

The Transition of Asian and Pacific Cities to a Sustainable Future: Accelerating Action for Sustainable Urbanization



Copyright © United Nations, 2022
All rights reserved
Printed in Thailand

ST/ESCAP/2990

Disclaimer

The views expressed in this publication are those of the authors and do not necessarily reflect the views and policies of the United Nations or other international agencies. The publication has been issued without formal editing. Reproduction and dissemination of material in this publication for educational or other non-commercial purposes are authorized without prior written permission from the copyright holder, provided that the source is fully acknowledged. For further information on this publication, please contact:

Environment and Development Division
Economic and Social Commission for Asia and the Pacific United Nations Building
Rajadamnern Nok Avenue
Bangkok 10200, Thailand

Email: escap-edd-suds@un.org
Website: www.unescap.org

Cover image:
Shutterstock, Planet Earth Southeast Asia zone. Elements of this image furnished by NASA

The Transition of Asian and Pacific Cities to a Sustainable Future:

Accelerating Action for Sustainable Urbanization

Acknowledgements

This publication was developed by the Environment and Development Division of the United Nations Economic and Social Commission for Asia and the Pacific (ESCAP) under the guidance of Curt Garrigan, Chief of Sustainable Urban Development Section.

The coordinator of the publication was Ivana Brnovic, of the Environment and Development Division, Sustainable Urban Development Section, ESCAP. The lead author was Andreas Beavor. We are grateful for the advice given by the following individuals who reviewed the paper and provided technical inputs from ESCAP: Curt Garrigan, Andrew Charles, Janet Salem, Matthew Perkins, Kyngkoo Kang, Eva Wong and Ivana Brnovic; UN Habitat: Bruno Dercon;

ESCAP is thankful for the case studies received from the officials and stakeholders in the following countries in Asia and the Pacific: Afghanistan, Cambodia, Fiji, Georgia, India, Indonesia, Lao People's Democratic Republic, Malaysia, Mongolia, Nepal, People's Republic of China, the Philippines, Singapore, Thailand, Turkey, Viet Nam and regional groupings such as ASEAN Smart Cities Network.

We appreciate the support and guidance received from: Bernadia Tjandradewi, Secretary-General, United Cities and Local Governments Asia-Pacific and Norliza Hashim, Chief Executive Urbanice Malaysia, on behalf of Penang Platform for Sustainable Urbanization.

Anoushka Ali edited the manuscript and project administration was provided by Sirikul Suvarnanetra and Orani Potchapornkul. Publication design and layout was completed by Jeff Williams.

Table of Contents

1.	The Urgent Need for Sustainable Urbanization in Asia and the Pacific	6
1.1	The Sustainable Urban Development Imperative	6
1.2	The Impact of COVID-19 on Urban Development in the Asia-Pacific Region	7
1.3	Critical Urban Challenges	9
1.4	Structure of this Report	10
2.	Assessing Progress Across the Thematic Pillars of Sustainable Urban Development	11
2.1	Urban and Territorial Planning	11
2.2	Urban Resilience	16
2.3	New Data and Digital Technologies for Smart Cities	20
2.4	Urban Finance	24
3.	Towards Progress on NUA Follow-up and Review	34
3.1	The Role of the Quadrennial Report and National Reports	34
3.2	The Role of Voluntary Local Reviews (VLRs) to Assess SDG Localization	36
3.3	The Way Forward	39
	Annex 1: Summary of the Regional Partners Forum Outcomes	43
	Annex 2: Progress on the APUF-7 Voluntary Commitments	54
	References	58

1. The Urgent Need for Sustainable Urbanization in Asia and the Pacific

1.1 The Sustainable Urban Development Imperative

Since the adoption of the New Urban Agenda (NUA), in 2016, the major part of the Asia-Pacific region has become urban for the first time in history, with over 2.3 billion people living in its cities. The region will continue to see an increase in its urban population with an estimated addition of 1.2 billion new city residents by 2050, which will have profound implications for the region's economy, society and environment. The challenges resulting from rapid urban development are multiple; the Asia-Pacific region has the largest concentration of people experiencing urban poverty, with one-third of its urban dwellers living in slums or in slum-like conditions. The deficit of basic infrastructure and appropriate housing and amenities is significant and rapidly growing.

The COVID-19 pandemic has further compounded the challenges faced by urban areas around the world. Financial resources have been diverted towards public health response, and lockdown measures have typically reduced both household income and municipal tax revenues, resulting in increases in poverty, debt and social development challenges.

However, cities are increasingly becoming places of great capacity for recoveries. Urban planning and infrastructure investment can benefit large numbers of inhabitants. The Asia-Pacific region is home to some of the world's most dynamic and innovative approaches to urban development, and rapidly evolving digital solutions and green technologies are contributing to a more efficient, transparent and sustainable planning and management of urban areas.

Opportunities to address urban challenges are set out in the ESCAP and UN-Habitat report, *The Future of Asian and Pacific Cities*,¹ which was launched in 2019 at the Seventh Asia-Pacific Urban Forum (APUF-7). The report recommended policy pathways and strategies for the region's sustainable urban future. The pathways were structured around four main themes to guide recovery strategies. These themes are: i) Urban and territorial planning; ii) Urban resilience; iii) New data and technologies for smart cities; and iv) Urban finance.

Underlying urban development in the Asia-Pacific region is the need for rapid and far-reaching climate action in cities. Countries in the region are currently home to approximately 60 per cent of the global population and Asia and the Pacific is responsible for over 50 per cent of global GHG emissions.² Urban areas in the region are accountable for approximately 75 per cent of regional emissions, with energy generation, industry and transport accounting for the greatest proportions. The most recent IPCC report,³ highlights the urgency to accelerate transitions to low-carbon and resilient development pathways. To keep the possibility open of maintaining average global temperatures to well below 2°C above pre-industrial levels, the climate emergency must be addressed now with dramatic cuts to global emissions.

Even if emissions were to reach zero today, the climate would continue to change for several decades as the Earth's system responds to the warming already underway, highlighting the importance of resilience to shocks and stresses, such as more intense rainfall and heat, longer and more frequent periods of drought and rising sea levels.⁴ Furthermore, the longer the delays in taking appropriate significant action, the greater the costs of climate change.

1. The Future of Asian and Pacific Cities 2019: Transformative Pathways Towards Sustainable Urban Development (United Nations publication, 2019).

2. Asian Development Bank (ADB), "Asia and the Pacific is the frontline of the climate change battle". Available at <https://www.adb.org/climatebank>.

3. Intergovernmental Panel on Climate Change (IPCC), "Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change" (Cambridge University Press, 2021).

4. The Royal Society, "If emissions of greenhouse gases were stopped, would the climate return to the conditions of 200 years ago?", Royal Society Answer 20, March 2020. Available at <https://royalsociety.org/topics-policy/projects/climate-change-evidence-causes/question-20/>; K. Zickfeld and others, "Long-term climate change commitment and reversibility: An EMIC intercomparison", *Journal of Climate*, vol. 26, No. 16 (May 2013), pp. 5782–5809.

For example, the IPCC estimates that the “mean net present value of the costs of damages from warming in 2100 for 1.5°C and 2°C are US\$ 54 trillion and US\$ 69 trillion, respectively, relative to 1961–1990”.⁵ For cities and countries, this also helps demonstrate the costs and benefits of acting now rather than delaying a response to the climate crisis.

When considering sustainable urban development and the urgent need to accelerate climate action, clear focus on secondary or intermediate towns and cities is necessary. In 2016, half of all urban households in the Asia-Pacific region lived in cities of fewer than 500,000 inhabitants,⁶ which accounts for over 1 billion people. The role of secondary and medium-sized cities in the region’s future urban development is increasingly vital and their transitions will be critical to the implementation of the NUA. The challenges for planning and financing low-carbon and resilient infrastructure in these urban areas are multiplied due to lower local capacity, poor creditworthiness and smaller scale of investments, which lead to less bankable projects. However, there are many solutions to overcome these financing barriers, some of which are discussed in Section 2.4.

1.2 The Impact of COVID-19 on Urban Development in the Asia-Pacific Region

Since early 2020, the world has been in the grip of the COVID-19 pandemic, which has wreaked havoc on urban and rural economies, and posed severe public health threats. Inequalities have been exacerbated, particularly in congested urban areas and slums, where living conditions have dramatically affected the health of the urban poor as they are unable to self-isolate. Furthermore, their livelihoods depend on income from day-to-day work in the informal sector, which have been severely disrupted by lockdowns and restrictions on movement.⁷

The COVID-19 pandemic has tested urban resilience and exposed the fragility of urban systems worldwide, reversing decades of progress on poverty, health care and education. The full extent of this impact remains to be seen over the coming years. However, a number of negative impacts on cities, especially those in low and middle-income countries (LMICs), are already evident. These include:⁸

- **Less resources available for urban management and investment:** The response to the COVID-19 pandemic at the national, provincial and city level has drained finances. In many LMICs this means an even greater deficit for funding and maintaining infrastructure and multiple services and staff.
- **Lack of local taxes and revenues:** Coupled with the need for greater expenditure on COVID-19 response measures, as mentioned above, multiple and often extended lockdowns led to a collapse in economic activity, which likely reduced tax revenue for local governments and inhibited their abilities to invest in much-needed infrastructure and services.
- **Increased levels of poverty:** The economic damage wrought by the pandemic is still in progress, but it is clear that the severe disruption to livelihoods, the depletion of savings and increase in personal debt have pushed many more urban dwellers into poverty, with considerable socioeconomic impacts.

Yet, the necessary recovery from the impacts of COVID-19 provides an opportunity to integrate principles of sustainable urbanization deeper into economic development strategies and local urban planning. The pandemic has highlighted the role that local leaders and city governments can play in localizing the Sustainable Development

5. Ove Hoegh-Guldberg and others, “Impacts of 1.5°C global warming on natural and human systems”, in *Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty*, V. Masson-Delmotte and others, eds. (In Press, 2018).

6. Habitat III Regional Report: Asia and the Pacific: Transformative urbanization for a resilient Asia-Pacific (United Nations publication, 2017).

7. United Nations Sustainable Development Group, “Framework for the immediate socio-economic response to COVID-19”, April 2020b. Available at <https://unsdg.un.org/resources/un-framework-immediate-socio-economic-response-covid-19>.

8. United Nations Human Settlements Programme (UN-Habitat), *Cities and Pandemics: Towards a More Just, Green and Healthy Future* (Nairobi, Kenya, May 2021). Available at https://unhabitat.org/sites/default/files/2021/03/cities_and_pandemics-towards_a_more_just_green_and_healthy_future_un-habitat_2021.pdf.

Goals (SDGs) through service delivery, economic and community development, environmental protection and infrastructure investments to ensure the well-being of their residents and neighbourhoods.⁹ As highlighted by the UN Secretary-General, Antonio Guterres, in 2021, cities must play a central role in sustainable COVID-19 recovery strategies.¹⁰ City governments and stakeholders can help to build a new urban economy that invests in sustainable infrastructure, which will reduce disaster risk, harness nature-based solutions to address climate change and ensure digital access, health coverage, schooling and housing for all, leading to a healthier, more inclusive, just, green and gender-equal world for all.

In 2020, ESCAP revisited the policy pathways set out in *The Future of Asian and Pacific Cities*,¹¹ with a set of extended recommended actions aligned with the four pillars, to improve resilience to pandemics and to address COVID-19 recovery.¹² Some of these are indicated below.

Urban & territorial planning

- **The renewed importance of local living:** Reducing the need to travel long distances within a city, for work, school, healthcare, buying groceries and many other activities is important for low-carbon, safe and efficient cities. Supporting active mobility, like walking and cycling, also has many health co-benefits.
- **Safe and dignified housing that meets human needs:** It is vital to reduce the vast deficit in affordable and quality housing to increase resilience to future pandemics and other disasters.

Urban resilience

- **Access to appropriate water and sanitation services:** Access to sufficient and safe water to drink and maintain personal hygiene is vital for sustainable urban development and goes a long way in breaking chains of virus transmission, also supporting disease prevention and resilience.
- **Green spaces to address multiple needs:** The lockdowns experienced during the pandemic also highlighted the importance of local access to open space for recreation and exercise. Green and blue infrastructure such as parks, water ways and sports fields play a vital role in supporting biodiversity and nature-based systems (NBS) for flood control and urban heat reduction.

Smart cities

- **Digital infrastructure and connectivity:** The restrictions imposed by the COVID-19 pandemic have greatly accelerated the uptake of digital solutions, such as for better communications and working from home, remote education options and e-commerce, which also greatly increases resilience.

Taking into account these and many other synergies, urban development must be holistic and forward-looking. As stated in the UN Secretary-General's July 2020 policy brief, *COVID-19 in an Urban World*, while the attention of many national and city governments is still focused on reaction and survival, it is instead vital to promote "future-ready cities" through a response that not only alleviates the immediate effects of the pandemic but also addresses longstanding social inequalities, resolves acute capacity deficits and ensures the economic recovery is "resilient, inclusive, gender-equal and green."¹³

9. Ibid.

10. Ibid.

11. *The Future of Asian and Pacific Cities 2019: Transformative Pathways Towards Sustainable Urban Development* (United Nations publication, 2019).

12. Ibid.

13. United Nations Sustainable Development Group, "COVID-19 in an urban world", Policy Brief, July 2020a. Available at <https://unsdg.un.org/resources/policy-brief-covid-19-urban-world#:~:text=Policy%20Brief%3A%20COVID-19%20in%20an%20Urban%20World%20July,areas%20have%20become%20the%20epicentre%20of%20the%20pandemic>.

1.3 Critical Urban Challenges

While urban development comprises a myriad of challenges and opportunities, three specific challenges have emerged as areas for action that are particularly critical for sustainable development.

Plastic waste

The world generates over 2 billion tons of municipal solid waste annually, of which an estimated 7 to 12 per cent, by weight, consists of plastic waste.¹⁴ Municipal waste generation is expected to increase to 2.2 billion tons per year by 2025,¹⁵ and to 3.4 billion tons by 2050, which is more than double the population growth over the same period, as LMICs increase their per-capita incomes, and rates of growth and consumption.¹⁶ Under the 'business-as-usual' model, the proportion of plastic waste, within this global increase, is likely to be even higher as the use of plastic products, packaging, food delivery and multi-layer materials with plastics are on the rise. Global production of new plastic products is currently around 350 million tons per year, of which approximately 50 per cent is for single-use items. The production of new plastic products is forecast to double globally by 2040 to around 700 million tons per year.

It should be noted that, when considering the flow of plastic waste into rivers and oceans, just five Asian countries – China, Indonesia, the Philippines, Viet Nam, and Sri Lanka – account for 60 per cent of the global total. Addressing plastic pollution is thus a global challenge in which the Asia-Pacific region has a disproportional influence and potential impact. There are many challenges to plastic waste management including poor waste management services and waste disposal or recycling infrastructure and processes, lack of financial resources or local government capacity. There are also many opportunities for improved plastic waste management, including the impact of digital solutions and private sector initiatives to help identify waste hotspots, facilitate marketplaces for exchange of more valuable materials and enable due diligence in plastic recycling value chains.¹⁷

Air pollution

Cities across the region, such as New Delhi, frequently feature in international news headlines about the toxic levels of smog. This is not only a public health crisis, but also an economic and a public relations disaster for any city, as it becomes less attractive for business investments and tourism. Sources of air pollution include energy generation, traffic, industry and agricultural practices, such as crop burning. There are also increasing feedback loops created by climate change such that wildfires are more extensive and numerous, particularly across South-East Asia, which adds to the crisis.

