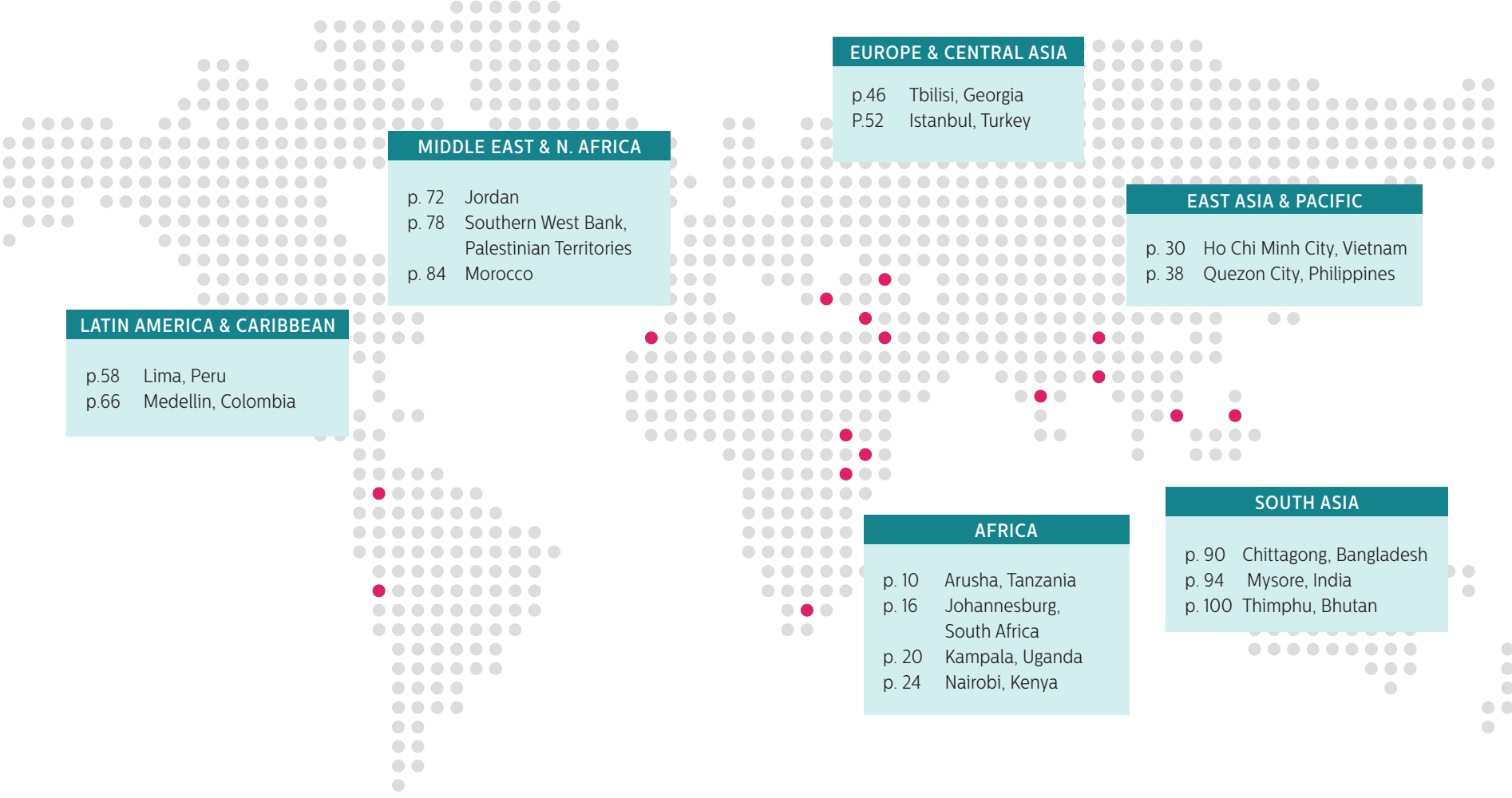
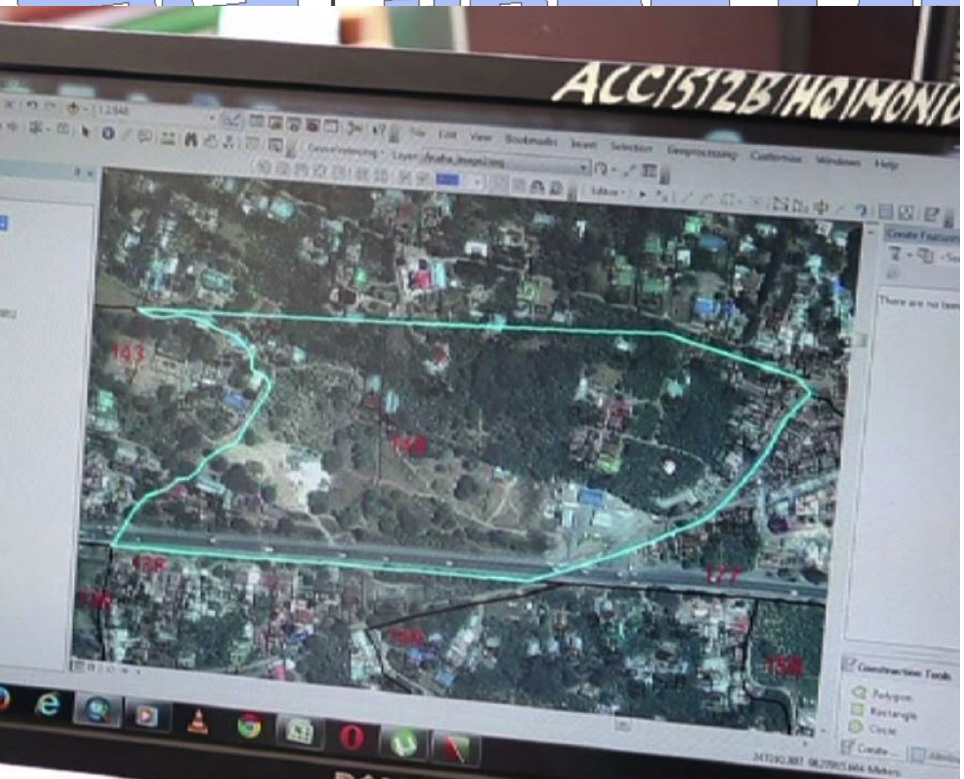


Africa



Arusha, Tanzania

ARUSHA ENHANCES FISCAL SUSTAINABILITY WITH NEW ELECTRONIC OWN-SOURCE REVENUE COLLECTION SYSTEM

Cities and towns in Tanzania, led by Arusha, have begun to institute a global best-practice property tax revenue collection system—the first step in a set of municipal e-governance initiatives.

Tanzania has had relatively stable governance, strong economic growth and rapid urbanization over the last decade. However, despite Tanzania's 7% average annual growth during the past decade, 40% of Tanzanian adults remain in extreme poverty.[1] Tanzania is in dire need of urban infrastructure and lacks a sustainable means to fund infrastructure and essential public services.

Cities in Tanzania and across the developing world struggle for municipal financing, because of overreliance on fiscal transfers from the central government—which can be unreliable—and on external donor funding. Through the World Bank's Tanzanian Strategic Cities Project, Arusha has obtained the training and technology to improve own-source revenue collection and lessen its dependence on inter-governmental fiscal transfers. The case presents a successful initiative with the potential to be scaled across Tanzania and Africa.

Although property taxes are the city's main source of local revenue, Arusha had historically been unable to process and enforce property tax payments efficiently, resulting in low own-source revenue collection. The city had tried to improve collection, but with poor results; tax-related information from field

1 40% of the adult population in Tanzania earns less than US$ 1.25 per day, while nine out of 10 Tanzanians earn less than US$ 3 per day (see: Tanzania Economic Update: Issue 6 (January 2015) The World Bank).

surveys was inaccurate and limited, and tax assessments and the paper-based payment process were susceptible to abuse. Citizens did not have confidence in the integrity of the taxation system, and those who paid taxes saw little reward for doing so, increasing mistrust of the system.

The past own-source revenue collection system in Arusha and in other Tanzanian cities was cumbersome for all parties – a common challenge for cities in developing countries. Taxpayer information in Arusha was kept in hard-copy format—books, files and registers—and time and effort were wasted retrieving physical documents. It was difficult to know who had or had not actually paid taxes, and where a particular taxpayer was located. Moreover, it was difficult for the government to send out bills to taxpayers on time. This made it difficult to ensure that the necessary controls on the system were in place.

The Bank, the Kingdom of Denmark and the Government of Tanzania supported the Arusha City Council in becoming the first of seven Tanzanian cities to switch from a manually administered own-source revenue system to a modern local government revenue collection information system. That system was integrated with a Geographic Information Systems platform. Other cities making the switch include Tanga, Mtwara, Mbeya, Kigoma, Mwanza, and the capital city Dodoma.

Arusha made the switch in January 2014, after much preparation and investment in necessary infrastructure. The new system allows the local government to use satellite data to identify taxpayers, and includes an electronic invoicing system that notifies and tracks payments. The system provides the most accurate registry of taxpayers to date, improving the monitoring of tax payments. Satellite photographs allow city staff to identify how many buildings there are in the municipality. The city identified 102,904 buildings with this new method compared to the 23,000 held in past databases.

With the new system, taxpayers are issued computer-generated invoices for property taxes and other taxes. Taxpayers visit the city council, where city staff members review the invoice information to confirm accuracy; a bill is then prepared for the taxpayer, who pays a cashier. With accurate and comprehensive data in place, the city is able to generate large numbers of bills with a mouse-click.

This system is electronic-based, with bills being system generated and scanned by barcode technology before being sent to a citizen's home. Payment may also be made electronically. The technology allows for a convenient, services-oriented interface, as well as one which provides controls that make it extremely difficult to game the system. Furthermore, the database can be used for urban planning, infrastructure operations and maintenance, and other urban public services.

However, technology alone didn't ensure success. Much was done in terms of encouraging Arushan taxpayers and businesses to comply.

Initially the City Council faced significant popular resistance. Seventy percent of taxpayers would be paying taxes for the first time, and many small businesses had never kept books. Existing taxpayers had justifiable complaints that the system was unfair; they had to be convinced the new one would be different. The information system allows for both bill preparation and own-source revenue collection, and in addition to locating taxpayers, it provides information on whether or not they have made required payments.

