City Deep Dives
Cities drive economic growth, accounting for 80 percent of the GDP in most countries in the region.104 This economic opportunity draws people into cities, with about 1.2 billion more people expected to live in Asian cities in 35 years. Many of these urban centers, including Bangkok, Guangzhou, Ho Chi Minh City, Manila, Shanghai, and Yangon, are low-lying or coastal hubs that are vulnerable to rising sea levels, floods, and extreme weather events such as typhoons. Measured as a percentage of GDP, Guangzhou faces the highest economic risk from climate change out of all global cities, and Shenzhen ranks tenth on the list.105 City leaders in East Asia and the Pacific are developing solutions for building urban resilience while remaining at the forefront of economic growth, with businesses playing an integral role.

The region’s cities are setting their own climate agendas that will invite investment into key climate-smart sectors and projects. For example, Kuala Lumpur is committed to reducing its emissions by 20 percent by 2022, primarily by improving the energy-efficiency of its buildings.106 The City Climate Change Action Plan for Ho Chi Minh City outlines measures to reduce emissions by 19 percent from 2013 levels by 2020 through land-use planning and the transformation of sectors including energy, transport, industry, water, waste, tourism, construction, and agriculture.107
Chinese cities are leading in the electrification of the transport sector, with support from national government policies and incentives for the electrification of public fleets that help manufacturers achieve economies of scale to make the production of private electric vehicles economically viable. By 2030, three in 100 people in China are expected to own a private electric vehicle, creating significant opportunities in Chinese cities and the region at large.

Cities in East Asia and the Pacific are also embedding climate resilience and mitigation into their social, economic, and urban development policies. For example, Manila is reviewing an integrated flood control and transport PPP through the Manila Bay Integrated Flood Control, Coastal Defense, and Expressway Project, which seeks to mitigate the climate impact of typhoons while improving road access to the area. Similarly, Semarang has introduced a bus rapid transit system that has helped women, the elderly, and disabled residents access transport, while catalyzing a modal shift towards public transport that has reduced the city’s emissions substantially. The city has used the project to demonstrate how data can be collected and used to allow for sustainable and gender-equitable urban development.

Such plans, policies, and projects make East Asia and the Pacific the region with the highest climate-smart investment potential in cities according to IFC estimates, amounting to a total investment opportunity of $17.5 trillion in the region’s cities to 2030.
A PUBLIC-PRIVATE PARTNERSHIP FOR LIGHT RAIL IN MANILA (IFC)

In 1984, Manila built the first light rail transit line in the Philippines. By 2014, the line was carrying half a million passengers every day along one of the city’s densest traffic corridors. IFC supported the Department of Transportation and Communication in designing a PPP for a 32-year concession to upgrade and operate the light rail line, and build and operate a much-needed 12km extension. IFC helped select a private concessionaire through a competitive and transparent process to operate the existing system, and to develop and operate the Cavite extension. The winning consortium committed to investing $925 million to build the extension, which will benefit over 1 million daily passengers when it is complete. The project has yielded $512 million in fiscal benefits and will reduce CO₂ emissions by 40,000 tons per year—equivalent to taking 8,500 cars off the road—by providing transport to hundreds of thousands of daily commuters.

WASTE AND BIOGAS IN MANDALAY (ADB)

Myanmar is home to a rapidly growing urban population that is acutely vulnerable to extreme weather events related to climate change. This could have potentially devastating effects for the country given that its urban areas are projected to account for 50 percent of its GDP by 2030. The ADB provided $6.2 million in climate adaptation finance (in addition to a $4 million grant and a $60 million loan) to generate biogas at a wastewater treatment plant in Mandalay. The biogas will be used to produce electricity for the plant and sludge from the digester will be stabilized for potential reuse in agriculture or cement works. By 2023, the plant is expected to be carbon-neutral and at least 50 percent energy self-sufficient.

AIR QUALITY IN ULAANBAATAR (ADB)

In recent winters, Ulaanbaatar has suffered some of the highest levels of air pollution in the world—nearly 40 times the daily limits recommended by the World Health Organization. Rapid urbanization has resulted in a vast city with poor access to water, sanitation, heat, and public transport. In winter, most households use raw coal or solid waste as heating and cooking fuel, resulting in high levels of multi-source micro particulate pollution (PM2.5) and negative health effects. With its $130 million policy-based loan, the ADB has encouraged the government to step up its investments in air pollution control measures, short-term solutions for reducing emissions and protecting public health, and long-term redevelopment efforts such as the provision of clean heating fuel and the extension of district heating through renewable sources. The policy-based loan has also prompted the Mongolian government to ensure that urban and energy planning agencies take into consideration anticipated climate impacts on urban infrastructure and future rural migration patterns.