The World Health Organization (WHO) estimates that one-third of global premature deaths attributable to poor air quality occur in the Asia-Pacific region.¹⁸ As the urban population expands, the quality of air in urban areas is a growing concern. Some countries have made notable progress, such as China, where the annual median exposure to ambient PM_{2.5}, in 2016, was 48.8 µg/m³, which is a 17 per cent reduction from the estimate for 2012, but still almost five times higher than WHO recommendations.¹⁹ However, most cities in the region continue to experience ever worsening air quality and lack technical knowledge and finance to address these deep-rooted challenges. ESCAP is helping to improve the ability of cities to understand and address air quality issues with its support for a programme to analyse satellite data from South Korea's GEMS satellite, in tandem with Pandora

14. Silpa Kaza and others, "What a waste 2.0: A Global Snapshot of Solid Waste Management to 2050", Urban Development Series, (Washington, D.C., World Bank, 2018).

15. Mansoor Ali and Veronica Di Bella, "Topic guide: Solid waste management", Evidence on Demand Series, UK Department for International Development (DFID), April 2016. Available at https://assets.publishing.service.gov.uk/media/57a08954e5274a31e000001c/EoD_Topic_Guide_Solid_Waste_Management_Final.pdf.

16. Ibid.

17. Matt Wilson and others, "Digital Dividends in Plastic Recycling", GSMA Climate Tech Report, April 2021. Available at <https://www.gsma.com/mobilefordevelopment/resources/digital-dividends-in-plastic-recycling/>.

18. World Health Organization (WHO), "One third of global air pollution deaths in Asia Pacific", News Release, Manila, Philippines, 2 May 2018. Available at <https://www.who.int/westernpacific/news/item/02-05-2018-one-third-of-global-air-pollution-deaths-in-asia-pacific>.

19. Ibid.

ground sensors to triangulate and ground truth the data.²⁰ Much more action is needed in this area, with deep synergies with climate action.

Vertical integration between levels of governance

Localizing the SDGs and translating climate action from Nationally Determined Contributions (NDCs) and National Adaptation Plans (NAPs) to city level action is often constrained by poor integration and coordination between different levels of government. Vertical integration between different levels of governance from the national level to the community level is vital for improved action, as explored and advocated in a recent paper by ESCAP.²¹ Another important dimension to consider is coordination between sectors, to enable integrated and joined-up approaches, that is suitable for complex systems in cities.

Implementing effective climate action in cities, for both mitigating climate change and adaptation to impacts, often requires complex approaches. This will need governance frameworks and instruments that are based on strong vertical and cross-sector integration, drawing on the appropriate technical know-how and financial resources. In all cities across the region, maximizing integration between governance levels and sectors is the first step to mitigating aspects, such as a lack of finance and technical capacity to plan and implement green and resilient cities and infrastructure. Addressing complex challenges, such as air pollution, which cut across governance boundaries and sectoral responsibilities, will rely on improvements in this vertical integration.

1.4 Structure of this Report

This Report captures insights from the progress being made in the region on sustainable urban development, and discusses the challenges and opportunities available for cities, private sector investors and donor organizations to focus on certain actions and strategies to build strong recoveries.

- **Section 2** presents a compendium of brief case studies from partner organizations, which act as insights to progress, together with the challenges and opportunities available for sustainable urban development across the Asia-Pacific region. Where possible, the case studies bring in the context and impact of the COVID-19 pandemic, and highlight the cross-cutting role of cities in response to it, thereby contributing to and spearheading the implementation of healthy, just and sustainable recovery from the impacts of COVID-19. This section sets out the recommended policy pathways from the 2019 report on *The Future of Asian and Pacific Cities* and highlights several other important approaches for cities and partner organizations to focus their efforts.
- At the end of **Section 2**, an overview of the **Regional Partners Forum @Quito+5** held in October 2021 provides context on the continuum of events and processes that contribute to the follow-up to the New Urban Agenda (NUA) in the region, including an update on the voluntary commitments made by several organizations and cities at the Seventh Asia-Pacific Urban Forum (APUF-7) in October 2019.
- **Section 3** focuses on the process of voluntary National Reports and the Quadrennial report on the Implementation of the New Urban Agenda, due in 2022. This section also highlights opportunities for Voluntary Local Reviews (VLRs). It includes a call to action on preparing Voluntary National Reports on NUA progress and city-level VLRs.

20. United Nations Economic and Social Commission for Asia and the Pacific (ESCAP) and National Institute of Environmental Research, "Introduction to Geostationary Environmental Monitoring Spectrometer and Pandora Asia Network", 24th session of ICC on RESAP, 18-19 August 2020. Available at https://www.unescap.org/sites/default/files/21.%20NIER_Introduction%20to%20Geostationary%20Environmental%20Monitoring%20Spectrometer%20and%20Pandora%20Asia%20Network.pdf.

21. Vertical Integration of Climate Policies and Actions in Asia-Pacific Cities (United Nations publication, 2020c).

- **Annex 1** is a summary of the outcome of the Regional Partners Forum, that was held in October 2021.
- **Annex 2** provides an overview of the progress achieved against each of the 11 voluntary commitments from APUF-7.
- A more detailed version of the submitted case studies are included as a separate **Compendium**.

2. Assessing Progress Across the Thematic Pillars of Sustainable Urban Development

In the past few years, a wide range of sustainable urban development projects and initiatives have been implemented or put in place in the Asia-Pacific region. Understanding some of these initiatives helps to assess progress in implementing the NUA, as well as providing many learning points a source of inspiration and practical guidance to cities and stakeholders across the region.

This section is structured around the four themes set out in the report, *The Future of Asian and Pacific Cities*:²²

- **Urban and Territorial Planning;**
- **Urban Resilience;**
- **Data and Digital Technologies for Smart Cities; and**
- **Urban Finance**

It provides a summary of the policy pathways for each of these themes, followed by case studies that show how cities and other subnational entities are making progress in each of the thematic areas. The challenges encountered and points of learning are also highlighted. In addition to the policy pathways, each of the four sections ends with an assessment of key areas for continued focus, as well as integrated points related to COVID-19 recovery.

2.1 Urban and Territorial Planning

The role of urban and territorial planning continues to grow along with the urgent need to coordinate a sustainable and equitable transition toward low-carbon and resilient cities. Planning plays a vital role in promoting coherent development policies that strengthen people-centred development and protect vital ecosystems and natural resources. Planning enables systems-thinking about complex networks in cities, encouraging the integrated consideration of different sectors, economic development opportunities and finite resources. Digital innovation is also providing many exciting new techniques and tools, helping to make planning processes more evidence and data-driven, efficient and participatory, across formal and informal settlements.

The recommended policy pathways

Three policy pathways were highlighted in the 2019 report, *The Future of Asian and Pacific Cities* as priority areas for a broad range of countries and cities in the region. The headings are included below and more details can be found in the 2019 report.

- ***Integrate sustainability and quality-of-life targets into urban planning to future-proof public and private investment in cities;***

22. The Future of Asian and Pacific Cities 2019: Transformative Pathways Towards Sustainable Urban Development (United Nations publication, 2019).

- ***Co-produce with citizens urban planning solutions that align technological investment with adequate local government capacities;***
- ***Identify specific urban regeneration and growth strategies that optimize urban-rural and city-region collaborations that spur sustainability and investment.***

Examples of innovative approaches and progress in the region

The following insights, from cities across the region, show valuable experience and learning related to sustainable urban and territorial planning. These include planning to support the transition from heavy industry to more ecological-based growth in Liuzhou, China; the role of the Urban Sustainability Assessment Framework for five cities in India; equitable land tenure and the role of sustainable transport planning in the Lao People's Democratic Republic; partnerships for waste management in Surabaya, Indonesia; and the successful application of integrated coastal management in Xiamen, China.

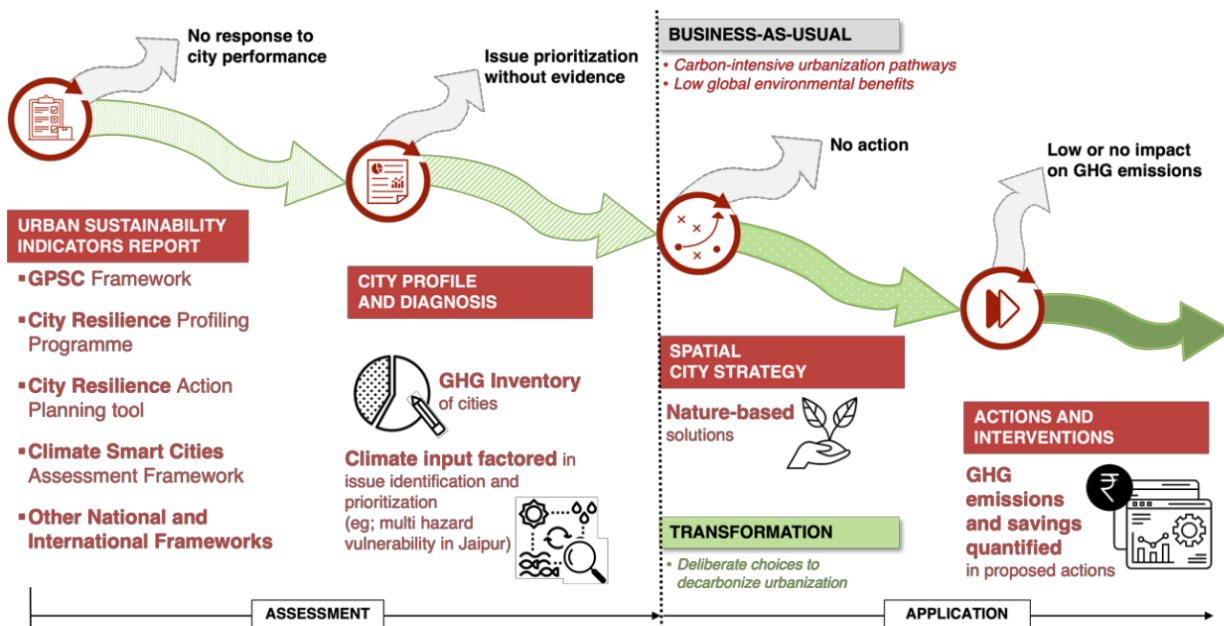
Liuzhou, China: Managing the transition from an industrial to an environment-focused city

Liuzhou's recent urban development represents an integrated, inclusive and ecological transition from an old machinery and automobile industrial city into an innovation-based economy. The long-term efforts in the field of environment (green and blue infrastructure), mobility (affordable public transport and e-vehicles), and culture (museums and cultural heritages) have been integrated into the city's spatial planning. The implementation of an integrated approach in sustainable urban development was made possible through a wide range of cross-sectoral governance initiatives, involving the public and private actors, as well as citizen participation. Liuzhou's ecological transition is part of China's pilot low-carbon city initiative and lighthouse program of the National Circular Economy Action Plan, which focuses on localizing the SDGs. Liuzhou has focused on a number of key, integrated strategies to achieve this transformation, including the ecological restoration of the Liujiang river, improvement of wastewater treatment and landscape planning through ecological concepts and public services and, the optimization of a '15-minute community life circle' in spatial planning considerations, which reduces the need to use private vehicles. Liuzhou's experience of ecological modernization and industrial transition can be transferable to other cities across China and the Asia-Pacific region.

India: Mainstreaming climate action through urban and territorial planning with the Urban Sustainability Assessment Framework (USAF)

Nearly 35 per cent of Indians now call urban India home and this is growing rapidly. Planning for cities must be done in a future-proof, sustainable way to simultaneously meet the challenges of rapid population growth, urbanization, climate change and environmental degradation. ***The Urban Sustainability Assessment Framework (USAF)***, developed by UN-Habitat in India, is designed as a decision support tool for municipal commissioners and urban practitioners to support sustainable and resilient urban planning and management of cities in India. The spatial lens of this framework supports urban territorial planning while prioritizing climate adaptation and mitigation at all stages of the advocated process. The framework incorporates a monitoring process across standardized indicators, and across twelve sectors, namely, governance and data management, finance and economy, housing and property, water, sanitation, waste management, clean energy, resilience, environment, public space-safety-urban form, transport, and social infrastructure. With its focus on mitigating climate change via the reduction of greenhouse gas (GHG) emissions, at every step of this process, metrics, studies, climate-focused frameworks, and low-carbon tools have been at the heart of the overall approach. Figure 1 highlights the various inputs that have been used to integrate a focus on climate into each stage of this process and identifies a transformation path for the cities should they employ the methods advocated by this process.

Figure 1: Mainstreaming climate change through the USAF²³



The USAF has currently been applied to five cities in India and the process of developing Sustainable City Strategies for these cities is underway. The key lessons learnt from the initial application are that a siloed sectoral approach is inadequate to build synergies in programming at local levels and seamless data-sharing must be enabled. Formal institutional mechanisms are needed to facilitate consultations amongst various local government entities and parastatal organizations. Dialogues need to be encouraged, and findings need to be shared based on objective data/evidence emerging from the assessment framework that highlight interlinkages between mandates of different agencies in order to spur collaboration. UN-Habitat supports stakeholders to institutionalize the USAF at the national level and at the subnational/state level across India.

The Lao People’s Democratic Republic: Improving equitable land tenure via the Secure Access to Land and Resources (SALaR)

Equitable land tenure rights are an important underlying aspect of land-use planning and sustainable development. The Secure Access to Land and Resources (SALaR) project is being implemented as the Lao People’s Democratic Republic continues the process of implementing a new land law which was adopted in 2019. Challenges related to land tenure include pressure on land from population growth and expanding urban areas and limited land registration and titling. A further challenge for equitable land policy is a male-dominated decision-making process due to cultural norms regarding women’s participation. The SALaR project, implemented by UN-Habitat, aims to promote tenure security improvement, especially for women and marginalized groups, at the village level. Three major interventions were included: a) implementation of land tools; b) capacity-building; and c) enhancing partnerships among land stakeholders. Innovation has been demonstrated by taking existing land tools and modifying them to meet the unique contextual needs of the Lao People’s Democratic Republic and to align them with government planning and aspirations. In particular, the Social Tenure Domain Model (STDM) tool was introduced to capture person/s-to-land relationships. The STDM is a pro-poor, participatory and gender-responsive land information system which aims to close the gap between the formal system and those tenure arrangements that are not recognized by the statutory and legal system. The tools and capacity developed through the project will be applied in the future in the rapidly growing urban areas in the Lao People’s Democratic Republic.