Arusha needed to establish trust among taxpayers—that taxpayers were being taxed fairly; that their neighbors were also paying taxes; that they would see the benefits of the program; and that the necessary controls against corruption were in place. The City Council consistently communicated to taxpayers what they had collected in taxes and what services were provided using that money. Local leaders, radio and television outlets, and public address systems (some

with speakers mounted on the roofs of cars) sought to inform citizens about the project and benefits they could expect. The council also "named-and-shamed" taxpayers by posting public lists at ward offices of those who had and those who had not paid their taxes.

Importantly, local leaders were targeted all along for their support. The council showed these leaders how they could benefit personally, through better services, and politically, with increased local resources allowing them to realize local development projects. Once on board, local leaders reached out to constituents and supported the rollout of the new own-source revenue collection system.

The World Bank project looks to extend these tools to seven of Tanzania's cities, then to Dar es Salaam and 18 other urban governments. Arusha has implemented and sent back data on its results and the city of Mtwara is set to follow suit soon. The goal of these initiatives is to enable developing cities to control and expand their finances. This is a strategically important initiative for cities, and one that can be scaled up throughout Africa.

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ACHIEVEMENTS:

- Within one year, the City Council boosted annual revenues by 75%, from 2.6 billion shillings (US$ 1.2 million) in 2012/2013 to 4.6 billion shillings in 2013/2014;
- In the fifteen months since the transition to the new own-source revenue collection system, the system has tripled the number of eligible taxpayers from 31,160 to 104,620. Over 50% have agreed to pay taxes (compared to under 30% previously);
- Supported by new funding, the city has been able to finance 90% of annual development programs. It constructed the road from Soko Mjinga to Sombetini, with a high-quality drainage system, and 62 biology, chemistry and physics laboratories for students at 63 secondary schools. It built and furnished 40 classroom buildings at Arusha City Council; built the Daraja Mbili ward health center, now receiving 2,000 patients a month; and purchased new public service equipment such as garbage trucks.

Johannesburg, South Africa

JOHANNESBURG PURSUES FISCAL AND SOCIAL SUSTAINABILITY THROUGH URBAN DEVELOPMENT

Johannesburg is working to bring more urban development into its core areas with an eye toward long-term economic and social benefits.

South Africa's cities struggle with high unemployment, high inequality, persistent segregation, and service delivery challenges. At the same time, as of 2009 the nine largest cities are responsible for 59% of total economic output in the country.[1] Increasingly, national government attention is focusing on cities' functioning and how well cities can lower costs and finance new infrastructure through financial tools to utilize land values.

South Africa's National Treasury has recently moved to address these issues by creating the Cities Support Program, a package of analytics, local government capacity building and technical assistance aimed at promoting the inclusivity and productivity of South Africa's large cities. The World Bank is providing policy and investment advice under a multi-year advisory services agreement including advice to eight metropolitan cities and the national government on increasing competitiveness, improving mobility, efficient financing of urban infrastructure, improving urban land management, improving delivery of housing, improving environmental and social management of investments.

Under this Cities Support Program, Johannesburg is working with the World Bank on setting out urban regeneration and mixed-use development projects, a new municipal finance instrument to expand the city's options for accessing capital and expanding its tax base, and its green growth strategy. The aim of

1 This is in terms of gross value added (See: Turok. Urbanization and Development in South Africa. October 2012).

the green growth initiatives is to establish Johannesburg as the green hub for Africa—stimulating the green economy and jobs, managing portfolios of green projects, and facilitating partnership strategies.

Johannesburg, like other South African cities, faces considerable fiscal constraints; intergovernmental fiscal transfers and local revenues have lagged behind rising service delivery costs. The National Treasury has said cities should be managed more efficiently and should be more strategic in leveraging existing assets, particularly city-owned land, to generate economic and social benefits. A national discussion on municipal financing alternatives has been part of a gradual effort to provide local governments with more varied revenue sources and leverage in private sector participation.

Against that background, Johannesburg is in process of exploring use of tax increment financing—a tool which allows local government entities to borrow against expected, incremental tax revenues generated by new urban development within a specified geographic area.

The establishment of the "Corridors of Freedom" is expected to promote transit-oriented development—aimed at increasing residential and commercial densities along these corridors—to expand access to jobs and economic opportunities, while promoting a denser urban form. In an effort to encourage and speed development, the city aims to streamline approval of development rights and ensure that necessary infrastructure is in place to carry new building densities to stimulate urban development and private sector involvement.

HIGHLIGHTS:

- South Africa's Cities Support Program makes use of the World Bank's global experience in an effort to devolve responsibilities, and access and generate knowledge on urban regeneration, infrastructure finance, mobility and urban governance.
- Johannesburg—in exploring Africa's first tax increment finance debt issuance—will inaugurate a new tool to capture land value increases as a result of city rezoning and regulatory and financial interventions. This pilot in Johannesburg may then be implementable across South Africa's municipalities.
- The World Bank program in the country shows its ability to provide multi-disciplinary technical and financial support to one of its more advanced client countries.

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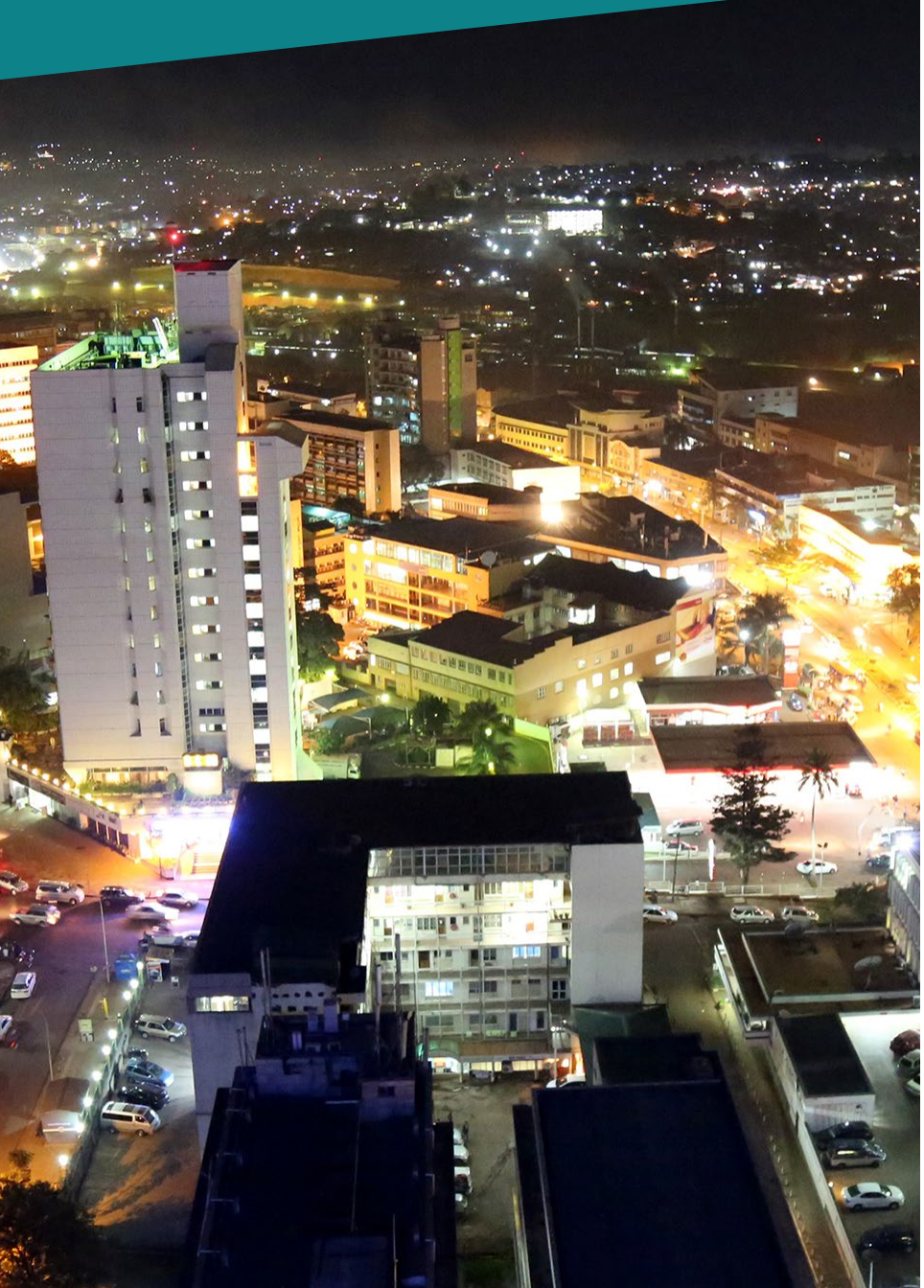

Kampala, Uganda

UGANDAN CAPITAL MOVES TOWARD FISCAL AND FINANCIAL SUSTAINABILITY WITH WORLD BANK HELP

Major administrative problems were outstripping the ability of Kampala, Uganda's capital, to properly manage its rapid urbanization.

With an annual urbanization rate of more than 5%, Uganda's cities have become increasingly important to the country's economic growth and transformation --urbanization in Uganda is estimated at 12% to 15%, but cities account for 72% of the country's manufacturing output and more than 55% of GDP.

The country's rapid urbanization has caused some important problems. For example, urban areas remain underserved and poorly managed, infrastructure backlogs are severe, and more than 60% of city dwellers live in informal settlements. As people have been moving to urban areas, Uganda's municipal and local governments have begun to grow and acquire more responsibilities, spurring distinctive needs such as stronger institutional systems of local governance and administration to plan and manage new settlements, and for ways to pay and meet the rising demand for infrastructure. Typical urban investments such as providing lighting and improving roads cost between 100 million and 1 billion shillings (US$ 28,000 to US$ 276,000), compared to an average of about 10 million shillings in rural areas.

There were gaps and inefficiencies in Kampala's financial management before 2010, weakening delivery of services and infrastructure to the city's growing population. For example, the city operated through 151 unauthorized city bank accounts, managed cash handling in a way that was highly susceptible to misuse, and ran multiple revenue collection centers. There was a lack of documented financial policies, poor legislation was in place to support revenue mobilization, there was poor enforcement, weak field collection and vigilance,

and the city lacked a registry of city asset s. In addition there were 4 billion shillings in inherited outstanding liabilities.

Given the problems resulting from weak financial management and other poor accountability, Parliament established the Kampala Capital City Authority (KCCA) as the city's new governing body in 2010. As part of the World Bank's long-term engagement in Uganda, an assistance package was prepared to support the KCCA in its initial stages under the Kampala Infrastructure Development Project. The beginning efforts were focused on institutional reforms to ensure that the new body was ready to overturn the legacy of a week system and address the needs of an increasing urban population. Once the KCCA had good governance and administrative mechanisms in place, the efforts shifted to focus on infrastructure and service delivery needed such as drainage system improvement, traffic management, road maintenance and upgrading and solid waste management.