An ongoing finance sector program will support small and medium-sized enterprises undertaking green and energy-efficient projects. The government will allocate new capital to the Credit Guarantee Fund of Mongolia to support the creation of new credit guarantee products designed to maximize potential air quality improvements and help businesses in peri-urban areas.
SECONDARY CITIES DEVELOPMENT (ADB)

Vietnam’s population and economy are rapidly urbanizing, with a structural shift from agriculture to industry and services, which have accounted for nearly 80 percent of the economy since 2005. Adapting critical infrastructure by building climate resilience in coastal and low-lying areas will safeguard vulnerable populations, productive sectors of the economy, and its natural resources. The project cities, Buon Ma Thuot (Dak Lak province), Ha Tinh (Ha Tinh province), and Tam Ky (Quang Nam province), are provincial capitals representing Vietnam’s rapidly developing secondary cities. The project includes upgrading urban roads for improved connectivity and evacuation during disasters, building flood dikes and drainage channels, and regulating basins for flood protection. The ADB provided a $95 million grant and $2 million in climate risk financing for the project.

AFFORDABLE HOUSING IN INDONESIA (WORLD BANK)

Indonesia is undergoing a major structural transformation into an urban economy, which means it is experiencing a large infrastructure deficit. Many cities have densely populated informal settlements. With more than 40 million Indonesians living within 10 meters above the average sea level, the vulnerability of lower-income households and their self-made houses in coastal cities such as Jakarta, Semarang, and Surabaya continue to increase. With the World Bank’s $450 million loan, the Indonesia National Affordable Housing Program is improving access to affordable housing through a mix of demand and supply-side interventions and embedding climate change adaptation considerations into housing planning in major coastal cities. The program has set specific eligibility parameters to ensure that any housing unit purchased or improved through the program is less vulnerable to climate-related hazards. It will also introduce a simple screening process for climate and geophysical hazards when houses are identified for purchase, provide practical how-to guidance on specific home improvements, and raise homeowners’ awareness of the risks. About 676,000 households are expected to benefit from this program, including 126,000 households for affordable house ownership through mortgage-linked down-payment assistance, and 450,000 households receiving house improvement/reconstruction support through government subsidy to cover up-front assistance for incremental home improvement.
One of our key ambitions is to make the city of Jakarta cleaner—and we can tackle this in a number of different ways. One such way is through green buildings. A mandatory regulation for green building codes was passed a few years ago, which will help to substantially reduce the consumption of energy and water. Because of this regulation, potential energy cost savings are estimated at $90 million annually. We want Jakarta to be known as a city of excellence for green buildings, and it will take both the public and private sectors to make this happen, as well as local communities and citizens."

— Oswar Mungkasa, Deputy Governor of Jakarta

Indonesia’s capital city of Jakarta has a strong economy that grew by 6.2 percent in 2017, higher than the national growth rate of 5.1 percent. As one of the most populated cities in the region, climate hazards such as flooding and rising sea levels are likely to affect many of Jakarta’s 9.6 million residents. The city is embedding climate action into its urban growth management strategies, which intend to improve air quality, reduce traffic congestion, and address increased water demand and waste generation.
Mitigation and Adaptation Plans

Jakarta has committed to reduce its emissions by 30 percent from 2005 levels and to source 30 percent of its energy from renewable sources by 2030.114 As a member of C40, it has also pledged to become emission neutral by 2050115 and has issued a joint statement with other cities from the Group of 20 nations asking leaders to collaborate on climate action under the Urban 20 initiative, which promotes cooperation between 25 global cities and Group of 20 nations.116

Jakarta’s Spatial Plan 2030 prioritizes climate-smart urban development, including improving wastewater treatment, increasing the use of alternative energy-based waste management technology, developing better public mass transit, enhancing the drainage system, and building resilience to natural disasters.117 The city’s Regional Action Plan for Reduction of Greenhouse Gases seeks to gather data on the city’s emissions, simulate their trajectory to 2030, and develop a Mitigation Action Plan focusing on green spaces, sustainable transport, green energy, wastewater management, and solid waste management over the same period.118

The city is making substantial infrastructure investments to build its resilience against flooding, the most urgent climate impact, through plans such as the Jakarta Coastal Defense Strategy and Flood Mapping, as well as the Jakarta Emergency Dredging Initiative, which seeks to unclog the city’s waterways that are operating at 30 percent of capacity.119 Jakarta is also planning to construct large sea walls, embankments, and flood canals, and to resettle residents living in informal settlements along the water.120 While its current resilience initiatives focus on elevated construction and repairing damage, the city is working with 100 Resilient Cities to develop a strategy that addresses the causes of flooding, among other climate change impacts.121
Priority Sectors for Investment

Water $3B

Water is a key issue for Jakarta’s urban development, both in terms of supply and resilience. The city also loses an estimated 50 percent of its water supply to leakage, and its public water network services about 40 percent of the city’s households. The city requires investments in laying 7,800km of new pipes to service the entire city, creating a considerable opportunity for the private sector. Extreme groundwater extraction has had the unforeseen effect of not only draining the capital’s aquifer, but also causing the ground on which it stands to sink, with some coastal areas sinking by up to 25 centimeters a year. In 2009, the city created tax benefits to incentivize businesses to draw less water, leading to a 30 percent decline in groundwater extraction.