23. Adapted from Volume 1 of Shagun Mehrotra and others, “Greater than parts: A metropolitan opportunity”. (Washington, D.C., World Bank, 13 November 2020). Available at <https://www.thegpsc.org/knowledge-products/GTP#:~:text=Greater%20Than%20Parts%3A%20A%20Metropolitan%20Opportunity%20presents%20nine,and%20inspire%20action%20by%20cities%20around%20the%20world.>

Kaysone Phomvihane, Lao People's Democratic Republic: Improved transport planning

The 'Advancing Sustainable Urbanization Through Improved Transport Planning' project in Kaysone Phomvihane aims at improving road infrastructure and advancing public transport systems for sustainable urban development and liveability. With the support of the ASEAN-Australia Development Cooperation Program Phase II, Kaysone authorities have worked together with the UN-Habitat team, during 2020, toward developing a City Diagnostic Report and a City Technical Proposal to advance the development of a City Sustainable Transport Master Plan (CSTMP). Given the many challenges related to congestion, pollution and poor mobility options, the improvement of the transport sector has become a necessity for advancing sustainable and inclusive growth in Kaysone. The city does not have any plans, roadmaps or strategies for public transport that align with existing initiatives. As such, the city is aiming to develop an integrated public transportation master plan, involving all stakeholders, to make the city more liveable, with improved mobility systems and healthier living environments.

To overcome the limitations of COVID-19 on typical stakeholder engagement processes, data collection was conducted through the introduction of online questionnaires along with key informant interviews and the analysis of city reports and other relevant documents, enabling the identification of several challenges. While there were limited in-person events, dialogue between UN-Habitat's Urban Lab, in-country staff and government officers remained robust and all stakeholders were successfully engaged. Additional challenges were faced as government officers were heavily engaged with COVID-19 recovery besides other tasks. In that respect, the lessons learned were that online tools enabled the team to complete activities and adapt to the situation, while advancing the use of digital instruments at the local level to foster sustainable urban development.

Surabaya, Indonesia: Innovations in waste management

Surabaya is Indonesia's second-largest city, with a population of 3 million. Its large and growing population, living on the highly populated island of Java, brings significant health and environmental challenges. At one point, the city produced over 2,000 tons of solid waste weekly, and to manage this, Surabaya has sought out new ways to recycle various forms of waste into new products, drawing on innovative circular economy principles. The Jambangan Recycling Center processes both organic and inorganic waste. To process organic waste, black soldier fly larvae is used, a faster composting process than other common ones. After only 12 days, residue from this composting process can be used for animal feeds. Inorganic materials are converted through a variety of systems, including a waste-to-energy plant that supplies enough energy to process 20 tons of waste per day, creating a self-sustaining loop. The city is also developing former landfill sites and informal dump sites into eco-parks to promote eco-tourism and green initiatives. Former landfills and unmanaged areas have been transformed into Harmoni Park, the Urban Forest of Gunung Ayar, and Wonorejo Mangrove Forest. This has turned bleak areas of pollution into family-friendly spaces and green landscapes that are important for recreation, health, biodiversity and natural systems, and which contribute to carbon sequestration and resilience to disasters such as flooding.

For successful project implementation, cooperation between the community and the project implementers has proven to be vital. Some projects are explicitly community-led, bringing wider ownership and understanding of environmental concerns. Partnerships with existing environmental organizations also helped in terms of knowledge and technological transfer. Partnerships with businesses have also contributed to some initiatives, such as the Surabaya Green and Clean program. The active engagement of local citizens, schools, households, and associations has led to successful educational and awareness campaigns on waste management policies and principles. It is important to note here that waste management is covered as an important aspect of urban and territorial planning, although it could be relevant to other themes such as resilience. The city is also a frontrunner in producing a Voluntary Local Review (See Section 3).

With the support of ESCAP, through its **Closing the Loop** program,²⁴ the city is currently developing an innovation-led, evidence-based plastic pollution action plan to be implemented as part of the existing Surabaya City mid-term development plan. The action plan prioritises efforts to prevent plastic waste through enhanced regulations

24. For more information about Closing the Loop project, see United Nations Economic and Social Commission for Asia and the Pacific (ESCAP), "Closing the Loop". Available at <https://www.unescap.org/projects/ctl>.

limiting single-use plastic; targets capacity-building and optimization within the recycling industry and current processes; and finds digital solutions through Surabaya Smart City, such as: a) smart-monitoring technology; b) public information apps to support household waste segregation; c) a plastics database, linking material supply and demand; and d) the development of appropriate technologies to enhance circularity.

Xiamen, China: Integrated Coastal Management (ICM)

In Xiamen, which is located on the east coast of China's Fujian Province, Marine Functional Zoning (MFZ) has been established as a low-cost and effective way of dealing with the conflicts over the use of marine resources. MFZ supports the development of maritime activities and promotes the research and monitoring of marine resources. Various environmental concerns are considered within the MFZ, which reduces the negative impacts of large-scale sea dredging and mainstreams large-scale aquaculture rehabilitation and beach restoration. On the development side, it facilitates the creation of alternative employment options that support people in the fishing industry and other members of the local community. Innovative urban and territorial planning has emerged in a number of situations, such as wetland and mangrove restoration that helps shore up coastal defences, and the Yuanboyuan Expo Garden which was constructed to help deal with local flooding and drainage issues. These projects explore ways to contribute to different areas of improvement, are sustainable and resilient, and are based on modern technology and scientific findings. The investment made in these projects is beneficial in the long term for both stakeholders and the public. The MFZ plans in Xiamen will continue to be implemented, improved, and shared with other cities to serve as a model for improving coastal areas and for sustainable city planning.

Assessment of priority actions, capacity gaps and areas for support

To help accelerate the policy pathways, several action points are highlighted, particularly in light of resource and capacity constraints recently imposed by COVID-19. Cities and other actors can **improve approaches to community engagement, data collection and mapping to better inform policymaking**, via engagement and representation of local voice in development initiatives, supported by innovative digital solutions. They can **seek and incorporate systems-based thinking and circular economy approaches**, whereby linkages between multiple urban systems should underpin all urban planning and related projects. Another focus is on **supporting cross-government and cross-sector collaboration** to address low-carbon and resilient planning and infrastructure development. There is also significant need for more effective action related to informal settlements and affordable housing in urban areas.

To accelerate the adoption of the policy pathways and integrate Covid-19 considerations the following are recommended by ESCAP:²⁵

- **Explicitly integrate health and well-being indicators** into national and city-level plans, policymaking and regulations, to ensure the creation of environments that foster healthy behaviours in compact neighbourhoods within the 15-minute-city concept.
- **Maximise synergies between community-led responses to COVID-19 and community-led urban and territorial planning (UTP)** through placemaking approaches towards adaptive physical interventions, as well as by harnessing digital platforms for virtual engagement and collaboration.
- **Prioritise access to adequate housing, services and economic development** as part of specific urban regeneration and growth strategies that optimize urban-rural and city-region collaboration.
- **Strengthen housing policies for all:** Urban and territorial planning is also the policy domain to develop short- and long-term solutions to ensure housing rights, improve housing standards and accelerate community-led slum upgrading programs and housing production at scale.

25. The Future of Asian and Pacific Cities: Transformative Pathways Towards Sustainable Urban Development in the Post COVID-19 Era (United Nations publication, 2020b).

2.2 Urban Resilience

The recent IPCC report, published in August 2021,²⁶ highlighted the urgent need to significantly reduce GHG emissions and to increase resilience in the coming decade. While maximum effort must be made to transition rapidly to low-carbon pathways, it is clear that all countries and cities in the Asia-Pacific region must also prepare for greater frequency and intensity of weather-related events, such as heat, drought, cyclones and flooding. It is also important to plan for how economic sectors can maximize resilience to a range of shocks and stresses that may be related to other dynamics, such as the ongoing COVID-19 pandemic and future pandemics, financial crisis and other events. The four recommended policy pathways below, from the 2019 report on *The Future of Asian and Pacific Cities*,²⁷ will help cities improve resilience and it is clear from the case studies received from partners that there is much action and progress in this area.

The recommended policy pathways

To accelerate the adoption of the policy pathways and integrate Covid-19 considerations the following are recommended by ESCAP.

- **Scale up the use of nature-based solutions (NBS) and resilient infrastructure in integrated urban and climate-change planning;**
- **Understand the informal economy and support urban poor groups to be change agents for implementing city resilience actions;**
- **Create and strengthen partnerships to bring more attention and resources to long-term urban resilience strategies that break siloes between national, state and local actors;**
- **Utilize big data sources to connect communities, cities and regions and to improve local government technological literacy.**

Examples of innovative approaches and progress in the region

The following insights from cities in the region show valuable experience and learning related to urban resilience. Mangrove ecosystem protection as a nature-based solution in the Bauang Municipality, and nature-based solutions for urban flood management in Ormoc, exist in the Philippines; integrated coastal management, economic resilience and plastic waste management systems are in place Da Nang in Viet Nam; resilient infrastructure and food security in Lao People's Democratic Republic; more resilient informal housing in Fiji; and Payment for Ecosystem Services (PES) to reduce local firewood use and enhance urban forest management are in place in Ulaanbaatar in Mongolia.

The Bauang Municipality, the Philippines: Mangrove ecosystem reforestation initiatives

The Bauang Municipality is home to 80,000 inhabitants and is rapidly urbanizing. While this is creating strong opportunities for economic growth and municipal revenue generation, it is putting substantial pressure on the natural resources in the municipality. The south-western area of Bauang contains over 120,000 hectares in which 12 species of mangroves are growing, which provide important ecosystem services, as well as carbon sequestration and storage. The protection of the mangroves contributes to local action for SDG 13 on climate action, SDGs 14 and 15 on life on land and below water, and SDGs 1 and 2 on alleviating poverty and hunger. Mangroves are also vital for protecting coastal communities from the impact of storm surges and flooding.

26. Intergovernmental Panel on Climate Change (IPCC), "Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change" (Cambridge University Press, 2021).

27. The Future of Asian and Pacific Cities 2019: Transformative Pathways Towards Sustainable Urban Development (United Nations publication, 2019).

In 2017, a large area of mangroves was placed under protected area status, which involved raising awareness of the importance of biodiversity and environmental assets to the local population, supporting livelihoods based on eco-tourism rather than on a heavy reliance on fishing, and implementing robust measures such as patrols by rangers. An assessment in 2019 brought to light a number of key threats to the mangrove ecosystem, and even to those that lay within the protected status areas. These threats include wastewater from nearby communities, poor management of non-biodegradable solid waste and continued over-fishing and poaching in the mangrove areas. At the same time, the COVID-19 pandemic, from early 2020, drastically reduced income for those whose livelihoods were based on tourism. However, the municipality has been able to make significant progress in protecting this important ecosystem. Local attitudes have changed with awareness-raising campaigns, solid waste clean-up operations have been conducted and alternative local jobs have been created via a retraining scheme for those reliant on fishing. Going forward, there will be an increased focus on patrolling and protecting a wider area of mangroves from illegal fishing, on investments in improved liquid and solid waste management, including a newly enacted ordinance on the need for septic tanks as part of the local building code, on an attempt to establish a local ban on single-use plastic, and on building a strong focus on integrating mangroves protection in the regions' Integrated Coastal Management Plan.

Ormoc City, the Philippines: Nature-based Solutions for resilience

The population of Ormoc City was around 215,000, in 2015, and is expected to double by 2040. As the city develops, its economic base is transitioning from agriculture to commerce with the implementation of its Comprehensive Land Use Plan and aspiration to be an agri-commercial and renewable energy capital. However, Ormoc is vulnerable to floods, storm surge, landslides as well as strong typhoons from the west Pacific, including Super Typhoon Haiyan (Yolanda) which hit in 2013, and caused total losses of US\$ 48.5 million in the city. In October 2018, Ormoc initiated the Local Climate Action Plan using the climate and disaster risk assessment tool of the Department of Human Settlements and Urban Development and greenhouse gas inventory tool of Climate Change Commission. These tools are aligned with the risk framework defined by the IPCC's Assessment Report 5.²⁸

The plan emphasizes taking opportunities provided by the increasing rainfall through harnessing and capturing water as an additional resource. It also captures the discussions on addressing urban heat through introducing nature-based solutions in the open and public spaces of the city. These goals are translated in urban design projects that intend to eliminate climate risks and reduce GHG emissions in accordance with the key mandates of the New Urban Agenda. This climate resilient and green development approach in Ormoc is highly evident in the Ormoc Waterscape Project. This is an urban design project, administered on a neighbourhood scale, that addresses urban floods, storm surge, urban heat, poverty, and housing informality, all which will contribute to more healthy and resilient communities.

Da Nang, Viet Nam: Promoting a win-win situation for achieving conservation, and socioeconomic goals in coastal tourism

Under a sectoral and "territory-based" management, unintegrated development in Da Nang previously resulted in coastal-use conflicts and generated various environmental concerns including pollution, degradation of coastal resource-base, and habitat destruction. In 2000, the city government, in its pursuit for sustainable development, adopted the Integrated Coastal Management (ICM) system, under which a multidisciplinary coordinating mechanism was established, and institutionalized, helping to enable the active participation of various stakeholders. This was done through the establishment of a Model Club of Coastal Community for Sustainable Development. The idea behind the Club was to build awareness, capacity, and ownership among the local communities in coastal resource management while serving as a forum for developing and promoting alternative livelihood options to generate higher incomes and better living conditions among the members. Participants of the Coastal Community Club provide support in skills development, technical advice, and financial aid to their local fisherfolk. New alternative livelihood options, such as participating in new ecotourism opportunities, reduce

28. Intergovernmental Panel on Climate Change (IPCC), "Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II, and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change" (Geneva, Switzerland, 2014).

the pressure being put on the natural coastal environment while maintaining socioeconomic development. This has allowed for the recovery of some vital aquatic species, such as corals, algae, and seaweed, on which the ecotourism activities rely.

ESCAP's **Closing the Loop** program is also supporting Da Nang to reduce and tackle marine plastic pollution to protect marine resources.²⁹

Lao People's Democratic Republic: The 'Enhancing Climate and Disaster Resilience of Vulnerable Urban Human Settlements' project

With support from the Adaptation Fund (AF), UN-Habitat is implementing the 'Enhancing Climate and Disaster Resilience of Vulnerable Human Settlements' project from 2017 to 2021 with a focus on 1) institutional strengthening to reduce vulnerability in human settlements; 2) building capacity at the human settlement and community levels for climate resilience; and 3) enhancing climate and disaster resilient infrastructure systems in 189 communities across the three southern provinces of Sekong, Saravane and Attapeu. The project is directly linked to the New Urban Agenda principles of "leave no one behind, by ending poverty in all its forms and dimensions", and "ensure environmental sustainability", and to the integrated localization of the 2030 Agenda for Sustainable Development, for the achievement of the Sustainable Development Goals 6 (Clean Water and Sanitation), Goal 1 (No Poverty), Goal 10 (Reduced Inequalities), and Goal 13 (Climate Action).