The KCCA has instituted a number of bold measures to improve financial management and governance. It has eliminated cash collection and manual transactions, improved the assessment and billing systems, increased vigilance in field collections and recovery of outstanding debt, launched its eCitie online revenue management system, cut city bank accounts from 151 to 20—14 dedicated to revenue collection with partnering banks, set up an asset register, and streamlined budget management, payment processing systems and expenditure controls.

The agency requested World Bank support to further increase efforts to improve its financial management and its provision of infrastructure. Under the City Creditworthiness Initiative launched by the World Bank in partnership with the Public Private Infrastructure Advisory Facility (PPIAF), the city has worked with the Bank to assess and improve financial management standards; as a result, the Bank helped the city achieve creditworthy status and sounded out the potential for a sub-sovereign bond market, thus supporting an investment environment that allows Kampala to carry out its ambitious plans.

The city is also working closely with the Bank to develop its first capital investment plan, which will allow Kampala to make infrastructure investments strategically, factoring in measures to make the city more resilient to shocks and stresses, while remaining energy efficient. Kampala was already taking impressive steps toward sustainability. By working with the Bank, it has been able to build on many of those efforts and use guidance from others. For example, KCCA leaders consulted with the chief financial officer of Durban, South Africa, on Durban's financial and fiscal sustainability accomplishments.

ACHIEVEMENTS:

- **Revenue Mobilization:** 168% increase in revenue collection for fiscal year 2014/2015 with projections of 111.4 billion shillings for fiscal year 2015/16 – Approximately US$ 30.6 million.
- **Shadow Credit Rating:** Global Credit Rating Company (GCR) conducted a shadow credit rating for KCCA, giving a national scale ratings of A and A1 in the long and short term respectively, with the outlook rated stable.
- **Unqualified Financial Statements:** KCCA has consistently prepared and submitted financial statements to Uganda's Finance, Planning and Economic Development Ministry and the Auditor General in accordance with statutory regulations. For fiscal year 2013/14, the Auditor General issued an unqualified audit opinion on the KCCA Financial Statements for the first time in over 30 years of the city administration.

Nairobi, Kenya

NAIROBI'S POOR, IN INFORMAL SETTLEMENTS, RECEIVE PIPED WATER AND SEWERAGE FOR FIRST TIME

Subsidies and technological innovations used as new tools to extend water and sanitation services to poor in Nairobi's informal settlements.

Kenya faces huge challenges in bringing water and sanitation services to the urban poor, accounting for more than 60% of those in cities. As of 2015, only about 36 percent of those in informal settlement households in Nairobi have access to piped water in their house or compound, while 84 percent of households in formal areas do. Although their attitude is now changing, Kenyan authorities and utilities have long avoided bringing infrastructure services to informal settlements, either because of potential disputes over land ownership, or because users are perceived to be unable to pay for services such as water, sanitation and electricity.

Nairobi's city government is working with the World Bank for greater social sustainability—to bring water and sanitation services to the urban poor and thereby standardize access to these public services. The Kenya informal settlements improvement project is financing trunk water and sewerage lines in informal settlements in Nairobi. This is the first Bank supported project in Kenya aimed at upgrading infrastructure in slums. A separate project financed through the Bank provides subsidies and loans for the last-mile connections in these poor communities. These subsidies come from the Global Partnership on Output-Based Aid—a multi-donor trust fund administered by the World Bank that aims to improve the delivery of basic services to the poor in developing countries. The target for Nairobi alone is 16,000 connections serving over 110,000 people.

The subsidies offer households $175 for sewerage connection and $80 for water

supply connection, 70% and 40% of the connection costs. Loans are available for the remaining costs, which customers can pay in their regular bills over a period of up to five years. The sewer connections will include all necessary internal plumbing and water connections, such as installing uPVC pipes to link households to the distribution system and domestic meter installation. Another important part of the Bank's effort involves improving Kenyan providers' responsiveness to frequent customer complaints. The water sector has accountability legislation in place, a strong regulator and clear performance targets, but there was no modern, functioning mechanism to facilitate submission, management and monitoring of complaints. Few complaints were recorded previously, and the water service regulator did not have reliable or timely access to complaint statistics.

To solve this problem, the Bank Water and Sanitation Program, Kenya's sector regulator and its water service providers developed the MajiVoice tool, whose software allows utilities to receive, process and report on customer complaints. MajiVoice is the first dedicated complaint management solution for utilities in East Africa that makes full use of the now ubiquitous mobile phones to better engage citizens, allowing complaint submission, tracking and real-time updates through SMS and the internet. The interface provides clear, guided workflows and is easy to use, and has strengthened accountability among the regulator, service providers and customers at each level. Ordinary customers—especially the poor—are MajiVoics's main beneficiaries; poorer customers who otherwise don't have a great influence on service providers gain access to a better, lower cost method to track their personal complaints and improve services through collective pressure.

The Nairobi City Water and Sewerage Company was the first water utility in Kenya to adopt MajiVoice in late 2013 and has processed over 100,000 complaints through the system since. During the first year, the number of complaints recorded each month rose almost tenfold, resolution rates climbed from 46% to 94% and time to resolution was halved.

The Water and Sanitation Program and Nairobi City Water and Sewerage Company are also using technology to allow Nairobi slum dwellers to pay water bills with mobile phones instead of at crowded payment centers. The service is the first of its kind in Kenya, and its use in Nairobi's Kayole Soweto slum doubled revenue collection from June 2013 to July 2014. Additionally, early results have exceeded targets, with 2,200 connected to the system—2,000 were initially planned to be connected.

ACHIEVEMENTS:

- A Bank project is using subsidies as well as more traditional Bank funding products and customer contributions to connect over 110,000 people in Nairobi to the water and sewerage network. The project is extending these services to informal settlements for the first time;
- During the first year of MajiVoice, complaint resolution rates climbed from 46% to 94% and time to resolution was halved. This has made water service providers better able to serve the poor, and allowed them to consider feedback;
- 2,000 Kenyans in the Kayole Soweto slum have been connected to a new mobile phone payment system to pay water bills. Revenue collection has doubled in a year's time, so the initiative both extended services to the poor and helped the local government financially.

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East Asia and The Pacific

Ho Chi Minh City, Vietnam

An integrated strategy in Ho Chi Minh City focused on urban improvements, flood-risk management, and institutional reforms is promoting the competitiveness and sustainability of the city.

Ho Chi Minh City has a population of approximately 7.7 million as of 2014. The city's nominal GDP growth in the last five years averaged about 10.8%, accounting for 20% of national GDP. As the leading megacity in Vietnam, it attracts huge numbers of immigrants, including poor people from all over the country. This has been particularly true in the past 20 years, as labor-intensive industries have fueled economic growth, which has made the city expand significantly. Meanwhile, the majority of the land area of the city is located less than 2 meters above sea level which makes it particularly vulnerable to flooding. These conditions have led to an integrated strategy towards sustainable development. The city is focusing on promoting institutional reforms such as better financial management and greater participation of the private sector to increase competitiveness; reorganizing the local government to better respond to flooding; and rehabilitating and constructing infrastructure for increased resilience and to better serve the growing urban population. Ho Chi Minh City is also the business and commercial heart of the country contributing 45 percent of the country's manufacturing. The Government of Vietnam recognizes the important role of urbanization in the overall economic development of the country and is keen to invest in Ho Chi Minh City as it continues to shift from labor-intensive manufacturing industries to knowledge- and technology-intensive activities, enabling it to become a leading city in the region.

One of the most concerted efforts of the city has been around the issue of flooding. Ho Chi Minh City faces regular flooding during the June-November rainy seasons and during high tidal peak periods from September to December, due to such factors as heavy rain, land sinking caused by ground water

extraction, poor drainage in the city and poor coordination of dam operations. The average annual rainfall in the city ranges from 1,600 to 1,900 mm, mostly concentrated in the rainy season, with more heavy rainfall in recent decades. The city's drainage systems are generally old and not up to dealing with heavy rain, while many parts of the city do not have drainage systems. In addition, the city's sewage system is only partially developed, meaning that substantial sewage water is discharged untreated into the city's rivers and waterways.

Located next to the Sai Gon River and built on a network of canals and small rivers, flooding and sanitation problems often hit the city's poor the hardest, many of whom are low-skilled immigrants, as they tend to live in higher-risk areas along the canal network across 5 inner core sub-catchments (Tham Luong-Ben Cat-Rach Nuoc Len, Nhieu Loc-Thi Nghe, Kenh Doi-Kenh Te, Tau Hu-Ben Nghe and Tan Hoa-Lo Gom). Ho Chi Minh City has, since the early 2000s, set infrastructure improvement as a priority to deal with flooding and sanitation for the city's inner core, especially for the poor and vulnerable. The city developed a plan in 2001(Plan 752) with support from the Japan International Cooperation Agency (JICA) to improve the core area's drainage system, with steps including canal improvement, use of natural catchment areas, and pumping stations. Based on this plan, the city has been working with development partners including JICA, the Governments of Belgium and Germany, the ADB, and the World Bank to improve the drainage and flood-control system, one canal at a time.

In addition to the primary infrastructure investments, the city also focused on improvements in living conditions of poor areas. Nearly 200 such areas were identified in the early 2000s for improvements, which included investments in water supply, roads, drainage, sanitation, electricity, fire hydrants, and social infrastructure such schools, hospitals, etc., depending on the priorities set by the community itself.

As a long-term development partner, the World Bank has been working with the city through several flood risk management and sanitation improvement projects, bringing favorable investment financing together with best practices and new engineering technologies to help the city reach its development objectives. The Ho Chi Minh City Environment Sanitation I and the Vietnam Urban Upgrading Project (VUUP) have completed the rehabilitation of two main canals, Nhieu Loc-Thi Nghe and Tan Hoa-Lo Gom respectively. The VUUP also contributed to the improvement of nearly 100 poor areas in the city, improving living conditions for about 250,000 households. This project also included the resettlement of poor people in risky areas where appropriate and the issuance of land-use certificates for poor households, as a way to improve tenure security. The certificates were impactful because many of the households in low-income areas are informal and inhabited by immigrants from other provinces. Issuing land use certificates was a first step to allow them to formally settle in the area, providing them with access to urban services and incentives to care for their own living area. Access to credit was also provided to the poor through microfinance institutions for home improvement or income generation.