With a growing population and new construction, the city is looking to implement a variety of measures to provide its residents with water while halting groundwater extraction. Northern Jakarta is mandated to have 100 percent water supply coverage and zero groundwater extraction, with similar piped water policies extending to the rest of the city for completion by 2030. The city also aims to relocate large users of groundwater, such as industrial users, away from critical zones with the most groundwater depletion.

Meeting its objective to drastically reduce groundwater extraction and secure access to piped water for its citizens will require an estimated $3 billion investment in Jakarta’s water and wastewater sector by 2030.

Transport $7.7B

Jakarta has a Compact City Development Strategy for Transit-Oriented Development, which includes plans for intersecting population-dense areas with public transport, improving pedestrian and bicycle pathways, and developing mixed land-use areas that promote non-motorized transport.

Given the ongoing challenges of air pollution and traffic congestion, Jakarta has been investing in improved public transport, with a focus on buses. The city launched the TransJakarta, the first bus rapid transit system in Asia, in 2004. Between 2015 and 2017, it introduced three new bus corridors spanning over 49km and 380 more fuel-efficient buses through its Sustainable Urban Transport Program. Since 2016, the city has been working with the private sector to promote fuel-efficient and safe driving through the Ecodriving initiative, in conjunction with Toyota Motor Asia Pacific and Clean Air Asia. Jakarta is also constructing a mass rapid transit system, the first phase of which is expected to be completed by the end of 2018. In August 2018, the city announced its intention to issue a tender for the second phase in the coming months. Once completed by 2025, the electrified network will span 112km and be integrated with the 42km-long light rail transit system being built by a consortium of companies, which will also require significant investment.

Meeting its objective to drastically reduce groundwater extraction and secure access to piped water for its citizens will require an estimated $3 billion investment in Jakarta’s water and wastewater sector by 2030.

The city’s transport sector target for 2030 is for 60 percent of all trips to be made using public transport, with a 30 percent decrease in emissions from the sector. It is participating in a scheme developed by C40 that will allow it to purchase “soot-free” engine technology and low-emissions buses from four of the world’s largest bus and engine manufacturers from 2018 onwards. IFC estimates an investment opportunity of $660 million in public transport and almost $7 billion in electric vehicles to 2030 for the city to achieve its plans to create a sustainable transport system.
Jakarta aims to build at least 1,000 low-cost residential towers by 2020 to house those who have been relocated out of informal settlements in the low-lying, flood-prone riverbank area. The city released the Grand Design of Green Building Jakarta in 2016, which committed to reducing water and energy consumption, as well as CO₂ emissions, from buildings by 30 percent by 2030.

To increase the energy-efficiency of its buildings, Jakarta worked with IFC to develop a Green Buildings Code to reduce energy consumption from residential and commercial buildings in 2013. As of May 2016, the code had resulted in changes to 260 buildings, over an area covering more than 15 million square meters. The city will continue implementing these energy-efficiency measures, which will contribute to an investment in green buildings expected to total over $16 billion by 2030.

Financing and Policy Instruments

The central government of Indonesia maintains strict control over municipal borrowing and access to financing in the country, but has encouraged PPP concession models or special-purpose private infrastructure projects in Jakarta that can generate revenues for repayment. The city has seen some success with PPPs, including the $6 billion Jakarta-Bandung high-speed railway project, and with private sector initiatives such as Unilever’s waste bank facility, which seeks to improve the solid waste management capacity of Jakarta and 16 other cities in Indonesia. The city has also had support from the ADB for the East and West Jakarta water supply development projects.

The government of Jakarta is using policy instruments at its disposal to raise funds for its climate activities, such as taxing the consumption of groundwater to co-finance its 2030 piped water target discussed above. The national government is also working with the ADB on the country’s first municipal bond issuance program for infrastructure and urban development projects, which will be piloted in Jakarta and Central Java.

The World Bank Group is working to support Jakarta and other cities in Indonesia on financing and policy for urban development projects. City governments are only able to use their budgets to fund projects that take less than a year to complete. The World Bank and the Asian Infrastructure Investment Bank have each approved financing of $100 million to PT Sarana Multi Infrastruktur, a state-owned infrastructure financing firm, to improve subnational governments’ access to credit for infrastructure projects.