The project has improved existing infrastructure and provided new resilient infrastructure, such as water storage and irrigation systems to provide secured water supply and management, enhanced food security and economic conditions, which, in turn, will reduce poverty. Increased resilience of natural livelihood capital, such as land and water, will also improve the coping mechanisms of the most vulnerable people and reduce human and material losses during extreme weather events. In terms of technology, the project is introducing energy efficient RAM-pumps and, in certain settlements, is introducing renewable energy solutions like solar energy. Most importantly, the actions being taken in the emerging towns and cities are based on detailed vulnerability and risk assessment and the action plans are formulated based on these analyses. One of the key lessons learned from this project is the importance of knowledge management by local partners to ensure sustainability and replicability of the skills and knowledge acquired. This includes recording and storing the technical design of infrastructure in government archives or databases to create ownership and continuity of similar projects in the future.

Fiji: The 'Fiji Resilient Informal Settlements (FRIS)' program

UN-Habitat has been working with the Government of Fiji, via the FRIS program, to support the most vulnerable communities in Fiji to build adaptive capacity against climate change and disaster risk. A total of 16 communities, identified as vulnerable to the impacts of climate change, were selected for the project. These communities are in the four participating local councils - Lautoka, Sigatoka, Nadi and Lami. FRIS uses a participatory approach to work together with the target communities as well as the municipalities on conducting vulnerability and risk assessments and climate action plans. The assessments were carried out using a participatory tool developed by UN-Habitat and included household surveys, participatory risk mapping, house assessments, focus group discussions, validation workshops and walk-throughs, leading to detailed climate action plans for each community. Part of the plans have comprehensive capacity-building components that target a range of relevant topics for various audiences in the communities. With regards to housing, a specific training component, starting in 2022, will address climate-resilient building techniques and the retrofitting of existing housing stock. There are a number of key learning points that can be applied to other similar programs, one of which is that land tenure and legal frameworks are a key aspect when dealing with the upgrading of informal settlements, as responsibilities and accountabilities vary according to land tenure. The exact process for informal settlements upgrading requires further support, and there is a great need for improved coordination within the government and with other stakeholders. There is also a significant lack of data collection and management on informal settlements in Fiji, which the FRIS project is trying to address at a smaller scale.

29. For more information about Closing the Loop project, see United Nations Economic and Social Commission for Asia and the Pacific (ESCAP), "Closing the Loop". Available at <https://www.unescap.org/projects/ctl>.

Ulaanbaatar, Mongolia: Payment for Ecosystem Services (PES) for sustaining resources through enhanced urban forest management

Enforcement of the prohibition on using raw coal as a source of fuel for households has caused a 30 to 40 per cent increase in Ulaanbaatar households' fuelwood consumption, causing residents to collect firewood illegally, closer to their residence. As part of wider ESCAP and UN-Habitat support through the *Localizing the SDGs through Sustainable Urban Resource Management* project, a Payment for Ecosystem Service (PES) regulation is being explored as a potential way to resolve the problem. Ecosystem services are categorized into wood, wood products, carbon resources, water management, recreation, and wildlife. Fees would be charged to those who benefit from the ecosystem services, such as citizens, travellers, hikers, and companies. The research results were presented and discussed at Ulaanbaatar's Systems Thinking Visioning Workshop. Participants used tools including SDG Cluster Analysis; Root Cause Analysis; Pilot Project Prioritization Matrices; and Strengths, Weaknesses, Opportunities and Threats (SWOT) Analysis to identify links between the SDGs and urban forest management, develop a shared understanding of the underlying causes of deforestation, map actors and potential solutions, and score proposed projects based on factors including feasibility of implementation. The PES system is likely to be piloted in the coming months and will provide valuable insights into the viability of such a scheme.

Assessment of priority actions, capacity gaps and areas for support

While the four policy pathway recommendations above should be followed for priority municipal action, several action points are highlighted to help accelerate the policy pathways. It is important to **use participatory approaches to plan and implement disaster resilient urban development** for approaches to be viable and sustainable. Opportunities to build resilience on **circular economy approaches and synergies between different sectors should be sought**, for example, displacing the use of wood for household cooking via biogas stoves will help to improve forest cover and related floodwater management capacity. **COVID-19 economic recovery support alongside efforts to promote nature-based solutions** must be provided, particularly for citizens dependent on the sectors that may be lost due to COVID-19 or as part of the transition to green economic development, in order to maximize local buy-in and sustainability.

To accelerate the adoption of the policy pathways and integrate Covid-19 considerations the following are recommended by ESCAP:³⁰

- **Improve population health and resilience via access to green space, linked to green and blue infrastructure:** Nature-based solutions should lie at the core of a city's resilience efforts as they not only improve health through a number of mechanisms, but also directly reduce the risk of climatic and health threats.
- **View all urban development activities through an equity lens:** This is necessary to ensure that the urban poor and other vulnerable populations are able to practice prevention measures in the face of infectious disease outbreaks, and reduce their vulnerabilities to the impacts of disasters and other emergencies.
- **Create and strengthen partnerships:** Multisectoral approaches, as well as meaningful community participation, are core elements of integrated disaster preparedness and sustainable urban development more broadly.
- **Improve the collection of disaggregated data as well as address the digital divide and thereby ensure equitable access to digital solutions:** In this regard it would be useful to consider Internet access as an essential service. Furthermore, investment in education should be viewed as an integral component of resilience.

30. The Future of Asian and Pacific Cities: Transformative Pathways Towards Sustainable Urban Development in the Post COVID-19 Era (United Nations publication, 2020b).

2.3 New Data and Digital Technologies for Smart Cities

Data and digital solutions are rapidly opening up new horizons in sustainable urban development. While cities are facing a multitude of challenges, the world is experiencing the onset of the Fourth Industrial Revolution, based on extensive Internet and smartphone penetration, cheaper and more accessible computing capability and a host of frontier technologies, such as Big Data, Artificial Intelligence (AI), Machine Learning, the Internet of Things (IoT), Digital Ledger Technologies (DLT) supported by blockchain, as well as tools like drones which can help provide cheap and frequent aerial mapping and surveys. Innovative approaches to collect, analyse and manage data are significantly improving the basis of understanding and managing cities and infrastructure. Digital solutions also provide extensive opportunities for the private sector and a wide range of partnerships to help deliver services. New data and technologies for smart cities also come with a host of risks and challenges, which must be recognized and mitigated. These include data privacy, digital inclusion of women and vulnerable groups and avoid ingrained bias as we transfer our understanding of society from reality to a digital form. This section sets out the recommended policy pathways and then explores some relevant case studies from around the region.

The recommended policy pathways

To accelerate the adoption of the policy pathways and integrate Covid-19 considerations the following are recommended by ESCAP.

- ***Improve smart city governance across urban systems, institutions and actors to overcome inequalities and make more informed and integrated planning decisions;***
- ***Encourage technology firms to become more civic-minded and create sustainable smart city solutions with social enterprises;***
- ***Adopt cybersecurity safeguards in both digital and physical urban infrastructure development planning;***
- ***Develop smart mobility investment plans that prioritize sustainable urban mobility options for citizens;***
- ***Expand viable smart city funding mechanisms by enabling cross-sector partnerships and business matching platforms.***

Examples of innovative approaches and progress in the region

The following insights from cities in the region provide valuable experience and learning related to digital and smart city solutions. Examples include Sihanoukville's inclusive smart city foundations in Cambodia; the implementation of the Iskandar Malaysia Urban Observatory; a people-centred approach via the Smart City Guideline for Chengdu High-Tech Development Zone, China; D-Agree - An AI-based solution to support participatory urban planning in Afghanistan; and reference to the ASEAN Smart Cities Network (ASCN) and Singapore's updated 2021 Cybersecurity Strategy, which takes into account IoT developments.

Sihanoukville, Cambodia: The 'Sihanoukville for All: Promoting a Smart, Sustainable and Inclusive City' project

The "Sihanoukville for All: Promoting a Smart, Sustainable and Inclusive City" project was promoted by the UNCT, Cambodia, led by OHCHR and UN-Habitat, and funded by the UN Trust Fund for Human Security. The concept to promote Sihanoukville as a smart, sustainable, and inclusive city was conceived from a comprehensive assessment and analysis of existing development gaps, the emerging urban challenges, policy frameworks and lessons learned from global smart cities case studies, that were identified through desk study, interviews, consultations with local stakeholders, and human securities assessment which was people-focused, comprehensive, context specific and prevention-oriented.

The initiative positioned the “people”, and especially women, girls, persons with disabilities and marginalized groups, at the heart of the smart city vision. It aims to promote a Novel Alliance between Citizens and Local Authorities through 13 initiatives that can be grouped in three pillars, such as:

- **People-focused smart planning and e-governance through innovative digital participation:** is aimed at involving citizens in the decision-making process, is focused on a transparency and equal e-governance system to allow citizens to obtain information and be included in the city life.
- **Smart services through crowdsourced data and information:** is aimed at collecting useful data information to re-design citizens services (transportation, land management, housing, health care, etc.) through a collaborative approach which directly involves the local communities.
- **Digital empowerment to reduce the digital divide and foster human rights:** is aimed at providing equal opportunities for people to benefit from the digital transformation by promoting adequate digital access to all.

The initiative has involved up-scaling of some existing digital tools developed by UN-Habitat such as **Block by Block**,³¹ **Her city toolbox**,³² and **Social Tenure Domain Model**,³³ with the purpose to boost a collaboration between other territories, and implement, in Sihanoukville, some successful experiences from other places. One of the key elements of the success of the project was the establishment of a local working group, composed of local authorities at the municipal and provincial level, private sector bodies local NGOs and civil society organizations (CSOs) and UN agencies, enabling a participatory approach. Getting the smart city foundations right, via an inclusive approach, is seen as vital for letting a host of public and private sector driven smart city solutions flourish in Sihanoukville.

Iskandar, Malaysia: Blueprint to transition to a low-carbon and resilient society

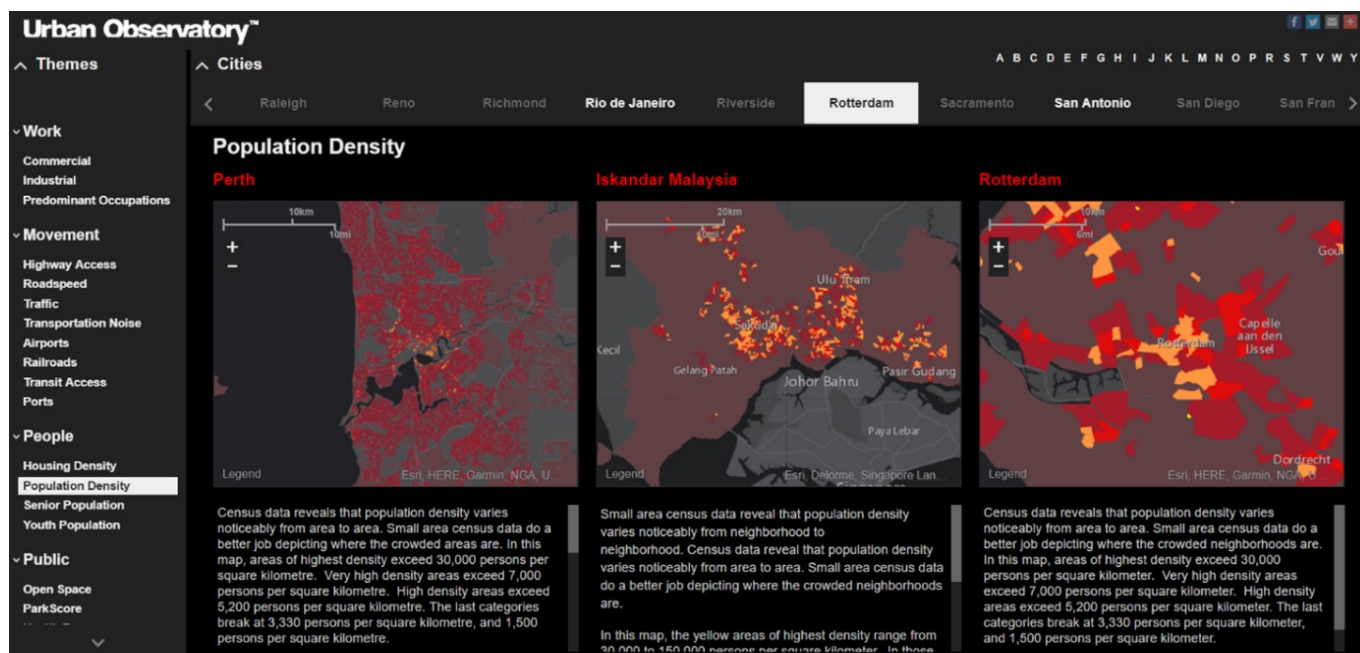
The Iskandar region of Malaysia is made up of five local authorities in the Johor State. The region faces challenges with flash floods, poor water quality, and high levels of greenhouse gas emissions with related air pollution. Addressing these challenges head-on requires cross-sector planning and support from various stakeholders spanning all levels of government, private sector bodies, civil society, and international counterparts. Therefore, the Iskandar Regional Development Authority (IRDA) launched a **Low Carbon Society Blueprint** in 2012, which guides the region to aim to reduce its emissions by 58 per cent by 2025. Its experience was showcased at the APUF-7 in Penang and progress has continued since then. The importance of having a robust, comprehensive and up-to-date data and knowledge management system at the regional level cannot be overemphasized and in order to cope with data collection and analysis challenges, the IRDA is currently setting up a new, central body responsible for climate-data gathering, management, monitoring and analysis, known as the **Iskandar Malaysia Urban Observatory (IMUO)**.

31. See Block-by-Block Foundation. Available at <https://www.blockbyblock.org>.

32. See UN-Habitat, “Her City tool”. Available at <https://hercity.unhabitat.org>.

33. See UN-Habitat and Global Land Tool Network (GLTN), “Social Tenure Domain Model”. Available at <https://stdm.gltn.net>.

Figure 2: A screenshot from Iskandar Malaysia's Urban Observatory Data portal



This will be a 'single window' that integrates data from various authoritative sources and transforms them into actionable information for better policymaking and well-informed decision-making. It is also notable that, in setting the momentum for Digital Economy in Iskandar, Malaysia, IMUO collaborates with its partners in developing smart technology that will be utilized in Smart City Solutions through various pilot projects currently underway for making this city smarter.

Battambang, Cambodia: Enhanced Waste Management via a Digital Solution

Throughout the "Localizing the 2030 Agenda in Asian & Pacific Cities" project, being implemented by ESCAP and UN-Habitat, the city government in Battambang has been gathering information, analysing data, and disseminating knowledge with a focus on sustainably managing its solid waste. Details on waste generation, composition of recyclable material, service coverage and quality, disposal and treatment practices, and the policy landscape have contributed to developing comprehensive, integrated project activities and policies. Digital solutions can have a great impact in improving the effectiveness of such data management. Furthermore, mobile applications and the use of social media can improve community awareness on effective solid waste management (SWM) approaches through outreach programs on recycling, enhancing quality of waste collection services, and incorporating technological innovation into Battambang's SWM. As such, it was decided by the municipality that a mobile application, **GreenCambodia**,³⁴ should be piloted in Battambang for enhanced waste management. It provides a digital platform to map waste collection routes, a marketplace for trading recyclable materials, and a way to flag problems with waste collection service delivery.