With other donors' support to the city to improve Kenh Doi-Kenh Te and Tau Hu-Ben Nghe, the planned World Bank-funded HCMC Flood Risk Management Project, proposed for FY16 delivery, will tackle the last sub-catchment in the inner core city (Tham Luong-Ben Cat-Rach Nuoc Len) and complete the city's once-ambitious plan to address flood risk in 5 sub-catchment areas. Another follow-up World Bank-funded project is also investing in a wastewater treatment plan and interceptors to collect and treat the wastewater in the Nhieu Loc-Thi Nghe sub-catchment, expected to be complete by 2021.

As efforts to address flood risks and improve sanitation in the city's inner core are gradually reaping benefits such as better infrastructure and health and safer housing, they provide momentum for the city to move ahead with other initiatives to improve sustainability. Together with ongoing projects in flood risk and sanitation improvements, Ho Chi Minh City is improving

sustainable urban planning by aiming to better serve its growing population and fostering economic growth. The city is leading initiatives such as increasing multi-function green spaces, and enhancing its public transport system with a BRT and several metro lines. Other ongoing activities include helping the city strengthen its municipal financial system and promoting private sector involvement in the enhancement of the city's competitiveness. With its long history of engagement in the city through both lending and technical assistance, the World Bank will continue to be a strong partner of Ho Chi Minh City as it continues to work towards becoming a green, competitive, inclusive, and resilient city.

ACHIEVEMENTS:

- **HCMC Environment Sanitation 1 Project:**
  - 400,000 people with improved flood protection infrastructure
  - 1.2 million people provided with improved sanitation- 265,800 households (almost every household in the basin) are now connected to the network and get their wastewater collected and disposed of safely
  - Significant improvement in the canal water quality
  - Land value was estimated as 20 times higher than before the project because of the improved infrastructure surrounding the project areas.
- **Vietnam Urban Upgrading Project :**
  - Under the project, more than 200 low-income neighborhoods have been improved with basic infrastructures, benefitting over 2.5 million poor urban residents.
  - The project led to increased average income for the residents in the project areas by providing better access to infrastructure as well as microcredit for income generation.
  - Almost 100% households now have standard hygiene toilets and clean water, from as low as 20-49%;
  - 97-100% households are connected to electricity and sewage system, from as low as 26%;

ACHIEVEMENTS: (Continued)

- **Vietnam Urban Upgrading Project :**
  - 99% poor households have developed sustained saving habits as a result of the training delivered to ensure payments due from the microfinance initiative.
  - 13,500 households with improved water connection
  - 345,000 households with improved sewer connection
  - 84,300 households with electricity connection
  - 6.3 million people benefitted from the project

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Quezon City, Philippines

Quezon City, Metro Manila's largest city, comprising around a quarter of the metropolitan land area and population –2.76 million people as of the latest census in 2010—, is recognized for its innovations and reforms, particularly regarding major development challenges.

FISCAL AND FINANCIAL SUSTAINABILITY

In 2001, a new administration took over the management of the local government of Quezon City. At that time, Quezon City was the most financially distressed local government unit in Metro Manila. It faced a serious budget deficit and its general fund was overdrawn. It also had huge outstanding obligations to basic service providers, which included private utility companies, of PHP 1.4 billion (~US$ 30 million) and a bank debt of PHP 1.2 billion (~US$ 26 million). The local government's predicament was how to increase its income not only to pay its existing obligations but also to finance its development needs. To address this, the local government introduced fiscal and financial reforms. For example, it converted real property tax (RPT) records from index card entries into a computerized tax information system. This has allowed the local government to reconcile actual and recorded RPT payments in real time, detect disparity in tax records, and reduce misdemeanors in various stages of tax assessment and collection. It also reduced the time for payment transactions from 3-5 hours to 30 minutes. Furthermore, the local government was able to uncover tax delinquencies in the amount of PHP 10.7 billion (~US$ 230 million). In addition, Quezon City used geo-spatial technology called "eTAXMAPS" that integrates and synchronizes parcel tax maps with land tax records. Using this tool, the local government has a better view of the overall tax collection in the city, having a better capability to identify undeclared, misclassified and unaccounted-for properties.

The local government also raised its business taxes to increase revenues. At the time, the Quezon City's business tax rates were among the lowest among Metro

Manila cities. To remain competitive with other cities in Metro Manila and be able to attract businesses and investors to operate in the city, it only raised the business tax rates to a level closer to the tax rates in neighboring cities. The city also cut its workforce substantially by eliminating unnecessary contracts. For instance, it cancelled the contracts of consultants who did not have set terms of engagement or deliverables or did not report to office to work. In just two years, Quezon City was transformed from a bankrupt city to the richest city in the Philippines. The National Government's Commission on Audit regarded the city as the local government with the highest net income in the Philippines. The city became less reliant on central government transfers for financing requirements. Quezon City remains the richest and most debt-free city in the country today.

ENVIRONMENTAL SUSTAINABILITY

Quezon City generates around 9,072 tons of waste per week as of 2015. This translates to 0.41 kilograms of waste per person per day.

The city used an open dumpsite for solid waste for more than 30 years until 300 were killed when a mass of garbage fell into a slum. The local government thought closing the dumpsite was impossible as it was needed and closing it would cost 5,000 individuals their livelihoods.

Quezon City therefore began a comprehensive solid waste management program. It improved its solid waste collection, resulting in 99% collection efficiency and a substantial reduction in garbage-collection expenditures. It also modified the open dumpsite to convert it first into a controlled-waste disposal facility, and later on into a sanitary landfill. In 2004, the city worked with the Philippine National Oil Corp. to set up a 100-KW pilot methane power plant. Quezon City became the country's first local government to capture and convert dumpsite methane gas into an alternative energy source. The city also worked with cement factories to sell more than 15,000 tons of refuse-derived fuel as an alternative fuel for cement manufacturing. Likewise, it worked with an environmental firm to develop and implement a bio-gas emissions reduction project. The project converts biogas emissions into electricity, and will reduce greenhouse gas emissions by an annual average of 116,000 tons CO2e (carbon dioxide equivalent). As a result, Quezon City became the first Philippine local government unit to earn carbon credits from waste management initiatives.

These initiatives, however, have reduced the quantity and quality of the recyclable content of waste brought to the controlled waste disposal facility, which has cut incomes for waste pickers and others who rely on the facility for a livelihood. To address this problem, the local government organized waste pickers into formal groups, which are accredited and regularly consulted in the establishment of operating systems and in the efficient management of the facility. Sorting and recycling areas were allocated to the groups; they are also given financing, education and skills training so they can earn additional income or find other work. Quezon City's solid waste management program is now a showcase and a model for other local governments in the country.

SOCIAL SUSTAINABILITY

Quezon City has a population of 2.76 million people as of 2010 according to Philippine Statistics Authority Census Data. Forty-two percent of the population, approximately 230,000 families, live in informal settlements. As of December 2013, about 20 percent of the families are living in danger zones and would need to be relocated to safer grounds. The traditional approach to address the shelter problem in Metro Manila was to move informal settlers away from the city. However, Quezon City has taken a different and unprecedented approach of in-city housing. It has identified 15 housing sites within the city for construction of 10,594 housing units. It has so far completed 2,415 units. It has also begun land banking and innovative housing projects, including a model for public-private partnership. To ensure sustained financing, the city has imposed a 0.5 % social housing tax, on owners of real properties with a value over PHP 100,000 (~US$ 2,100). This has given the local government much needed

financial resources for social housing development, particularly for purchasing land, developing community infrastructure and facilities, and constructing housing units.

The World Bank has been providing advisory and technical assistance to Quezon City for the last ten years. It has also linked Quezon City with various opportunities for learning from international experiences and applying generated knowledge in the city context. For instance, as sponsored by the Bank, it participated in a leadership program in Singapore that enabled them to gain insights and advice from Singapore's urban experts based on how Singapore overcame urban blight, congestion and a weak economic base to become one of the world's most livable and competitive cities. Through the program, Quezon City developed projects aimed at sustainable housing for the poor, transformation of the city's enormous waste problem into an energy resource and transforming City Hall into a green building.

Most recently, Quezon City participated in the World Bank's Citywide Development Approach to Informal Settlement Upgrading Project, which aims to scale up slum upgrading efforts and address housing needs more quickly. It involves mapping all the informal settlements within a city, developing a citywide shelter development plan, and systematically allocating resources to priority informal settlements. This is different from the traditional approach to informal settlements upgrading in the country in three key aspects: (a) informal settlements upgrading is done at scale mapping all the informal communities and inventorying all the land available for social housing in the city, (b) the upgrading process is decentralized at the local government level rather than centralized at the national level to ensure higher accountability and faster execution, and (c) it adopts a bottom-up approach where communities drive the planning and implementation process with support from the local government and civil society organizations rather than a conventional top-down approach where national key shelter agencies construct mass housing without consultation with beneficiaries. Through this process, the city can take strategic and systematic actions on social housing and develop housing projects at a large scale. The World Bank is also working with Social Housing Finance Corporation to develop a wholesale lending and streamline the process to better address the mass demand. The project was implemented in partnership with the local government, a civil society organization partner and informal settlement communities. It was piloted in three cities in Metro Manila, Quezon City being one of them. As the citywide approach was only implemented in one district in Quezon City (but with over 500,000 informal settlers), the Mayor has requested for further Bank support to scale up the project and help develop a city shelter development plan, which would underpin the city's future investments in social housing.

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Quezon City – Singapore Partner in Urban Solutions Development

Quezon City: The Place to Be

QC-HCDRD ISF Census 2013

ACHIEVEMENTS:

- Through fiscal reforms mentioned earlier, the city has reduced the time for tax payment transactions from 3-5 hours to 30 minutes. Furthermore, the local government was able to uncover tax delinquencies in the amount of PHP 10.7 billion (~US$ 230 million). By introducing geo-spatial technology, the city can monitor tax collection more efficiently. Quezon City remains the richest and most debt-free city in the country today.
- Improved solid waste management has resulted in 99% collection efficiency and a substantial reduction in garbage-collection expenditures. Quezon City also became the country's first local government to capture and convert dumpsite methane gas into an alternative energy source and the first local government to earn carbon credits from waste management initiatives
- The city has identified 15 housing sites within the city for construction of 10,594 low-income housing units. This is different from the traditional approach of building social housing away from the city and it will allow people to stay close to economic opportunities and their social circles. The city has so far completed 2,415 units.

Europe and Central Asia

Tbilisi, Georgia

DETERMINED TO BECOME A LOW-CARBON CITY, TBILISI INNOVATES TO REDUCE POLLUTION

Georgia's capital has taken concrete steps to become a low-carbon city by 2020, striving to meet European Union objectives to reduce CO2 emissions. The World Bank has been supporting the city for the last two decades in its municipal infrastructure rehabilitation, energy-efficiency, traffic management, transport planning, and formulation of a participatory city development vision 2030.

Pledging to become a low-carbon city by 2020, Tbilisi has joined the European Union Covenant of Mayors and aims to meet the EU objectives to reduce CO2 emissions by 20%. The city submitted its 2011-2020 policy document on sustainable energy, which identifies activities in multiple sectors that would allow the city to meet its carbon-reduction target.

The City has already completed many energy efficiency activities, including retrofitting residential buildings and upgrading its urban transport fleet.

With annual co-financing from the city totaling 25 million Georgian lari (US$10 million), the residents' condominium associations are repairing building roofs, elevators, entrances, windows, plumbing, and installing sensor lighting. Residential buildings have been fully equipped with advanced heating systems. Energy efficiency activities have been launched in kindergartens. Tbilisi's old landfill was closed and replaced, the street lighting system has been upgraded with energy efficient bulbs and the city's water system is shifting from pumping into gravity.

With an eye toward improving air quality and cutting vehicle greenhouse gas emissions, the city is expanding its public transportation system through

gradual replacement of old buses fleet, upgrading and expanding Metro rail system, installing new cable car lines and studying plans for light-rail transit. Tbilisi plans to be a more compact city, and is aligning its planning and infrastructure routes accordingly.

Technical assistance has helped Tbilisi design a new traffic management strategy to reduce congestion and it increased its bus fleet from 50 buses in 2004 to 934 as of 2009. To consolidate the bus system, the City reduced the number of old, polluting minibuses from 2,400 to 1,700 between 2006 and 2012. The city is also making their transport system more reliable and user-friendly. Display boards at major bus stops now inform passengers of impending bus arrivals. Passengers can obtain information on bus timetables by SMS or online. The city has introduced a traffic light management system, and a traffic management center has already been established. These measures combined reduce both traffic congestion and the culture of high dependence on automobile transport, contributing to emission targets.

The World Bank has been providing capital investments and technical assistance throughout the city's reform process under a series of municipal development projects. The Bank has assisted Tbilisi to recognize that integrated improvements in public and private transport, public lighting, solid waste management, and municipal buildings are critical for the city to enhance its performance in energy-efficiency.

Through its energy assessment of Tbilisi, the World Bank recommended that the city better integrate land use and transport planning to improve access to jobs and education. It encouraged use of public and non-motorized transport, through such means as traffic or parking restraints to limit private vehicle use, and improving public bus service by upgrading buses, adjusting routes, and establishing dedicated bus lanes.

Tbilisi has embedded the World Bank's advice and support in the Tbilisi 2030 City Development Strategy (CDS), which was funded by the Cities Alliance and the Bank. Stakeholders defined the city's long-term vision as "Tbilisi 2030 is a hub for global supply chains - creating a bridge between different civilizations in the competition for talent, technology and markets. Tbilisi is the place where various cultures, history and modernity collide to inspire innovation and the entrepreneurial spirit. Tbilisi is always warm and welcoming to citizens and visitors alike."

The strategy's initiatives include revitalizing downtown areas, development of green and recreational areas and the revitalizing of rivers (including Mtkvari River) in and around Tbilisi. The city is focused on becoming an international events center, hosting sporting, cultural and economic events. The city assigned responsibilities to institutions in the design, planning, implementation, monitoring and evaluation of the strategy and in setting benchmarks.

ACHIEVEMENTS:

- The city has prepared a city development strategy with a clear vision 2030 and action plan.
- Tbilisi has taken actions to completely revamp its municipal infrastructure and contribute toward reducing carbon emissions by 20%. This includes energy efficiency initiatives for the city's water system shifting from pumping into gravity; residential buildings refurbishment; swapping out an old landfill for a new, lower methane reducing landfill; and installing energy efficient bulbs in street lighting systems.
- Tbilisi has improved the living conditions of its citizens by curbing sprawl and developing more vibrant central areas. The city has sought to improve public bus and metro service provision, improving bus reliability with new technology and improving existing metro infrastructure. It now plans to expand cable car lines and is pursuing light-rail transit.

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Istanbul, Turkey

Located on a major fault line, Istanbul has become a model for disaster risk management, and one of the world's most proactive cities in terms of safeguarding against seismic risks.

Earthquakes are a substantial risk for Turkey. For example, a 7.6 magnitude earthquake struck the Marmara region in 1999 affecting Istanbul, the highest magnitude earthquake in the country's recent history, killing more than 17,000 and causing an estimated US$ 5 billion in physical damages and losses to the Turkish economy. The city still faces a high risk of earthquakes in the coming decades since it lies on the major North Anatolia seismic fault line.

Following the 1999 earthquake, Turkey realized that it was poorly prepared to prevent or manage disasters, calling for the need to reform building codes for future construction as well as to retrofit existing infrastructure. In response, Turkey launched the Istanbul Seismic Risk Mitigation and Emergency Preparedness Project (ISMEP) in 2006, with help from the World Bank, European Investment Bank, Council of Europe Development Bank, and Islamic Development Bank – assistance that helped the government gain credibility and local support for the effort.

The project is aimed at making Istanbul more resistant to major disasters within the next 20 to 30 years, thus making the city more sustainable. Its components are designed to improve city disaster management and emergency response capabilities, and to retrofit public facilities as hospitals, schools and housing to better withstand seismic shocks. The effort is also designed to develop risk-assessment techniques for commercial, industrial and residential buildings, and improve enforcement of building codes.

Already, two command-and-control centers have been built – one on the European side and one on the Asian side of the city–to centralize and better

coordinate emergency response operations. Emergency communications systems are being installed, and an emergency information system is being developed for disaster-related information such as availability of shelter and location of main infrastructure, and to disseminate early warning signals and other information using social media and text messaging. Many hospitals, schools, shelters, and other critical buildings—including cultural heritage buildings—have been retrofitted or reconstructed following an appraisal of their safety and ability to withstand seismic shocks.

Moreover, a "Safe City Safe Life" campaign for public awareness has been launched offering training on earthquake preparation and response. The campaign uses a variety of tools, including theatre performances for children, training sessions for the public, and dissemination of information on Istanbul streets. Volunteers have also been recruited to help with the campaign and help the public during emergencies.

Determining how to assess building risk and how to improve building code enforcement can have far-reaching impacts. Consequently, the project implemented pilot initiatives in Bağcılar and Pendik, two municipalities located within greater metropolitan Istanbul that have experienced a large influx of new residents and with several poor communities located in dangerous areas, making them particularly vulnerable to earthquakes.

In the pilot municipalities, the Project developed and implemented training to improve local capacity, including training on urban planning and construction for disaster risk mitigation for city leaders and technical staff, and for community representatives. Participants are also briefed on actions that can be taken at the municipality and community level to make their cities safer. Specialized training on specially-designed earthquake-resistant infrastructure is offered to civil engineers, including a certification process.

The Bağcılar and Pendik pilots also included streamlining building permit procedures to ensure compliance and more efficient monitoring. The IT infrastructure and systems of two municipalities had to be improved to ensure information security and accurate data for better land-use management and building permits issuance. The municipalities also organized, collected, and digitalized address-based data, allowing them to better track the buildings and houses in the city and monitor the progress of initiatives under the project. Finally, the municipalities established a document-management system that allowed officials to supervise building permit issuance more efficiently. This included a physical service center and a call center for increased transparency and accountability. Citizens and developers are now able to follow up on requests. Based on the pioneering efforts of Bağcılar and Pendik, similar disaster risk management (DRM) planning and systems are planned in other Istanbul municipalities.

Istanbul's efforts have been widely-recognized globally as a proactive approach to disaster risk planning and mitigation. The project is the largest and one of the most ambitious of its kind in the world, and speaks to Turkey's recognition that even though earthquakes or other natural disasters cannot be prevented, their damage to cities can be mitigated by investing in preventive measures. While the World Bank engagement now aims to expand from lessons learned in Istanbul to a national-scale DRM operation, the city will continue the project until 2018.

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ACHIEVEMENTS:

- The building licensing process in Pendik decreased from 90 days to 10-15 days as of 2012, and, combined with enhanced DRM measures, will help to ensure greater resilience of buildings to seismic shocks;;
- A total of 1,175 at-risk public buildings in Istanbul have been retrofitted and/or reconstructed, including hospitals, schools, administrative buildings, social service buildings and dormitories;
- The work on school buildings (retroffiting or reconstruction) has benefitted over 1 million students;
- Approximately 920,000 people have received training under the Safe City Safe Life campaign.

Latin America and Caribbean

Lima, Peru

Beyond the Pipes – Supporting sustainable planning, rehabilitation and expansion of Water Supply and Sanitation Service Delivery in Metropolitan Lima

In Lima, Peru, the World Bank has been working with Servicio de Agua Potable y Alcantarillado de Lima, or SEDAPAL, since 1995 to improve water and sanitation service delivery to more than 8 million people.

The Peruvian capital, Latin America's fifth-largest metropolitan area, averages only 9 mm of annual precipitation, making it the second-largest desert city in the world. Its rapidly growing population, recurring water shortages, competition for water among different users and for different purposes (domestic, industrial, agriculture), have posed major service delivery challenges, and an estimated 1 million people still lack adequate water and sanitation services. The impacts of climate change will further strain the region's water resources.

This note describes initiatives undertaken by SEDAPAL and the Peruvian government since 2009 with World Bank and other Development partners' support:

EXPANSION OF WATER AND SEWERAGE NETWORKS IN PARTS OF LIMA'S NORTHERN SERVICE AREA

In 2009, Peru approached the World Bank, the Japan International Cooperation Agency (JICA), and KfW (a German development bank) requesting support for the design and implementation of a comprehensive program – Lima Norte Program – to improve SEDAPAL's operations.

The Program developed a series of demand and supply management activities in order to free scarce water resources for new users. The Program's efforts

started with rehabilitation of old, unstandardized structures constructed previously by communal organizations and expansion of water and sewerage networks in parts of Lima's Northern Service Area, using techniques to minimize disturbances to communities and exposure to asbestos from old pipes. The Program supported rehabilitation of reservoirs, groundwater wells, and creation of new district metered areas to improve water service delivery.

OPERATIONAL EFFICIENCY

SEDAPAL's efforts under the Program were also aimed at improving the utility's efficiency by integrating automated systems and GIS, determining current and future demand and identifying ways to meet demand more efficiently, finding management bottlenecks and developing a new organizational model, and taking steps to improve commercial management, including increasing installation of meters, improvement of tariff collection, and working with the utility's operations units to reduce non-revenue water. The World Bank also provided technical assistance for improved financial and commercial management by reviewing the management contracts for operation and maintenance of secondary and tertiary networks and household connections.