Chengdu, China: A people-centred approach via the Smart City Guideline for Chengdu High-Tech Development Zone

Chengdu High-Tech Development Zone (CDHT) is aiming to build an International Innovation Center and World Class High-Tech Park. Several communities of CDHT have already started implementing smart city plans. The

34. The GreenCambodia application was developed through a USAID funded project I4DI/T4GC. For more information see <https://play.google.com/store/apps/details?id=org.i4di.t4gc&hl=en&gl=US>.

main themes revolve around smart community security systems, smart parking, smart elder-care, virtual, remote legal and family counselling support, etc. UN Habitat provided high-quality technical assistance to a city partner, which helped to mainstream people-centred approaches, environmental considerations, inter-connection and liveability into the development of smart city solutions. This resulted in a guideline that has been jointly developed: the **Smart City Guideline for Chengdu High-Tech Development Zone**. The CDHT will utilize the guideline to guide their smart development, helping to use technology and data to provide better and more affordable services for citizens and make the government more transparent, participatory and effective. The CDHT is also aiming to reach a new agreement on data to expand the use of data that is beneficial to society while safeguarding the sovereignty, ethics and privacy of data. Providing Internet access for all is another focus, as high-speed Internet connection is not seen as a luxury, but rather the basic right of all citizens.

Afghanistan: D-Agree - An AI-based solution to support participatory urban planning

In 2019, the Nagoya Institute of Technology and Kyoto University, in partnership with the Kabul Municipality, developed an Artificial Intelligence (AI) powered platform, called **D-Agree**, to support information-centric participation in urban planning and provide support for stakeholders to reach consensus. D-Agree, is a large-scale online debate support platform based on AI facilitation, where its AI-based tool extracts the discussion structure based on IBIS (issues, ideas, pros, and cons) from the human opinions posted on the D-Agree platform, as well as data collected from other social media. From September 2019 until the fall of Kabul in August 2021, D-Agree was used on behalf of Kabul Municipality to moderate 306 Kabul city-related planning discussions. In these discussions, more than 15,000 citizens participated in planning activities hosted by D-Agree and generated more than 71,000 opinions (catalogued into IBIS) regarding urban-related thematic areas. Despite the Taliban take-over, D-Agree will continue to play an important role in facilitating urban planning and infrastructure-related consultations. The next steps are to expand the platform to promote communicative planning in other cities, including Kandahar and Herat, which have officially expressed their intention to collaborate. D-Agree will also be used in collaboration with more municipal governments in Japan and Indonesia.

The ASEAN Smart Cities Network (ASCN) catalyses innovation and partnerships

The ASCN was established in 2018 to synergize regional smart city development and facilitate smart city projects, with the first batch of 26 cities nominated by national governments. In the light of the opportunities and challenges posed by rapid urbanization and digitalization, the primary goal of the ASCN is to improve the lives of ASEAN citizens, using technology as an enabler. By focusing on people, it adopts an inclusive approach to smart city development that is respectful of human rights and fundamental freedoms as inscribed in the ASEAN Charter. The networking of Smart Cities across ASEAN also contributes to enhancing mutual understanding across cultures.³⁵ The ASCN aims to facilitate cooperation on smart cities development, catalyse bankable projects with the private sector, and secure funding and support from ASEAN's external partners. Various partnerships have been established through ASCN, connecting ASEAN cities with private sector solution providers and dialogue partners who are ready to invest and support.³⁶

Singapore: The updated 2021 Cybersecurity Strategy helps to secure smart city innovation

Singapore launched its Cybersecurity Strategy in 2016, outlining a comprehensive strategy to strengthen the resilience of critical information infrastructure to create a safer cyberspace, develop a vibrant cybersecurity ecosystem and forge strong international partnerships to enhance national cybersecurity. To adapt to a rapidly evolving strategic and technological environment, the city-state updated its Strategy in 2021. Potential disruptive technologies, such as edge computing and quantum technologies, are on the horizon. Threat actors are also becoming more sophisticated and taking advantage of increasingly ubiquitous connectivity, such as Internet of Things (IoT) sensors, which are an important aspect of many smart city solutions, to launch more cyberattacks.

35. Association of Southeast Asian Nations (ASEAN). "ASEAN Smart Cities Network." Available at <https://asean.org/our-communities/asean-smart-cities-network/>.

36. Association of Southeast Asian Nations (ASEAN). "ASEAN Smart Cities Network", Concept Note. Available at <https://asean.org/wp-content/uploads/2019/02/ASCN-Concept-Note.pdf>.

Developed in consultation with multiple stakeholders, including industry, and local and overseas academia, Strategy 2021 seeks to actively defend Singapore's cyberspace, simplify cybersecurity for end-users, and promote the development of international cyber norms and standards. Workforce and ecosystem development are at the foundations of their strategy.³⁷

Assessment of priority actions, capacity gaps and areas for support

Taking the five policy pathway recommendations above as the priorities for municipal action, several action points are particularly important in accelerating this progress. It is important to take proactive action to collect data that is **disaggregated** by sex, by disability or by income groups, to better understand and address challenges faced by vulnerable groups. **The recent acceleration of digital solutions during the COVID-19 pandemic can be harnessed**, to help transition to low-carbon and resilient solutions across a greater range of sectors and services. **It is also important to support entrepreneurs to drive solutions in rapidly developing digital economies**, by enabling partnerships and promote private sector innovation to harness frontier technologies such as Machine Learning and Big Data for more informed urban planning.

To accelerate the adoption of the policy pathways and integrate Covid-19 considerations the following are recommended by ESCAP:³⁸

- **Improve smart city governance across urban systems, institutions and actors, including health related entities**, to overcome inequalities and make more informed and integrated planning decisions. Accommodate a peer-to-peer learning network amongst cities in the region.
- **Develop two-way open data dashboards that allow health data monitoring in real time**, thereby respecting principles of privacy and containing cybersecurity safeguards. Transparent data-sharing frameworks are required to harness the positive possibilities of 'digital epidemiology', the real-time assessment of public health through technology.
- **Invest in public, evidence-driven communication campaigns** to create civic trust and increase shared literacy on technology-driven health strategies.
- **Develop smart mobility investment plans that prioritize sustainable urban mobility options for citizens:** Shared, sustainable and active transportation solutions play a significant role in urban resilience and pandemic recovery.

2.4 Urban Finance

Despite the trillions of dollars that could be made available from public, private and institutional sources, many cities in the Asia-Pacific region, especially in developing economies, cannot access such funding to finance their low-carbon and resilient infrastructure. Typical barriers include poor creditworthiness of cities, governance constraints on the fiscal autonomy of municipalities, and low capacity and resources of municipal governments to identify and prepare bankable projects. COVID-19 also continues to divert much needed resources away from municipal investment in infrastructure and services, as well as from project preparation activities. Moreover, investors often face policy and regulatory barriers as well as constraints to invest in small- and medium-sized municipal climate projects as they often require much larger investments to justify their due diligence and transaction costs, which are constant regardless of the investment. There is also low visibility of available low-carbon investment opportunities among the investment community. This often makes achieving scale the critical structural barrier to widespread financing and implementation of urban climate-smart infrastructure

37. Cyber Security Agency (CSA) Singapore, "The Singapore Cybersecurity Strategy 2021". Available at <https://www.csa.gov.sg/News/Publications/singapore-cybersecurity-strategy-2021>.

38. The Future of Asian and Pacific Cities: Transformative Pathways Towards Sustainable Urban Development in the Post COVID-19 Era (United Nations publication, 2020b).

projects. However, financial instruments and funding mechanisms do exist to address these barriers and a wide range of options are available.

The recommended policy pathways

To accelerate the adoption of the policy pathways and integrate Covid-19 considerations the following are recommended by ESCAP.

- ***Scale up public-private partnerships and community schemes to transition to localized housing finance solutions;***
- ***Adopt land-linked financing mechanisms that leverage urban growth to build people-centred urban infrastructure;***
- ***Introduce congestion charging and environmental user fees to improve urban air quality.***

A common theme underlying the successful implementation of all three of the financing mechanisms presented here is the need to put into place a robust legal and policy framework.

Examples of innovative approaches and progress in the region

The following insights from countries and cities across the region provide valuable experience and learning related to innovative urban financing for infrastructure. The importance of municipalities linking development plans to budgeting plans is highlighted in Turkey; the potential of land pooling to finance urban infrastructure and the importance of the enabling environment is highlighted via an ADB study in Nepal; own-source revenue (OSR) is shown to be an effective way to finance LED streetlighting in Quezon City, the Philippines; a leasing model for cost-effectively transitioning to electric buses and charging infrastructure is demonstrated in Shenzhen, China; the Breathe Better Bond shows how green bonds can help harness private sector investment for a wide range of low-carbon and resilient infrastructure; and an initiative called GROVE: Forest Smart Ledger (FSL) illustrates how Crowdfunding Payment for Ecosystems Services for Mangroves is possible in India.

Turkey: Commitment to linking urban and territorial planning with municipal budgeting

The New Urban Agenda (NUA) asks for commitment from municipalities to promote inclusive, implementable and participatory urban policies that are linked to transparent and accountable finance mechanisms. Furthermore, among the Sustainable Development Goals for 2030, Target 16.6 seeks to “develop effective, accountable and transparent institutions at all levels.” The linkage between urban and infrastructure planning and municipal budgeting is therefore an important part of meeting the NUA and turning sustainable urban development plans into reality. In Turkey, the Public Financial Management and Control Law, No. 5018, states that all municipalities with a population of over 50,000, as well as special provincial administrations, are liable to prepare their strategic plans, which will be relied upon for preparing the budget.³⁹ The National 11th Development Plan (2019-2023) sets it as an objective to increase the efficiency of implementation of strategic management in the public sector and to improve the capacity of strategy development units in public administrations. Accordingly, there is a clear target to increase the alignment between the priorities, strategic plans and resource allocations of the local administrations. With practical guidance provided by the “Institutional Strategic Planning Guidelines for Municipalities”, published to assist municipalities throughout the stages of preparing, implementing, monitoring and assessing these plans, Turkey’s municipalities are better able to base their budgets and allocation of resources for projects on their institutional strategic plans.

39. United Nations Human Settlements Programme (UN-Habitat), “Republic of Turkey: Progress in the implementation of the New Urban Agenda”. Available at <https://www.urbanagendaplatform.org/member-states/republic-turkey/republic-turkey-national-report-oct-2020-sep-2024>.

Nepal: Rediscovering land pooling to help finance urban infrastructure

Land pooling is a form of land value capture (LVC), where the government does not buy the land, but shares the benefit from rezoning, as do the original land holders.⁴⁰ In Nepal, land pooling was formally adopted into legislation in 1988. However, as observed by the Asian Development Bank (ADB), which carried out a study in 2020 into the potential for reinvigorated and more strategic land pooling in Nepal,⁴¹ the use of land pooling for more planned urban development has stagnated since the early 2000s because of bottlenecks that have hampered implementation, and the resistance of landowners to schemes that may take years or well over a decade to complete than originally planned. Unlike cities such as Ahmedabad, Seoul, or Tokyo, no cities or towns in Nepal have managed to use land pooling for transformative results. With the recent municipal government decentralization, there is an opportunity to improve the enabling environment for land pooling, including: updating and strengthening the legal and regulatory framework for land pooling; integrating land pooling in urban and regional planning; and building consensus, resolving disputes early, and developing mechanisms for non-consenting landowners.

Quezon City, the Philippines: Own-source revenue financing for LED public lighting

Quezon City (QC), one of 17 local municipalities in the Metro Manila region, is the largest city in the Philippines. It is about a quarter the size of the National Capital Region and five times larger than the city of Manila. Street lighting for such a large urban area requires significant energy and, in 2009, accounted for upwards of 60 per cent of the municipal government's electricity costs. These costs, as well as the related GHG emissions from their power source, can be greatly reduced by LED lighting. While the upfront costs are high, studies have shown that investing in LED lighting would pay off after 12 years and lead to significant savings thereafter.⁴²

Meanwhile, in early 2011, QC joined 11 other large cities in The Climate Group's (TCG) international LightSavers project, which aimed at accelerating market acceptance of LED street lighting. This greatly improved the knowledge of municipal staff in the options available and rationale in investing in LED lighting. The LED street light project was implemented from 2012 and is financed mostly from QC's own capital funds, with the national government providing funding for installation of new LED luminaires and poles on major roadways. QC's annual capital funds for infrastructure investments are derived from national and local taxes. Despite an excellent credit rating, QC preferred to raise capital for infrastructure investments from tax revenue, rather than by issuing debentures, which would entail additional interest costs to the municipality over time.⁴³ The main sources of revenue for infrastructure are the Internal Revenue Allotment, which is a national tax, and Business and Real Property taxes, which both come from local taxes. The winning bidder for the installation works offered an eight-year warranty, including replacement and repair of defective units free of charge for equipment and labour. The work started in 2014 and by 2018, 50 per cent of the installations had been completed.

Shenzhen, China: Leasing model for electric buses and charging infrastructure

Shifting from diesel to e-buses is not easy, as electric buses can cost two to four times more upfront than conventional diesel buses and adequate infrastructure is needed to support consistent charging. The batteries of e-buses also need to be replaced at least once during their lifetime, which can be costly; battery replacement can be nearly half of a vehicle's price.⁴⁴ However, together with the benefits of zero-emissions, electric buses

40. C40 Cities Finance Facility, "Explainer: How to finance urban infrastructure", Guidance Document, 2017. Available at <https://www.c40cff.org/knowledge-library/explainer-how-to-finance-urban-infrastructure>.

41. Amy Faust and others, "Land pooling in Nepal: From planned urban 'islands' to city transformation", South Asia Working Paper Series, No. 72 (Manila, Philippines, Asian Development Bank, August 2020). Available at <https://www.adb.org/sites/default/files/publication/626076/sawp-072-land-pooling-nepal.pdf#:~:text=Land%20pooling%20is%20one%20of%20several%20tools%20that,landowners%2C%20who%20get%20back%20more%20valuable%20serviced%20land>.

42. Pedzi Makumbe and others, "Proven delivery models for LED public lighting: Municipal financing delivery model Quezon City, Philippines, Case Study". Available at https://www.esmap.org/sites/esmap.org/files/DocumentLibrary/Quezon%20City%20-%20Proven%20LED%20Delivery%20Models8_Optimized_Final.pdf.

43. Ibid.

44. A. Berlin, X. Zhang, and Y. Chen, "Case Study: Electric buses in Shenzhen, China", 2020. Available at <https://iea.blob.core.windows.net/assets/db408b53-276c-47d6-8b05-52e53b1208e1/e-bus-case-study-Shenzhen.pdf>.

have significantly lower operating costs, which make them increasingly cost effective. The Shenzhen Bus Group (SZBG) electrified its whole bus fleet from 2009 to 2017; a demonstration stage in 2009-2011 was followed by small pilots from 2012-2015, and a large-scale electrification program from 2016 to 2017. Instead of directly procuring e-buses at the subsidized prices (around \$90,000-\$120,000), the Shenzhen Bus Company used 100 per cent financial leasing to purchase 1,000 new battery-electric buses, leasing the buses over the course of the agreed upon period and then purchasing them at a designated price.⁴⁵ Since the leasing period equals the total life of the buses, this arrangement turned the high-cost procurement into more manageable annual rental/lease payments. Leasing the e-buses from the manufacturers, with the ability to own them after eight years, greatly saved the upfront investments for operators, and reduced the need for debt financing. While e-buses in Shenzhen have a high upfront cost, their operation and maintenance costs, and thus their whole lifecycle costs, are now significantly lower than those of diesel buses.