SOCIAL COMMUNICATIONS

The Lima Norte Program has also improved social and communications interventions carried out by SEDAPAL and their contractors to foster proper usage of WSS systems to reduce leakages and blockages, increase culture of payment for WSS services, provide sanitation education, and promote acceptance of meter installation, communal actions to reduce illegal water connections or sewerage dumping, and water-saving equipment as standard practice. Further, SEDAPAL formally adopted policies for involuntary resettlement modeled after the Bank's best practices to minimize impacts of communities affected by civil work construction and adequately consult and compensate the affected people.

Other initiatives being undertaken by SEDAPAL in parallel with the Lima Norte Program and supported by The World Bank include:

A STRATEGY FOR IMPLEMENTING SEDAPAL'S MASTER PLAN

In the face of continuing water stress, last year, SEDAPAL developed a $2.5 billion Master Plan for a period ending in 2040. The 2014-15 study called "Robust Decision-Making in the Water Sector" addressed how the proposed plan would perform in the face of deeply uncertain future climate change and consumer demand. Is the plan sufficient for ensuring reliability in the face of uncertainties? How would uncertain budget and project feasibility conditions shape Lima's options? How should the investments in the plan be prioritized, and could some be delayed? Using state-of-the-art methods for decision making under deep uncertainty (DMU), the World Bank provided SEDAPAL and city leaders in Lima with a tool to answer these pressing questions.

The study helped SEDAPAL realize that not all projects included in the Master Plan were necessary to achieve water reliability, and that it could save 25% (over $600 million) in investment costs. Second, it helped focus future efforts on demand-side management, pricing, and soft infrastructure, all options which are often ignored in traditional utility companies. Third, it helped SEDAPAL gain the approval of regulatory and budget agencies. Fourth, it allowed them to postpone lower priority investments, and to analyze future options based on climate and demand information that simply isn't available now.

DEVELOPMENT OF "OFF-NETWORK" SOLUTIONS FOR WSS SERVICE DELIVERY IN PERI-URBAN AREAS OF LIMA

SEDAPAL is developing a framework of technical, institutional, financial and social options for improvement and expansion of WSS services in peri-urban areas using innovative off-network technologies that aim to provide the same level of service as conventional piped networks with support from the Bank in an advisor capacity.

SOUTH-SOUTH KNOWLEDGE EXCHANGE WITH eTHEKWINI WATER IN DURBAN, SOUTH AFRICA

This initiative has helped foster operational learning between management and technical staff of water utilities and cross-fertilization of solutions.. Some of these solutions have been adopted by SEDAPAL including a leakage insurance program, off-network service technologies for WSS service delivery in peri-urban areas and review of asset management program. The South-South exchange was sponsored by the World Bank's Water and Sanitation Program (WSP).

ACHIEVEMENTS:

- Mobilizing over BRL 600 million (~US$ 300 million) for investments in climate and disaster resilience
- Reduction of non-revenue water from 50.3% to 35% in sectors financed by Bank funds (30% physical and 5% commercial)
- Continuity of water supply for targeted residents has increased from 9 hours/day (in targeted sectors) to 19.2 hours/day on average (company average)
- Reduction of corrective maintenance measures, including reduction of ruptures per km per year from 0.21 to 0.16 for water and from 8.75 to 3.52 for sewerage
- Adoption of institutional involuntary resettlement framework modeled after Bank's safeguards guidelines as the official company policy
- Adoption of innovative leakage protection program, which helps clients offset expensive costs of maintenance of water leakage at household level. This program was modelled after that of eThekwini Water and Sanitation in Durban, South Africa

ACHIEVEMENTS: (Continued)

- Evaluation of SEDAPAL's Master Plan, and identification of projects that are particularly important for achieving water reliability and reducing vulnerability. The study led to identification of potential 25% savings of the US$ 2.5 billion from the budget for the Master Plan, which could instead be devoted to non-structural demand management measures or green infrastructure interventions

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Medellin, Colombia

MEDELLIN WORKING WITH WORLD BANK ON INNOVATION AND URBAN REDEVELOPMENT

Medellin is strengthening economic vitality within its Innovation District and striving to promote urban redevelopment, while retaining affordable housing, in its downtown area.

Over the second half of the 20th century Colombia has experienced a rapid urbanization process resulting in over 75% of the population today living in cities—from 6 cities with more than 100,000 inhabitants in 1951 to 61 such cities today. It is estimated that by 2050 over 85% of the population will live in cities, which means around 20 million new urban dwellers, demanding infrastructure, urban services, jobs and improvements in quality of life. To better understand the challenges in the urban sector and to develop policy alternatives, the Government of Colombia and the World Bank conducted the Colombia Urbanization Review: Amplifying the Gains from the Urban Transition, which focused on Connecting, Planning and Financing Colombian cities.

In the case of Medellin, the World Bank is supporting the city in the implementation of a scientific, technological and Innovative District that seeks to strengthen the innovation ecosystem, while transforming the urban layout by promoting the use of more efficient infrastructure and mixed-income real estate development. The support of the Bank has been focused on providing strategic analysis on innovation strategies and the use of an innovative tax increment financing instrument to diversify funding and attract private sector investments.

Medellin has become known as one of the world's most innovative cities, and was named "Innovative City of the Year" in 2013 by a Wall Street Journal, Urban Land Institute and Citi competition. It has become innovative through what Medellin city officials refer to as "social urbanism"—a mix of social work,

innovative infrastructure and institution building.

Medellin's innovations have included extending cable cars to the steepest part of the hills on its periphery—providing slum dwellers access to formal jobs in lowland Medellin, installing escalators in the high crime area Comuna 13 neighborhood, and turning the 'Moravia' neighborhood landfill into a public space, a park and market where small businesses can grow and sell produce.

Ruta N, the city's innovation agency, is now leading Medellin towards science-, technology- and innovation-based sectors. Key areas include construction, textiles, tourism, health, energy, and information and communications technology. To support this vision with a territorial perspective, Ruta N developed the Innovation District, which is a long term project to redevelop a 395-acre area comprising 4 neighborhoods in the valley, in the middle of the city, for established foreign and Colombian businesses, startups in high-tech and social entrepreneurship, and researchers.

The district is anchored by Hewlett Packard and software giant Globant, and other large firms include Swiss cement supplier Holcim. It is steps away from the University of Antioquia and the university and hospital Metro stations. The World Bank has worked with Ruta N on its Strategic Plan for Innovation and in organizing the Ruta-N-led Cities for Life Global Meeting 2015—aimed at bringing together city leaders and urban innovation experts from around the world. At the meeting in Medellin, city leaders tested an online platform to create solutions to urban challenges in mobility, urban planning and design, social development, the environment, local government and security.

To complement the strategic vision on innovation, the World Bank and Colombia's National Planning Department selected Medellin for a pilot project to test the use of tax increment financing instrument. Tax increment financing will be used to leverage future increases in property taxes to pay for present-day public improvements in the Innovation District, which are projected to create the economic conditions causing the incremental increase in tax revenue. The proposed new urban development aims not only to attract new businesses and entrepreneurs, but also to promote the development of affordable housing, balancing the crucial need to promote a more inclusive and prosperous city, where all the people would be able to share the benefits of innovation.

HIGHLIGHTS:

- Medellin is working with the World Bank to support its innovation-driven economy with a territorial perspective—the city's Innovation District. The district is a long-term project to redevelop a 395-acre area comprising four neighborhoods, anchored both by foreign investors and a city university and hospital.
- The World Bank and Government of Colombia have chosen Medellin to pilot a tax increment financing instrument in the country—the first of its kind in the region—leveraging future increases in property taxes to pay for present-day public improvements in the Innovation District.

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Middle East and North Africa

Jordan

JORDAN: CULTURAL HERITAGE, TOURISM, AND URBAN DEVELOPMENT PROJECT

Jordanian historic cities became more livable for their citizens and more attractive for tourists, with a joint effort of the Government and the World Bank Group

The World Bank Group helped Jordan with an integrated project targeting five historic downtowns. The project enhanced livability for local communities, strengthened social cohesion, and improved city competiveness, creating an enabling environment for local businesses to grow, with a particular focus on businesses working in cultural heritage and sustainable tourism.

Tourism rooted on cultural assets has indeed always been important to Jordan's economy. However, starting in the late 1990s, the country begun lagging behind other regional destinations in growth rate, market share and, even more importantly from a poverty reduction perspective, length of stay and per capita spending. Till that time, tourism development strategies had focused mainly on Petra, Jordan's premier attraction, and few other sites. Jordan changed its direction with the 2004 National Tourism Strategy, a pioneering effort that resulted in broadening the country's tourism appeal, improving quality, and increasing employment, business turnover and earnings. The country's medium-term objective was to bring tourists beyond traditional sites, to bring their spending where poverty is and extend their stay. Additionally, the strategy recognized the need for a greater integration of elements of the sustainable tourism model now used widely (with communities and tourists at its foundation), giving value to both domestic and international tourism, priority to local economic development, social cohesion, improving cultural and natural heritage sites, rehabilitating historic city cores, and raising

the living standards of local communities living in or close to tourism attraction.

The project supported by the Bank consisted in an investment of US$ 56 million, implemented from 2007 to 2014, which provided technical and financial resources to the historic downtown areas of five historic cities—Jerash, Karak, Madaba, Salt, and Ajloun. These cities, before the project, all suffered from high urban poverty, but showed potential as new tourist destinations. Activities were selected through extensive local consultation and engaging with citizens in an innovative manner, through dedicated decentralized units at municipal level, emphasizing the correlation between livability of downtown areas and location of service-oriented firms. To facilitate the project, the Culture and Sustainable Development Global Partnership Program was called in, and it became an active partner of the project, providing support for project preparation with a first grant of US $350,000 and a second grant of US $300,000 for an economic impact assessment at project closure and a feasibility study for follow-up investments.

At project closure, the economic impact assessment conducted by Australia's Maquarie University found out that the project exceeded its targets, creating more than 1,000 jobs, enhancing living conditions for 1 million residents, benefiting 200 businesses, and enhancing the experience of more than 4 million domestic and international tourists.

ACHIEVEMENTS:

- Clear majorities of businesses (85% in Madaba and 65% in Salt) reported that they think the upgraded city cores are now attractive places for customers.
- About three-quarters of the respondents agreed that the improved core now "gives a sense of Jordanian cultural identity."
- Cultural institutions are growing, with the average number of employees per institution rising between 2007 and 2013 in Madaba from 1 to 8, and in Salt from 12 to 16.
- 80% of stakeholders in Madaba and Salt agreed or strongly agreed that the project had a positive impact in terms of visitors, both Jordanian and foreign.
- 70% of visitors in Madaba and 80% in Salt agreed that conservation and upgrading works improved livability.

DEVELOPMENT RESULTS AND SOCIAL MEDIA: 10,000 "LIKES" FOR SALT'S WORK ON FACEBOOK

In July 2014, the Salt municipality erected a giant screen at the Saha (one of the project sites, photos below) for local communities to watch the World Cup in Brazil. Pictures appeared on Facebook along with the following comment: "Little did we know that in the process of rehabilitating Sahat Al Ain in Salt that this reclaimed public space will be fully populated as an open theater on one summer night and by that creating a rare social scenery in Jordan. The Government, the World Bank and the municipality totally got it right". The post received about 10,000 likes, proving the appreciation for the project.

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Southern West Bank, Palestinian Territories

WORLD BANK HELPS SOUTHERN WEST BANK TURN AROUND FAILING WASTE MANAGEMENT SYSTEM

A new solid waste management system in the Southern West Bank includes better trained professionals, the rehabilitation and closure of unsanitary dumpsites and a new model to work with the private sector in implementing a sanitary landfill.

As of 2014, more than 4 million people live within 1,000 square miles in the Palestinian territories, where the amount of solid waste threatens both the environment and health. Furthermore, more than 2,500 tons of waste are produced each day. 34% of which is generated in the Hebron and Bethlehem governorates in the Southern West Bank.

The solid waste management system in the Palestinian territories was plagued in recent years by poor service planning, low collection and disposal capacity, inadequate fee collection, and insufficient national and local funding for upgrades. Medical waste and household waste were disposed of together in uncontrolled dumpsites, and solid waste was randomly dumped in open lots, along roadsides and in more than 19 unsanitary dumpsites spread across villages. Waste burning was also common.

These practices threatened public health through both pollution of the groundwater aquifers that are the main local water source and because of air pollution from the burning of waste. They were also a major barrier to tourism.

Local governments in the Southern West Bank implemented a number of transformative solid waste management projects with World Bank support.

One, the Southern West Bank solid waste management project, serves more than 800,000 people in the Bethlehem and Hebron governorates. The project includes strengthening local waste disposal management capabilities, providing a sanitary landfill facility, a public awareness campaign to promote minimizing waste, and resource and cost recovery.

The 2009 $20 million investment, which included a $12 million World Bank grant, financed infrastructure and equipment and provided technical assistance to improve waste management. Given the complexity of managing a sanitary landfill—especially in terms of meeting environmental and financial safeguards—the project team enlisted the International Finance Corporation Transaction Advisory Group to help find an international private sector firm to manage the landfill. The task presented potential candidate companies with substantial risk, due to the lack of previous public-private partnerships in the sector, the Southern West Bank's fragile political and social situation, and the absence of an adequate fee collection mechanism to guarantee payments to the private sector firm.

The team also arranged an $8.25 million performance-based grant for a 4-year period to reward local governments' improvement in solid waste management, fee collection, and street cleanliness. It was expected that better fee collection and service performance would strengthen the ability of local governments to continue to pay for landfill operation after the World Bank project was closed. This also made it more favorable for a private landfill operator to enter a public-private partnership arrangement with the local governments. The first public-private partnership contract in the West Bank was signed in 2014 with an international company and the sanitary landfill has since become operational.

The Southern West Bank sanitary landfill, as well as one achieved through a previous World Bank engagement in the Northern West Bank, was the first of their kind in the Middle East. Altogether 19 unsanitary dumpsites were rehabilitated and closed in the Southern West Bank. These initiatives have created sustainable and innovative livelihoods for the project-affected parties, such as waste pickers. The following highlights the components of the solid waste management system achieved in the Southern West Bank.

ACHIEVEMENTS:

- **A sustainable solid waste management system to improve living conditions, especially those of the poor, was instituted. This system includes:**
  - A new specialized institution (the Joint Service Council) with a focus on consolidated waste management solutions in the Southern West Bank, similar to those established earlier in Jenin (Northern West Bank) and Gaza;
  - Bylaws that govern and regulate waste management at the national, regional and local levels;
  - A team of qualified Palestinian specialists in waste management;
  - A well-established public awareness program supported by a good system for citizen engagement;
  - A well-equipped and properly managed sanitary landfill and transfer stations;
  - A waste recovery scheme that is yielding good results and already generating revenues;
  - A proper system and arrangement for monitoring of waste management and reporting on misconduct for immediate actions;

ACHIEVEMENTS: (Continued)

- A concrete, successful model for partnering with the private sector at the international, as well as local levels, despite the fragile country context;
- A gradual change in cultural behavior that dictates that polluters must pay;
- An improved quality of life for their citizens with opportunities for employment;
- Better management of the already scarce land resources;

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Morocco

IMPROVING ENVIRONMENTAL AND SOCIAL PERFORMANCE OF THE SOLID WASTE SECTOR IN MOROCCO

Facing difficulties in managing its municipal solid waste (MSW), Morocco several years ago launched a comprehensive multi-year program to improve the governance and performance of their MSW system.

Until 2006, Morocco focused its solid waste services on keeping streets and neighborhoods clean, focusing mostly on collection, but giving little attention to disposal or environmental and social impact.

In an effort to improve the sector, the country enacted its first solid waste law in 2006 and, shortly thereafter, approved a 15-year national program to expand municipal solid waste collection services, improve disposal practices and promote recycling. The plan envisioned 90% collection coverage, 100% sanitary landfill disposal, the closure of 300 open dumps and 20% sorting of recyclable materials by 2021. Putting the program into effect remained a challenge, which led to Morocco approaching the World Bank for assistance.

Authorities wanted to improve transparency and citizen engagement by implementing the new law, which provided a clear framework for the sector and the promotion of efficiency. Initiatives have included publishing all municipal solid waste contracts with private operators on the Government's website, establishing 14 centers to report and publish relevant data, introducing citizen report cards for citizen feedback, and instituting contracting reforms such as introducing a dispute resolution clause in private contracts. Officials instituted mechanisms and incentives for municipalities and private firms to support the continuation of investments and services, such as cutting government debt to private operators, to improve financial sustainability.

Several steps were taken to integrate social and environmental considerations

into solid waste planning, implementation, and operations, including: improving the environmental impact assessment system for new waste facilities, improving landfill inspection methods, and ensuring that private landfill operators incorporate waste pickers who were working in the landfills or compensate them for loss of employment.

The plan also envisioned developing recycling value chains . One example is the introduction of an eco-tax on plastic, with the revenue going primarily to other recycling projects. As of mid-2015, about 200 million dirhams (US$ 22 million) have been collected from eco-tax revenues. About 20% of the tax should be dedicated to support for waste pickers and the promotion of gender representation in the sector.

To build institutional efficiency, the government, with World Bank help, set up the National Commission of Solid Waste Management, which coordinates sector policies and government actions of three ministries. A clearer distinction of the mandates and responsibilities between the national government, municipalities and the private sector has resulted in an improved management of the sector. To address the lack of technical, managerial and financial capacity at local level, an incentive mechanism was put in place consisting of providing decentralized technical assistance and on demand advisory services to local governments.

Technical capacity was complemented with improving financial capacity to provide better services. Increased cost recovery through a targeted municipal tax on high waste producers and improved fee collection together nearly doubled revenue from 2008 to 2011. The government also began developing a carbon finance program to generate future revenue from emissions reductions. Collection and disposal services were contracted to the private sector based on common quality and coverage standards for service delivery to make sure poor communities were served. Technical, environmental and social standards were integrated into the decision-making process so municipalities and outsourced services had to meet environmental and social concerns. Lastly, municipalities were rewarded for performance and adherence to the policies with increased funding through the National Program, further encouraging best practices.

The World Bank provided four loans totaling US$ 500 million as financial and technical support to Morocco. The project was successful for a number of reasons including the government's strong commitment and ownership of the project; the government's ability to spur municipalities' service delivery through financial and technical rewards; and the integration of environmental and social issues into the national framework. The cooperation with the World Bank was also successful, a key aspect being an extensive and long-term dialogue between the Bank and Moroccan authorities, starting as early as 2003.

ACHIEVEMENTS:

- An increase of urban waste collected from 45% in 2007 to 80% in 2014;
- An increase of waste disposed of in sanitary landfills from 5% in 2007 to 37% in 2014;
- An increase of private sector involvement in street cleaning/ collection of municipal solid waste from 45% in 2007 to 78% in 2014; and
- An increase of closure/rehabilitation of unsanitary landfills from 8 in 2007 to 26 in 2014.
- An increased in cost recovery and improved fee collection efforts nearly doubled revenue from 2008 to 2011

In sum, Moroccan cities today enjoy a private-led, sustainable and affordable municipal solid waste management system that contributes to improving the quality and access to waste collection service while reducing negative impacts of the sector on the country's economy, population and scarce natural resources.

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South Asia

Chittagong, Bangladesh

CHITTAGONG'S EXPORT ZONE IMPLEMENTS GREEN INITIATIVES TO BOOST COMPETITIVENESS

Chittagong, Bangladesh's economic capital, is working with the World Bank to increase its growth and energy efficiency while addressing the problems of climate change.

The World Bank Group (WBG) and the Korea Industrial Complex Corporation, a state-owned development agency, are working to identify ways to cut greenhouse gas emissions from Chittagong's export processing zone, one of eight such zones in the country.

Energy costs and supply and a trend toward green products are pushing Bangladeshi industry toward increased energy efficiency. The Chittagong zone has faced increasing electricity costs and, as with other EPZs, has suffered from power outages and unreliable supply. Industrial energy rates for the Chittagong EPZ have jumped five times in two years.

The WBG (including both the World Bank and International Finance Corporation) effort is aimed at cutting carbon emissions through institutional and regulatory changes, as well as training and education.

An initial inventory showed the Chittagong zone was emitting 330,000 metric tons of greenhouse gas a year. The WBG team identified a number of ways to save energy, including some quick fixes, such as improving boiler efficiency. Cogeneration—using a power unit's waste heat to generate steam for other enterprises—emerged as a way method to save energy. Initially, energy regulations did not support the buying and selling of steam, but cogeneration's potential benefits provided incentives to scale up the practice. National legislation on cogeneration has since been approved.

A pilot "green cell" within the Chittagong Export Processing Zone was formed to support enterprises' energy-saving initiatives and connect them to resources so they can pursue low-carbon projects. The cell raises awareness on energy savings potential, provides firms with basic services in terms of getting energy audits and identifying potential financing to help with upgrades. It also helps identify zone specific opportunities—current examples are solar street lamps and solar rooftops, both of which have already been implemented.