Breathe Better Bond for climate smart infrastructure investment

Air pollution is at crisis levels across many cities in the Asia-Pacific region and must be addressed in conjunction with efforts to reduce GHG emissions. Green bonds, also often referred to as municipal bonds or climate bonds, are an innovative and increasingly proven method for cities to access debt financing from a range of commercial and institutional investors. The Breathe Better Bond is a debt instrument for local governments to finance air pollution reduction projects in emerging market cities that also reduce GHG emissions, for example, in clean energy, waste management, transportation, fuel switching, and other sectors. It uses a blended capital structure to provide credit enhancement for cities at the margins of access to global capital markets, and a results-based payment mechanism to ensure that cities raising capital and investing in projects that achieve desired pollution reduction targets receive tangible near-term fiscal benefits.⁴⁶ The bond is issued by a city, state, or special purpose vehicle and the Breathe Better Bond Initiative complements the funds raised by the bond issuance with a technical assistance package that includes capacity-building for cities focused on identifying sources of air pollution, project pipeline preparation, and strengthening or improving enabling conditions. The Initiative is under development by the International Finance Corporation (IFC) which will bring together the actors within each city, while concurrently participating directly in an investor or credit enhancement role. The IFC aims to pilot the Initiative in one to three developing country cities.

Shanghai, China: Public-private partnerships (PPP) for resilient water supply

The Chinese Government began to deregulate the water sector in the 1990s, permitting private and foreign investment in water supply and sewage treatment infrastructure. There are currently an estimated 400 water supply and wastewater PPP projects in China. The Shanghai Zhuyuan Youlian No. 1 wastewater treatment project (ZY1WWTP) is the first mega-ton wastewater treatment plant (WWTP) in Shanghai, with advanced primary treatment capacity of 1.7 million m³/day. The savings generated through the PPP arrangement are reflected in the service fee, which was about 40 per cent below the Government's own projected cost of CNY 0.38 per cubic metre. The indirect subsidies through fixed investments and the provision of land from the Government also enabled the joint venture to offer a relatively low service fee. By aligning the service fee to performance and investments made by the joint venture, the Government was also able to transfer the financial risks of the project to the private sector providers.⁴⁷

45. Christopher Moon-Miklaucic and others, "Financing electric and hybrid-electric buses: 10 questions city decision-makers should ask", Working Paper (Washington, D.C., World Resources Institute, 2019). Available at <https://wrirosscities.org/sites/default/files/financing-electric-hybrid-electric-buses.pdf>.

46. The Global Innovation Lab for Climate Finance, "Breathe Better Bond". Available at <https://www.climatefinancelab.org/project/breathe-better-bond/#:~:text=The%20Breathe%20Better%20Bond%20is%20a%20bond%20issued,reduce%20both%20air%20pollution%20and%20greenhouse%20gas%20emissions>.

47. Asian Development Bank (ADB), "Wastewater treatment: Case Study of public-private partnerships (PPPs) in Shanghai", November 2010. Available at https://ppp.worldbank.org/public-private-partnership/sites/ppp.worldbank.org/files/documents/Shanghai_urbandev-prc-nov2010-wastewater_EN.pdf.

Tamil Nadu, India: The Water and Sanitation Pooled Fund

The Water and Sanitation Pooled Fund (WSPF) in Tamil Nadu issued a pooled bond to facilitate access to long-term domestic capital markets for small and medium Urban Local Bodies (ULBs) to finance water and sanitation services. This enabled a grouping of 13 ULBs to overcome high transaction costs and mobilize funds through a single bond issuance. Debt was repaid from project cash flows and from general ULB revenues. A multi-layered credit enhancement package was designed in order to extend the maturity of the bond and increase investor confidence. The different credit enhancement mechanisms included a debt service reserve fund capitalized by the state government, creation of individual ULB escrow accounts, a local debt service reserve fund, a State revenue intercept mechanism, and a partial credit guarantee from USAID.⁴⁸

Georgia: Financing support from the ADB to the M Squared Affordable Housing project

The Asian Development Bank (ADB) is currently providing loan support to complete unfinished residential complexes, Chkondideli and Mirtskhulava, in Tbilisi, Georgia. The support aims to address prevailing developmental challenges related to the lack of sustainable urban housing which is affordable, energy efficient, safe and accessible. The proceeds of the ADB loan will partially finance the development of the two affordable residential complexes in Tbilisi being developed by M Squared and Optima, two private developers, who have taken over a failed project that was initiated by another private developer. ADB's loan will provide medium-tenor financing to leverage private sector finance by covering a liquidity gap until the cash flow from pre-sales of the residential units materializes to sufficiently fund the project development. This will be ADB's first non-sovereign financing of the housing sector in the Central and West Asia. The support is provided under the ADB's Project Readiness Facility for Liveable Cities Investment Program and a transaction technical assistance (TA) facility for Preparing Integrated Solutions for Liveable Cities. A notable feature of the ADB's support is the focus on developing accessible affordable housing, including for persons with disabilities and the elderly. As such, an accessibility audit was conducted by experts in this area, and their recommendations will be incorporated into the design and construction of the buildings. Enhanced energy efficiency was also incorporated into the design to help demonstrate what is possible in the Georgian market.

GROVE: Forest Smart Ledger (FSL) for crowdfunded payment for ecosystems services for mangroves

Mangroves can typically store four times more carbon than rainforests, per hectare, and are inexpensive – making them arguably the most efficient carbon sequestration technology in the world. They are also extremely effective in improving resilience to flooding. However, small-scale forestry community projects do not have reliable corporate and donor financing. GROVE: FSL crowdfunds capital for small-scale forestry projects, reduces monitoring costs through remote sensing and machine learning, and increases financial transparency and local community earnings through blockchain-backed smart contracts. First, a peer-to-peer platform connects mangrove projects, in local communities, with corporate and individual funders eager to achieve carbon neutrality. Second, a blockchain ledger ensures complete transparency and efficient tracking of financial flows and facilitates impact reporting for project benefactors. Finally, a combination of satellite remote sensing and machine learning expeditiously measures impact and significantly reduces costs related to third-party validation and verification. This can provide a cost-effective alternative to voluntary carbon market standards bodies, such as Gold Standard, which typically absorb significant amounts of funding via monitoring and verification. The Global Mangrove Trust (GMT), a Singapore-based non-profit company is leading the development and execution of both GROVE and FSL, starting with pilot projects in India.⁴⁹

48. World Bank, "Case studies in blended finance for water and sanitation: Pooled municipal bond issuance in Tamil Nadu (India)", Summary Overview, August 2016. Available at <https://documents1.worldbank.org/curated/en/702211472040099035/pdf/107974-BRI-P159188-BlendedFinanceCasesIndia-PUBLIC.pdf>.

49. The Global Innovation Lab for Climate Finance, "GROVE: Forestry Smart Ledger (FSL)". Available at <https://www.climatefinancelab.org/project/grove-forestry-smart-ledger/>.

Assessment of priority actions, capacity gaps and areas for support

To help accelerate the policy pathways, several action points are highlighted. A priority is to **improve subnational and municipal capacity in the typology of municipal finance options available**. There are an increasing amount of resources and knowledge-sharing efforts in this area, including by the Cities Climate Finance Leadership Alliance (CCFLA), which can be drawn upon. As part of this, it is also important to **build municipal capacity in the role of innovative financing mechanisms**, such as land value capture, the aggregation of small projects, particularly for smaller urban centers, risk mitigation (via viability gap funding and guarantees, etc.) leasing models and payment for ecosystem services. Municipalities should **improve their data collection and management processes** which is an important part of developing more bankable projects. It is also important for cities to **showcase project opportunities** to international donors and private sector investors. Valuable support can be provided in **matching municipalities that have viable projects with Project Preparation Facility assistance and financing routes**.

To integrate **COVID-19 and wider health considerations** into the policy pathways, the following actions points are recommended by ESCAP:⁵⁰

- **Support national governments to use their regulatory authority to include affordable housing in PPP portfolio reviews.** An affordable housing PPP portfolio review could encourage projects that have not broken ground to revisit their feasibility studies based on proactive guidance from finance ministries and national authorities.
- **Capitalize on the evident value of green space in land-linked financing mechanisms:** Support governments and bodies involved in land-linked financing mechanisms to use the experience of the pandemic and its aftermaths to draw a strong link between the return on investment of nature-based solutions from both a climate resilience, economic resilience and health cost reduction point of view.
- **Incorporate congestion and environmental user fees into recovery strategies:** National fiscal stimulus packages and reform programs in the wake of the COVID-19 are a major opportunity to strengthen the design of policy and regulatory frameworks to update and integrate pricing structures with environmental objectives.

50. The Future of Asian and Pacific Cities: Transformative Pathways Towards Sustainable Urban Development in the Post COVID-19 Era (United Nations publication, 2020b).

Regional Partners Forum @Quito+5

Globally, and specifically in the Asia-Pacific region, there has been a continuum of activities and events to support the follow-up and review of the New Urban Agenda (NUA), ratified by governments at Quito in 2016. In the region, these include the Asia Pacific Ministerial Conference on Housing and Urban Development (APMCHUD), that was held in Delhi, in December 2016;^a the first Regional Partners Forum (RPF1), held in 2017; and the Seventh Asia-Pacific Urban Forum (APUF-7), that was held in 2019. Globally, the 10th World Urban Forum, held in Abu Dhabi in early 2020, resulted in a range of declared actions; strategic level sustainable urbanization goals that will be achieved from the implementation of new initiatives from a variety of institutions and actors.^b

In 2020, UN-Habitat worked with Surabaya, in Indonesia, to host the Global Observance of the World Habitat Day 2020, which focused on Housing For All as the central topic.^c There have also been a range of partner-led follow-up events. For example, the Eighth UCLG ASPAC congress took place in Zhengzhou, China, in 2021, to convene a broad range of partners to discuss localization of the SDGs, municipal financing options and many other relevant topics.^d

As part of this continuum of review and knowledge exchange, ESCAP convened the Regional Partners Forum @Quito+5, on 28 and 29 October 2021, in collaboration with UN-Habitat and the Penang Platform for Sustainable Urbanization, represented by Urbanice Malaysia. The Forum acted as a regional contribution to the review of the progress made in Asia and the Pacific towards localizing the SDGs and achieving the NUA, and to identify important areas of focus for continued and accelerated sustainable development.

The Forum was also an opportunity to review progress on the voluntary commitments expressed at the Seventh Asia-Pacific Urban Forum (APUF-7), in 2019,^e follow-up on the declared actions of the Tenth World Urban Forum, and provide inputs to the future work plan of ESCAP, including the Eighth APUF (APUF-8) to be held in 2023. The outcomes will be taken forward for broader consultation at the 11th World Urban Forum in Katowice, Poland (26 June 2022) and at the Asia-Pacific Forum on Sustainable Development in Bangkok, Thailand (March 2022). The context of recovery from the COVID-19 pandemic is an important aspect of all of these considerations.

Showcasing activities of different levels of Governments, other relevant stakeholders and entities of the United Nations system, the Forum's outcomes are a contribution to the second quadrennial report of the Secretary-General on the Follow-up to the Implementation of the NUA, to be presented at the seventy-seventh session of the General Assembly, to be held in September 2022. There is also a focus on the objectives and strategic priorities in planning the APUF-8, particularly to support synergies between sustainable urban development and policy pathways for COVID-19 recovery across the Asia-Pacific region.

Overview of the case studies

Following a request for case studies during August and September 2021, ESCAP received submissions from a wide range of partners and cities. Twenty-five case studies, listed in Table 2, were received, representing 12 countries. Seven external case studies were also selected to fill thematic gaps. These are for reference only. A more detailed version of each case study is available in a separate compendium.

- a. This resulted in the New Delhi Declaration, available at <https://apmchud.com/PDF/NEW%20DELHI%20DECLARATION%202016.pdf>.
- b. The Abu Dhabi Declared Actions are available at <https://www.urbanagendaplatform.org/actions#:~:text=The%20Abu%20Dhabi%20Declared%20Actions%20The%20Tenth%20Session,Sustainable%20Development%20Goals%20in%20the%20Decade%20of%20Action.>
- c. United Cities and Local Governments Asia-Pacific (UCLG ASPAC), "Surabaya: Host of the World Habitat Day 2020", 30 October 2020. Available at <https://uclg-aspac.org/en/surabaya-host-of-the-world-habitat-day-2020/>.
- d. Material from the UCLG ASPAC Congress is available at <https://uclgaspac-connect.org/index.php/congress/?page=2>.
- e. United Nations Economic and Social Commission for Asia and the Pacific (ESCAP) and others, Seventh Session of the Asia-Pacific Urban Forum (APUF-7), Summary Report, 15-17 October 2019. Available at [https://uploads-ssl.webflow.com/5ce1706c8eff8b55910872f6/5f1811a1ba281747f6fbf6d8_APUF-7Report\(final\)-compressed.pdf](https://uploads-ssl.webflow.com/5ce1706c8eff8b55910872f6/5f1811a1ba281747f6fbf6d8_APUF-7Report(final)-compressed.pdf)

Case studies received from partners during preparation for the Regional Partners Forum @Quito+5

Case Study Title	City, Country	Organization	Theme
Secure Access to Land and Resources (SALaR) Programme	The Lao People's Democratic Republic	UN-Habitat	Urban & territorial planning
Advancing sustainable urbanization through improved transport planning	Kaysone Phomvihane, the Lao People's Democratic Republic	UN-Habitat	Urban & territorial planning
Managing the transition from an industrial to an environment-focused city	Liuzhou, China	International Urban and Regional Cooperation (IURC) Pilot City	Urban & territorial planning
Mainstreaming climate action through urban and territorial planning with the Urban Sustainability Assessment Framework (USAF)	India	UN-Habitat	Urban & territorial planning
Innovations in waste management	Surabaya, Indonesia	Partnerships in Environmental Management for the Seas of East Asia (PEMSEA)	Urban & territorial planning
The Xiamen Model as an example of Integrated Coastal Management (ICM)	Xiamen, China	PEMSEA	Urban & territorial planning
Mangrove ecosystem reforestation initiatives	Bauang Municipality, the Philippines	Bauang Municipal Government	Urban Resilience
Promoting a win-win situation for achieving conservation and socioeconomic goals in coastal tourism	Da Nang, Viet Nam	PEMSEA	Urban & territorial planning
Enhancing the climate and disaster resilience of vulnerable emerging urban human settlements	The Lao People's Democratic Republic	UN-Habitat	Urban resilience
Rehabilitation and reconstruction of housing sector in floods affected areas	The Lao People's Democratic Republic	UN-Habitat	Urban resilience
Fiji Resilient Informal Settlements (FRIS)	Fiji	UN-Habitat	Urban resilience
Sustaining resources through enhanced urban forest management (2018 – 2021)	Ulaanbaatar, Mongolia	ESCAP & UN-Habitat	Urban resilience
Nature-based solutions for resilience	Ormoc City, the Philippines	UN-Habitat	Urban resilience
Tagumpay Citywalk: Increasing climate resilience	Tagum City, the Philippines	UN-Habitat & Philippines Department of Human Settlements and Urban Development (DHSUD)	Urban resilience
PATA Tourism Destination Resilience (TDR)	Regional	Pacific Asia Travel Association	Urban resilience
Adapting to create a resilient tourism-based economy	Koh Tao, Thailand	Government of Koh Tao	Urban resilience
Sihanoukville for all: Promoting a Smart, Sustainable and inclusive city	Sihanoukville, Cambodia	UN-Habitat	Digital and smart city solutions
Blueprint to transition to a low-carbon society	Iskandar, Malaysia	IURC Pilot City	Digital and smart city solutions
Sustaining resources through enhanced waste management	Battambang, Cambodia	ESCAP & UN-Habitat	Digital and smart city solutions
A people-centred approach via the Smart City Guideline for Chengdu High-Tech Development Zone	Chengdu, China	UN-Habitat	Digital and smart city solutions

D-Agree - An AI-based solution to support participatory urban planning	Afghanistan	Nagoya Institute of Technology & Kyoto University and Kabul Municipality	Digital and smart city solutions
The ASEAN Smart Cities Network (ASCN) catalyses innovation and partnerships	ASEAN member States	ASEAN secretariat	Digital and smart city solutions
Updated 2021 Cybersecurity Strategy helps to secure smart city innovation	Singapore	External case study	Digital and smart city solutions
Commitment to linking urban and territorial planning to municipal budgeting	Turkey	Taken from Turkey's NUA National Report	Urban finance
Rediscovering land pooling to help finance urban infrastructure	Nepal	Asian Development Bank	Urban finance
Own-source revenue financing for LED public lighting	Quezon city, the Philippines	External Case Study – Energy Sector Management Assistance Program (ESMAP)	Urban finance
Leasing model for electric buses and charging infrastructure	Shenzhen, China	External Case Study – World Resources Institute	Urban finance
Breathe Better Bond for climate smart infrastructure investment	Regional	External Case Study – Climate Innovation Lab	Urban finance
Financing support from the ADB to the M Squared Affordable Housing Project	Georgia	Asian Development Bank	Urban finance
GROVE: Forest Smart Ledger (FSL) for crowdfunded payment for ecosystems services for mangroves	Pilot in India	External Case Study – Climate Innovation Lab	Urban finance
Creating a safe city through non-violence family: The Safe Family Policy	Penang, Malaysia	Penang Women's Development Corporation	Others

Progress against the Voluntary Commitments made at APUF-7

During the APUF-7, voluntary commitments were made by several participating organizations and cities. Voluntary commitments were one of the outcomes of the Forum to increase concrete investments and high impact initiatives for the implementation of sustainable urban development at the local, national and regional levels. They also provided an opportunity for institutional stakeholders to forge new partnerships for a common goal: accelerating the achievement of sustainable urban development in the Asia-Pacific region.^a

APUF 7 Voluntary Commitments are strategic level goals that will result from the implementation of new initiatives from a variety of institutions from within and outside the Asia-Pacific region. The commitments were designed to deliver concrete results by 2022, which corresponds with the mid-term review of the SDGs, the second Quadrennial Report of the UN Secretary-General on the implementation of the New Urban Agenda and precedes the convening of APUF-8 in 2023. The commitments might extend beyond 2022 but in this case, there should be a specific, measurable result of the commitment by the year 2022. The voluntary commitments are summarized below:

- **Institute for Global Environmental Strategies:** To provide at least 10 cities and regions capacity development and technical assistance to conduct Voluntary Local Reviews (VLRs) by 2021.
- **University Putra Malaysia:** To embed teaching about sustainability across all of its major courses, including urban planning and development, by 2022.

- **Asian Development Bank:** To provide US\$ 2.5 billion in annual financing for urban infrastructure projects from 2020 to 2024, which will support cities to improve the coverage, quality, efficiency and reliability of services in urban areas; strengthen urban planning and financial sustainability of cities; and improve urban environment, climate resilience, and disaster management.
- **United Governments and Local Governments, Asia Pacific (UCLG ASPAC):** To support at least 50 cities and provinces to develop SDG aligned local plans, climate change action plans, local disaster plans and/or participatory design and construction of public spaces by 2022.
- **Kumamoto City, Japan:** To contribute to the further development of the international community as an SDG city, by sharing the urban development initiatives, disaster prevention plans, and emergency response strategies that the city developed through experiences during the Kumamoto Earthquake on both the international and domestic levels by 2023.
- **CityNet Secretariat:** To accelerate engagement of capacity-building activities of its 154 members to localize SDGs in sustainable infrastructure, climate action, disaster risk reduction, affordable housing, smart cities, and waste management to support localization of the SDGs by 2021.
- **Seberang Perai City Council, Malaysia:** To become a low-carbon city that: utilizes 15 per cent renewable energy; requires the installation of all street lights to be LED lights; increase its recycling rate to 70 per cent and reduce garbage by 50 per cent per capita; and plant 100,000 trees by 2022.
- **Pacific Islands Forum Secretariat and Pacific Island Forum Partners:** To ensure successful implementation of the outcomes of the Pacific Urban Forum by 2023.
- **ESCAP and UN-Habitat, on behalf of 15 member organizations:** To provide joint technical assistance to at least 10 cities for localizing the SDGs by 2023, including by applying the policy pathways (See Section 2) from *The Future of Asian and Pacific Cities* report.
- **Nili City, Afghanistan, on behalf of Academy partners:** To build the capacity of at least 20 mayors and create a network of sustainability champions in the region with partners by 2021.
- **European Union – International Cooperation Programme:** To share knowledge, create innovative solutions, generate new economic opportunities by supporting cooperation on sustainability for at least 30 Asian cities by 2023.

Generally, good progress is being made in terms of the achievement of these commitments. For example, the Asian Development Bank has extended its commitment from US\$ 2.5 billion to US\$ 3 billion annual financing for urban infrastructure projects from 2021 to 2024, including a new carbon fund, the Climate Action Catalyst Fund (CACF) that was announced at COP26.^b UCLG-ASPAC have already exceeded their commitment; their LOCALISE SDGs program alone, has raised the awareness in more than 200 local governments in Indonesia and provided capacity-building support to more than 6,000 local government officials. The Penang Platform for Sustainable Urbanization commitment has also been exceeded. ESCAP and UN-Habitat's joint program on SDG localization, completed in five cities across Asia and the Pacific, was an important part of this progress. A more detailed account of progress against each voluntary commitment is provided in Annex 2.

- a. United Nations Economic and Social Commission for Asia and the Pacific (ESCAP) and others, Seventh Session of the Asia-Pacific Urban Forum (APUF-7), Summary Report, 15-17 October 2019. Available at [https://uploads-ssl.webflow.com/5ce1706c8eff8b55910872f6/5f1811a1ba281747f6fbf6d8_APUF-7Report\(final\)-compressed.pdf](https://uploads-ssl.webflow.com/5ce1706c8eff8b55910872f6/5f1811a1ba281747f6fbf6d8_APUF-7Report(final)-compressed.pdf).
- b. Asian Development Bank (ADB), "ADB launches new carbon fund to incentivize climate investments", News Release, 10 November 2021. Available at <https://www.adb.org/news/adb-launches-new-carbon-fund-incentivize-climate-investments>.

3. Progress on NUA follow-up and review

The New Urban Agenda requires the UN Secretarial General to issue five Quadrennial Reports, starting in 2018, to inform Member States on the progress of the implementation of the NUA, and called on member states to monitor their implementation and report through National Reports. More reports on countries and cities localizing the SDGs and of Voluntary Local Reviews (VLR) for specific urban areas are now complimenting the NUA mandated updates. All countries across the Asia-Pacific region are encouraged to submit their NUA voluntary National Reports and cities are equally encouraged to conduct and submit a VLR, all of which help to build the evidence base on progress and to share learning between partners.

3.1 The Role of the Quadrennial Report and National Reports

Quadrennial Reports on the implementation of the New Urban Agenda

At the time of writing this report in January 2022, the UN Secretary-General was due to release the 2nd Quadrennial Report, completing a UN-wide, inclusive drafting process supported by UN-Habitat and in which all Regional Commissions participated. As background to this, from 1996, The Economic and Social Council (ECOSOC) has prepared, on a yearly basis, a report on the *Coordinated implementation of the Habitat Agenda* for the consideration of the UN General Assembly. This was replaced at Quito by a system of *Quadrennial Reporting on the Implementation of the New Urban Agenda*, starting in 2018, with reporting years of 2022, 2026, 2030 and 2034.

The Quadrennial Reports are designed to provide a qualitative and quantitative analysis of the progress made both in the NUA and the internationally agreed goals and targets relevant to sustainable urbanization and human settlements. As indicated, the analysis will include activities of different levels of governments, UN-Habitat, other relevant stakeholders and entities of the United Nations system.⁵¹ The first QR, submitted in 2018, focused on the reporting system itself, the importance of integrated urban reporting framework and an assessment of trends and challenges in cities, rather than providing detail on progress made by countries, due to the short time that had lapsed since the NUA summit in 2016.⁵² The second QR, due in mid-2022, will be the first opportunity to assess, in greater detail, the progress being made across the Asia-Pacific region in sustainable urban development, against the 2016 baseline.

The importance of the NUA voluntary National Reports

UN-Habitat assists in compiling this multi-stakeholder report and an important track for gathering relevant data and insights on progress towards the NUA is the voluntary reporting by member States, via a National Report. The current status of report preparation and submission of National Reports is available on the NUA Platform.⁵³ Globally, only 21 countries have so far submitted National Reports and submissions from other countries would be greatly valued. In the Asia-Pacific region, only Indonesia, the Lao People's Democratic Republic and Turkey have submitted a National Report,⁵⁴ and Thailand is currently drafting one.

Nevertheless, some useful insights are available from the preparation and content of these documents. UN-Habitat has outlined some lessons drawn from the NUA National Reports process, as well as some pointers for new reports. These are summarized below:

51. UN-Habitat, "The Quadrennial Report - UN-Habitat Strategy to report on the progress of the implementation of the New Urban Agenda", (2018). Available at <https://www.urban-response.org/system/files/content/resource/files/main/The-Quadrennial-Report-UN-Habitat-Strategy-15-Feb-2018-1.pdf>.

52. UN-Habitat, "Supplement Document of the Quadrennial Report 2018: Report on the progress of the implementation of the New Urban Agenda", 2018. Available at <https://uni.unhabitat.org/wp-content/uploads/2018/05/Supplement-Documents-Working-Draft-of-Quadrennial-Report.pdf>.

53. Information on the National Reports is available at UN-Habitat, "Urban Agenda Platform". Available at <https://www.urbanagendaplatform.org>.

54. These are available on the UN-Habitat, "Urban Agenda Platform". Available at <https://www.urbanagendaplatform.org>.

- There is a strong need to focus on monitoring and reporting capacity in relation to the NUA. Some countries have very poor baseline data and little monitoring activity or capacity. UN-Habitat is willing to engage to a greater extent with member States, to support their submissions.
- Cities are likely to play an increasing role in monitoring and reporting their SDG progress. Cities are currently not involved enough in country data collection and reporting, and there should be greater linkages between the national and subnational government levels in data collection and report drafting.
- COVID-19 diverted resources away from this reporting process during 2021. This is seen as one of the main reasons for the low level of National Report submission.
- NUA is a continuous process in relation to government capacity. It is important that national and city government representatives are involved in establishing and implementing effective monitoring and reporting of progress against NUA objectives.
- New National Reports should report on the impact of sustainable urban development initiatives, programs and investments, rather than just on actions. It is important to set up monitoring and evaluation frameworks that are able to measure progress, aligned with how national reports will report on NUA progress.

Box 1: Insights from the Lao People's Democratic Republic and Turkey's National Reporting Process

A UN Asia-Pacific Quadrennial Reporting meeting, held on 29th September 2021, also provided an opportunity for several countries to update their national reporting process, including Indonesia, the Lao People's Democratic Republic and Turkey. The key points from the reporting country's point of view were:

- The UN-Habitat has provided useful guidelines on national reporting, helping to keep the data collection and reporting structure streamlined and concise.
- Inclusion of COVID-19 response, in synergy with localizing the SDGs in cities is a valuable feature of the Lao People's Democratic Republic report that should be mainstreamed across other National Reports.
- It is useful to create synergies with other relevant reporting processes such as the Voluntary National Reviews (VNR) to High-Level Political Forum (HLPF), held in 2018, and the 11th National Development Prep Period that culminated in 2018.
- National reporting frameworks on urban development are still developing, especially in countries with strong decentralization frameworks like Indonesia, requiring clearer vertical and horizontal data exchange and reporting mechanisms, involving many stakeholders and extensive verification
- It is advisable to standardize the monitoring data from municipalities, making the data more reliable and easier to analyse.
- The 2020 Urbanization Summit in Turkey was useful to share new approaches, which were captured in the National Report.
- It can be challenging to engage all relevant stakeholders, including civil society, but doing so will lead to a much clearer assessment of impact across all groups in society, including the more vulnerable and marginalized.

Member States should take these points into consideration as they prepare subsequent National Report submissions. It is also important to note that the **NUA Platform** was launched at the start of 2021 by UN-Habitat and it provides a valuable knowledge-sharing resource for cities and for a wide range of stakeholders in the public and private sectors as well as civil society.⁵⁵

3.2 The Role of Voluntary Local Reviews (VLRs) to Assess SDG Localization

“The battle for sustainability, inclusion and resilience will be won or lost in cities and across territories.”

Maimunah Mohd Shariff, Executive Director, UN-Habitat.⁵⁶

Voluntary National Reviews (VNRs) and Voluntary Local Reviews (VLRs)

As part of its follow-up and review mechanisms, the 2030 Agenda for Sustainable Development encourages member States to “conduct regular and inclusive reviews of progress at the national and subnational levels, which are country-led and country-driven” (paragraph 79).

Voluntary National Reviews, not to be confused with the NUA voluntary National Reports, described above, aim to facilitate the sharing of experiences, including successes, challenges and lessons learned, with a view to accelerating the implementation of the 2030 Agenda. The VNRs also seek to strengthen policies and institutions of governments and to mobilize multi-stakeholder support and partnerships for the implementation of the SDGs.⁵⁷

Voluntary Local Reviews follow the same principle as VNRs but focus on assessing the localization of SDGs in cities and towns. They are guided by the same principles as those of the SDGs – leave no one behind; the right to city and multi-stakeholder engagement; universality across developed and developing countries; adoption of an all-encompassing strategy to envision the desired future by 2030; the need for a robust evidence base for action; and embracing and integration of environmental, economic, spatial and social systems, as explained in the **Asia Pacific Regional Guidance on Voluntary Local Reviews**, which were co-developed in 2020 by ESCAP, UN-Habitat and the Penang Platform For Sustainable Urbanization.⁵⁸

Although gaining in momentum, the VLR process does not yet have any official status as part of the formal follow-up and review processes hosted by the United Nations. However, they are expected to serve as a basis for the regular reviews by the High-Level Political Forum (HLPF), meeting under the auspices of ECOSOC.