The project has also spurred development of low-carbon zone guidelines and a plan to guide Bangladeshi zones toward a low-carbon transition. The guidelines cover cost competitiveness, working with stakeholders and quick improvements firms can make. Eleven of the highest-emitting firms in the in the Chittagong zone have made over $7 million in investments based on recommendations from the low-carbon zone guidelines, while avoiding over 40,000 tons of CO_2 emissions annually.

Chittagong's success has shown that pursuing low-carbon growth is not a strain on firms. Rather, it helps them save costs, attract investment, develop new industry value chains and generate employment. Cities and countries can therefore look to Chittagong's initiatives—and specifically low-carbon zones—to realize goals of economic growth, energy efficiency and addressing climate change. Lastly, for cities positioning themselves in a global marketplace, this offers a model for cost competitiveness in addition to environment-friendly production, with the latter increasingly important for both consumers and producers.

The project is being continued through an ongoing WBG lending operation that has helped install solar street lamps and solar rooftop solutions.

ACHIEVEMENTS:

- In three years of the project, the Chittagong zone has seen carbon emissions drop by 20,000 metric tons per year, energy savings of 62,000 megawatt-hours, and annual cost savings of over $2 million per year;
- The 11 firms that implemented low-carbon zone guideline recommendations collectively saved $$4 million;
- Due to the project, the Bank has invested $20.5 million of a total of $170 million on a combined-cycle power plant;
- Bangladesh is the first low-income country to adopt low-carbon zone guidelines;

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Mysore, India

MYSORE'S INTELLIGENT TRANSPORT SYSTEM ENHANCING BUS SERVICE, HELPING AVOID TRAFFIC CONGESTION AND COSTS

Mysore, India uses an intelligent transport system to ease the strain for commuters, allowing it to provide safer and more reliable bus service.

Southern India's historic city of Mysore is trying to increase public transport use to avoid the traffic congestion common to Indian cities.

Authorities in the tourist destination, educational center and developing IT hub of almost one million in Karnataka state are trying to deal with growing traffic congestion using an intelligent transport system to improve the city's public bus service. The initiative is the result of Mysore's participation in India's national urban strategy and World Bank support.

Mysore is generally well planned, without larger Indian cities' traffic congestion, but it wanted to head off future problems, particularly given the spread of population and economic activity from larger to smaller cities, which is common in India.

Without action on public transport, the city feared more clogged traffic, and higher fuel consumption and pollution. Furthermore, the city's public transport ridership was low compared to private transport use.

The World Bank's sustainable urban transport program in India promotes intelligent transport systems, bus rapid-transit systems and public bike sharing. Together with India's Urban Development Ministry and the Karnataka State Road Transport Corporation, the Bank began work to increase public transport use, improve service and put effective monitoring capabilities in place to increase knowledge on intelligent transport systems' effectiveness in cutting

traffic congestion and greenhouse gases.

The Mysore City Transport Division of the Karnataka State Road Transport Corporation is implementing the project. It provides travel notifications to riders and uses a control station and management systems for route optimization and provision of prompt, predictable service. It covers the entire Mysore public bus fleet and includes a real-time passenger information system, in-vehicle display system, an automated voice announcement system, central control station, automatic vehicle location system, enterprise management system, management information system reports, and training for bus operators and public transport officials to use the system.

Bus passengers had had various complaints about buses in the past—lateness and unpredictability, too few buses for certain areas, unsafe drivers and drivers who did not wait for passengers, and route deviation among them. The Mysore system was designed to make public transportation more efficient and responsive to customers. Data from the city's 500-bus fleet was used to correct the mismatch between the fixed time in the schedules and what the intelligent transport system showed.

For example, one route was scheduled for 35 minutes each way at all times of the day, leading to bunching of up to 4 buses at bus stations. Intelligent transport system data helped show that 32 minutes was a more appropriate running time in one direction and 24 minutes was best in the opposite direction, because of a slightly different route. The route was rescheduled with timing for peak, normal and non-peak hours and differentiated by direction of travel.

Twenty employees in a control room now keep track of the buses. The intelligent transport system has helped monitor the buses on their route, drivers' performance and whether the buses are completing their designated routes.

This has helped improve service for commuters. Mysore bus travelers can now keep track of their bus by phone, SMS or the digital boards now at Mysore bus stations. This initiative has not only transformed the Mysore public transport experience, but is important for applying intelligent transport systems in urban services throughout India, to provide an alternative to automobile transport and improve transport efficiency in general.

ACHIEVEMENTS:

- The city has accurately described the bus network i.e. 2,400 bus stops instead of the Mysore City Transport Division's documented 600 stops. There had been frequent changes to bus schedules. The updated network allows the Mysore City Transport Division to save costs and better manage distance traveled, and it encourages ridership by providing accurate route information;
- The city has corrected the mismatch between the fixed times set in schedules and actual time taken as per intelligent transport system data, resulting in improved routing and scheduling;
- The city has corrected the significant difference between the kilometers traveled on record and actual kilometers traveled by buses. This has led to 101,306 fewer kilometers of daily bus travel for the fleet, a 3.7% decrease from the previous amount;
- For the same level of ridership in the city, the number of buses has dropped from 440 to 421;

ACHIEVEMENTS: (Continued)

- Bunching incidents have decreased from 60 to 12 per day;
- The city has also instituted systematic detection of drivers' deviation from prescribed schedules and non-compliance by staff to operating procedures. Poor and unreliable service by bus operators was one of the main complaints by riders prior to the reforms—the new technology allowed the transport authorities to better enforce safe and reliable public transport service;
- The Mysore intelligent transport system is the first in India to cover an entire city bus fleet.

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Thimphu, Bhutan

LAND POOLING IN THIMPHU, BHUTAN

Bhutan's capital uses land pooling, an alternative to eminent domain, to promote more inclusive and efficient urban development.

Bhutan is undergoing a rapid transition from a rural economy to an urban society. The average annual urban population growth rate has been around 4 percent since 2007. Given its small population, the country is relatively well positioned to meet the challenge of rapid urbanization. Nevertheless, the limited availability of serviced land is a challenge and urban institutional and governance systems need to be strengthened.

In this context, the city authority is using land pooling to facilitate urban development. Land pooling is a participatory approach in which a group of neighboring land owners and occupants combine their land together for unified planning and redevelopment in collaboration with the government or private developers. In this process, each participating household contributes land for building basic infrastructure and public amenities based on the needs of the community, and in return, receives a serviced land plot of smaller area with at least equal value in the vicinity of the original site upon the completion of the project. Land pooling is an alternative to eminent domain, which often raises issues such as fairness and transparency. Land pooling fosters collaboration and ownership, because it requires landowners to agree on planning, servicing and redevelopment decisions.

Thimphu's urban area expanded from 8 to 26 square kilometers in 1999, and after extensive consultation, the first comprehensive master plan was approved in 2003. Implementation required preparation of local area plans (LAPs) to show the details of infrastructure networks and other services. Fourteen such plans were prepared for the newly included areas using the approach

of land pooling. Landowners contributed 15% to 35% of their land for the construction of roads, footpaths, drainage, open spaces, schools, and other public amenities, which has provided more than 100 hectares of land. This approach substantially lowered the burden on the government, as otherwise, it would have had to acquire land from the residents through eminent domain or find other alternatives.

Bhutan formalized land pooling as an urban planning and development tool with the adoption of the Land Pooling Rules and Regulations in 2009, which provide a legal basis for land pooling and offers dispute-resolution mechanisms for occupants or landowners unwilling to be part of the process. Other provisions, based on substantial land pooling experience, included language describing the land pooling process, the need for consultation, and calculation on contribution ratio. This formalized process has made communication with land owners easier during the preparation of more recent land pooling projects.

The Thimphu Thromde (municipality) is the local city body responsible for building the urban infrastructure in Thimphu, mostly financed through Asian Development Bank and World Bank loans. Since 2000, seven LAPs have been approved for implementation and these are now at various stages of progress. Three of these LAPs have been funded by the World Bank.

A couple of examples of the local area plans and the land pooling process:

Lungtenphu was the first local area plan to be implemented using land pooling. With an area of about 244 hectares, mainly used for rice fields, implementation started in 2009 with 420 plots owned by 271 landowners. The planned infrastructure (such as roads, footpaths, water supply, sewerage, and drains) was fully implemented with financial support from the Asian Development Bank. The plan developed the area while providing the landowners that contributed land with access to infrastructure, and amenities and services. Land values increased and although the landowners generally ended up with less property, it was worth more. There was substantial public consultation on this plan to ensure support, from landowners.

Dechencholing, with an area of about 38 hectares, was Thimphu's first land area plan prepared without substantial external support from other countries and consultants. Implementation started in 2010 with 179 land parcels owned by 152 households. The development of the Dechencholing local area plan was funded by the World Bank. Before World Bank involvement, land owners dominated participation in the land pooling process and tenants and occupants who did not own their property were rarely invited into discussions. Under World Bank safeguards conditions and adoption of best practices, the land pooling process was much more inclusive as all the affected households were made part of the process in this project. Additionally, people who had to be relocated due to the project development were properly compensated through relocation and demolition allowances. This was the first local area plan for which the city obtained 100% agreement to land pooling from the landowners, who all contributed 25 % of their land. Due to the positive results, the city has incorporated inclusive practices and proper compensation into their other local area plans.

Engaging the public at all stages of the land pooling process and disseminating information to all stakeholders fosters trust and accountability, which are critical factors in achieving successful results. In the case of Thimphu, more could be done to ensure that participation by the poor and non-land owners is meaningful. The municipality may also wish to explore ways to capture the land value increments generated by land pooling for financing of social housing and other initiatives to help the poor. The city continues to improve their processes as more local area plans are developed, however, their efforts so far have already helped create an environment for sustainable urban development.

ACHIEVEMENTS:

- Land pooling has so far provided the municipality with more than 100 hectares of land for building infrastructure and amenities, greatly reducing the upfront capital needed from the municipality if it had to acquire land compulsorily.
- The Thimphu municipality has been successful at developing internal capacity to carry out land pooling projects without relying on external technical support.
- Land pooling projects are now more inclusive because they are carried out with extensive consultation of all stakeholders, including those who do not own property.
- Consultations with the public and other stakeholders helped the local government regain a lost sense of being trustworthy because of poor performance in the past and the extensive use of eminent domain.
- The land value of many people who participated in the land pooling processes increased due to the creation of new infrastructure and better living environment

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