The VLR process was initiated at the 2018 HLPF, in New York. There have been many contributions since then which can be viewed on UN-Habitat’s VLR website.⁵⁹ So far, approximately 15 VLRs have been submitted across cities in Australia, China, Japan, Malaysia and the Philippines in the Asia-Pacific region. There are no constraints to the types of cities and towns that wish to conduct a VLR, and all types of urban settlements are encouraged

55. More information on the NUA Platform is available at UN-Habitat, “Urban Agenda Platform”. Available at <https://www.urbanagendaplatform.org>.

56. UN-Habitat and United Cities and Local Governments (UCLG), “Guidelines for Voluntary Local Reviews: Volume 1 – A comparative Analysis of Existing VLRs”, Barcelona, 2020. Available at https://www.uclg.org/sites/default/files/uclg_vlrlab_guidelines_2020_volume_i.pdf#:~:text=Voluntary%20Local%20Reviews%20and%20Voluntary%20National%20Reviews%20should,government.%20VLRs%20are%20more%20than%20just%20mechanisms%20for

57. To gain insights into the VNR process and see which countries have submitted VNRs in 2021 and are currently preparing VNRs in 2022, see United Nations Department of Economic and Social Affairs (UN DESA), “Sustainable Development Knowledge Platform: Voluntary National Reviews”. Available at <https://sustainabledevelopment.un.org/vnrs/>.

58. Asia-Pacific Regional Guidelines on Voluntary Local Reviews: Reviewing Local Progress to Accelerate Action for the Sustainable Development Goals (United Nations publication, 2020a).

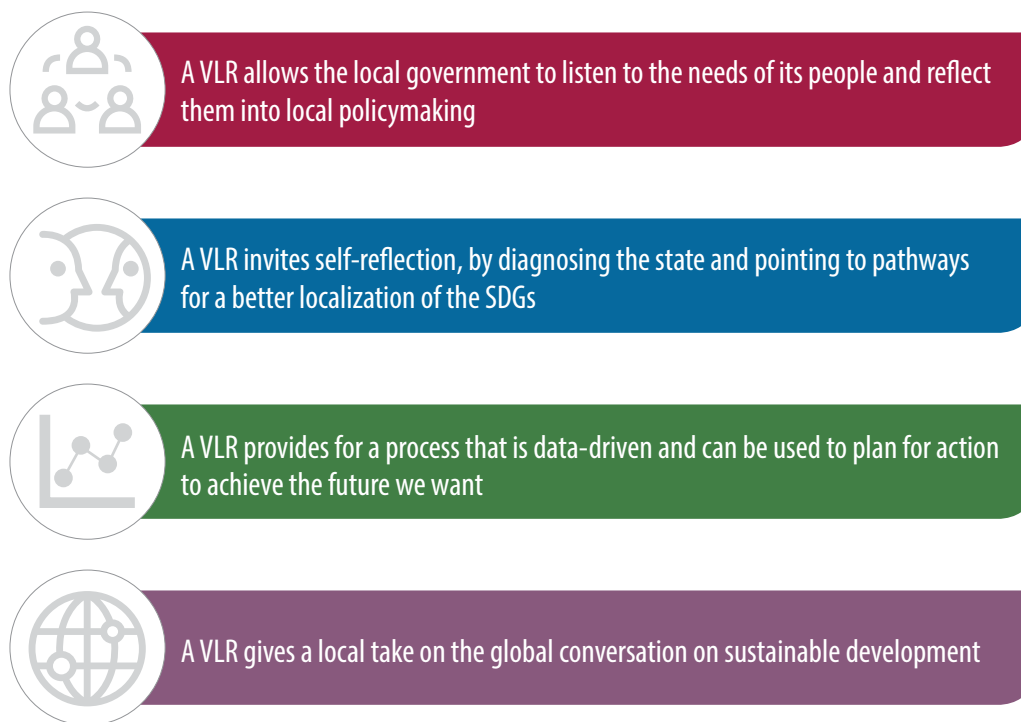
59. UN-Habitat, “Voluntary Local Reviews”. Available at <https://unhabitat.org/topics/voluntary-local-reviews>.

to do so. The smallest in region to submit a VLR, so far, is Shiokara Town in Japan, with a population of less than 4,000 inhabitants.⁶⁰ The largest are the megacities of Tokyo and Guangzhou.

Moreover, Member States and other stakeholders can also make full use of the “Urban Agenda Platform” (www.urbanagendaplatform.org), which is a knowledge sharing portal facilitated by UN-Habitat, since 2020. Member States are invited to share their National Reports, best practices and other significant contributions on the implementation of the NUA and in support of SDG11. Also other award-winning best practices, major studies are found here, as well as data resources.

The VLRs have proven useful for cities and regions to foster SDG localization and demonstrate the capacity and contributions of local governments to accelerate progress. VLRs can also help to reinforce vertical coherence and complement and contribute to the Voluntary National Reviews of SDG implementation.⁶¹ As shown in Figure 3, VLRs are also useful for being a reflective tool to better understand the needs of citizens and reflect them in policymaking; and for driving forward data-driven processes for monitoring impact, that can also be used to plan action for a sustainable urban future. An additional benefit of the VLR process for national governments is that it increases coordination between different levels of government in gathering, managing and sharing data.

Figure 3. Opportunities provided by a VLR



Source: Fernando Ortiz-Moya and others, “State of the Voluntary Local Reviews 2020: Local Action for Local Impact in Achieving the SDGs”, Working Paper, Institute for Global Environmental Strategies, April 2020. Available at <https://www.iges.or.jp/en/pub/vlrs-2020/en>.

As the VLRs are not yet globally prevalent, no country has established robust, proven mechanisms to incorporate them within their VNRs. This makes the notion of VLR-VNR integration a frontier issue. Strengthening VLR-VNR integration can serve numerous benefits. For example, having VLRs integrated within the VNR process can fill in

60. Asia-Pacific Regional Guidelines on Voluntary Local Reviews: Reviewing Local Progress to Accelerate Action for the Sustainable Development Goals (United Nations publication, 2020a).

61. United Nations Department of Economic and Social Affairs (UN DESA), “Voluntary Local Reviews”. Available at <https://sdgs.un.org/topics/voluntary-local-reviews#:~:text=Paragraph%2089%20of%20the%202030%20Agenda%20calls%20on,SDG%20implementation%2C%20also%20called%20Voluntary%20Local%20Reviews%20%28VLRs%29>.

important information gaps, providing opportunities to incorporate more nuanced disaggregated data and allow useful lessons and best practices that can potentially be scaled up nationally. VLR-VNR integration can broaden stakeholder engagement within the VNR process. VLR-VNR integration could also, for local and subnational governments (SNGs), strengthen the legitimacy of subnational/local follow-up and review of the SDGs. This, in turn, could validate the future requests of SNGs for support from the national government regarding SDG implementation.⁶²

Resources on conducting VLRs

Following APUF-7, the need was identified to provide cities with guidance on the development of VLRs. As mentioned above, ESCAP, together with UN-Habitat and the Penang Platform for Sustainable Urbanization (PPSU) developed the **Asia-Pacific Regional Guidelines on Voluntary Local Reviews**,⁶³ (as a practical framework to be used by local policymakers to review progress made against the SDGs). The guidelines build on existing resources and are fully compatible with the United Nations Department of Economic and Social Affairs' (UN DESA) Global Guiding Elements for Voluntary Local Reviews of SDG implementation.⁶⁴ They provide practical tools, checklists, and templates that local governments and other stakeholders can use when conducting a VLR through a complimentary process with a country's VNR reporting. ESCAP has also developed an e-learning portal to provide tailored guidance on VLRs.⁶⁵ The portal also aims to act as a platform for local and national stakeholders to engage and share experiences and lessons learnt from their VLR journey with their peers.

Following its launch in October 2020, Subang Jaya, Malaysia, applied the guidelines to develop its own VLR which was shared at the 2021 HLPF. The efforts of Subang Jaya, along with other Malaysian cities that undertook their first VLRs, was also acknowledged in the country's second VNR report. In Indonesia, Surabaya city is currently preparing to launch the country's first VLR report (also based on the guidelines). Indonesia's third VNR report accommodates results from the VLR report and notes how the process has been encouraged by the integration of SDGs into the mid-term development planning of the city government. Other cities including Dhulikhel, Nepal; Singra, Bangladesh; Naga, Philippines; and Nakhon Si Thammarat, Thailand are in the process of completing their first VLRs based on the regional guidance produced by ESCAP, UN-Habitat and the PPSU.

In addition to the Regional VLR Guidelines, UN-Habitat together with United Cities Local Governments (UCLG), created the **VLR Series**,⁶⁶ a global initiative aimed at providing local and national governments worldwide with knowledge on VLRs as well as learning opportunities with peers. Two resources are particularly relevant:

- **Guidelines for Voluntary Local Reviews Volume 1: A Comparative Analysis of Existing VLRs.**⁶⁷
- **Guidelines for Voluntary Local Reviews Volume 2: Towards a New Generation of VLRs: Exploring the local-national link.**⁶⁸

As shown in Box 2, the **Institute for Global Environmental Strategies (IGES)** is also committed to assisting cities to understand and conduct VLRs.

62. Asia-Pacific Regional Guidelines on Voluntary Local Reviews: Reviewing Local Progress to Accelerate Action for the Sustainable Development Goals (United Nations publication, 2020a).

63. Ibid.

64. United Nations Department of Economic and Social Affairs (UN DESA), "Global Guiding Elements for Voluntary Local Reviews of SDG implementation". Available at https://sdgs.un.org/sites/default/files/2021-06/GlobalGuidingElementsforVLRs_FINAL.pdf.

65. United Nations Economic and Social Commission for Asia and the Pacific (ESCAP), "Voluntary Local Reviews". Available at <https://vnr.unescap.org>.

66. UN-Habitat, "Voluntary Local Reviews". Available at <https://unhabitat.org/topics/voluntary-local-reviews>.

67. UN-Habitat and United Cities and Local Governments (UCLG), "Guidelines for Voluntary Local Reviews: Volume 1 – A comparative Analysis of Existing VLRs", Barcelona, 2020. Available at https://www.uclg.org/sites/default/files/uclg_vlrlab_guidelines_2020_volume_i.pdf#:~:text=Voluntary%20Local%20Reviews%20and%20Voluntary%20National%20Reviews%20should,government.%20VLRs%20are%20more%20than%20just%20mechanisms%20for

68. UN-Habitat and United Cities and Local Governments (UCLG), "Guidelines for Voluntary Local Reviews: Volume 2 – Towards a new generation of VLRs: Exploring the local-national link", Kenya, July 2021. Available at https://unhabitat.org/sites/default/files/2021/07/vlrguidelines_vol2.pdf.

Box 2: The IGES voluntary commitments on VLRs

As shown in Section 1, the Institute for Global Environmental Strategies (IGES) committed at the APUF-7 to assist at least 10 entities to carry out a VLR and to convene stakeholders in a series of VLR labs to share knowledge and experience. As part of this effort, IGES has prepared some useful material, including the “State of the Voluntary Local Reviews 2021: From Reporting to Action”.^a

- a. Fernando Ortiz-Moya and others, “State of the Voluntary Local Reviews 2020: Local Action for Local Impact in Achieving the SDGs”, Working Paper, Institute for Global Environmental Strategies, April 2020. Available at <https://www.iges.or.jp/en/pub/vlrs-2020/en>.

Although UN DESA’s Global Guiding Elements for VLRs give an overview of useful focus areas for the VLR process and the eventual report, the structure and content of a city’s VLR report depend on the local context and drafting process. Existing documents produced by or associated with an SNG could be compatible with the scope and objectives of a VLR as long as they meet three key criteria:⁶⁹

- The documents should make a clear reference to the SDGs and the 2030 Agenda as the framework in which the local administration and/or community are developing their localization and implementation initiatives;
- The implementation agency and its responsibility must be local in the broadest sense possible;
- The documents should be designed to include elements of locally-based reviewing and monitoring of the implementation processes.

However, a robust structure and guidance on data collection and assessment methods are recommended in ESCAP’s *Asia-Pacific Regional Guidelines on Voluntary Local Reviews*, as mentioned above.

3.3 The Way Forward

Accelerating implementation of the 2030 Agenda for Sustainable Development and the New Urban Agenda in the region requires support through:

1. **Partnerships**
2. **Normative guidance** for local and subnational authorities and
3. **Raising awareness** across the region on best practices through events and
4. **Capacity building.**

The following priorities elaborated through the Regional Partners Forum provide a path forward for the urban stakeholders to collaborate in promoting sustainable urban development across the region.

1. Partnerships

There are several platforms that provide critical spaces to form partnerships for the implementation of the 2030 Agenda and the New Urban Agenda.

69. UN-Habitat and United Cities and Local Governments (UCLG), “Guidelines for Voluntary Local Reviews: Volume 1 – A comparative Analysis of Existing VLRs”, Barcelona, 2020. Available at https://www.uclg.org/sites/default/files/uclg_vlrlab_guidelines_2020_volume_i.pdf#:~:text=Voluntary%20Local%20Reviews%20and%20Voluntary%20National%20Reviews%20should,government.%20VLRs%20are%20more%20than%20just%20mechanisms%20for

Foremost among these is **the Penang Platform for Sustainable Urbanization** (PPSU), which is an excellent platform to convene a wide range of partners and stakeholders for knowledge sharing and it is recommended that this platform should be reinforced and expanded.

The Platform brings together an alliance of partners to address multi-faceted issues through a holistic 'CITI' pathway:

- Collaborate to accelerate implementation of the SDGs in cities,
- Integrate the use of tools, models, research and evidence of good practices,
- Transform access to innovative sources of urban financing through new partnerships, and
- Increase political commitments for sustainable urbanization.

With its 14 founding partners, the following sets out how the Penang Platform for Sustainable Urbanization could proceed in the run-up to APUF-8:

- Establish PPSU Task Forces for priority thematic area for knowledge sharing and joint action on specific sectors or topics. The objective would be to convene appropriate partners to inform and discuss best practices in a particular thematic area and then to disseminate recommendations and best practice examples to municipal staff and other relevant stakeholders across the region.

It is therefore suggested that Task Forces are set up for the following key areas:

- **TF1: Scaling up Nature-Based Solutions in Urban Areas**
- **TF2: Integrating Covid-19 Recovery with Sustainable Urban Development**
- **TF3: Data and Digital Technologies for Sustainable Cities and Infrastructure**
- **TF4: Municipal Finance Options for LMICs**

Science-Policy Collaboration: The Regional Partners Forum provided the opportunity to assess the popularity of a proposed Science-Policy Collaboration. The objective would be to bring together a number of organizations and cities to discuss, share knowledge and promote the methods of basing policy on robust, science-based principles. This is likely to have a number of focus applications, such as

- Air quality monitoring and related policy options,
- Measuring the impact of low-carbon strategy and actions,
- Understanding and implementing relevant measures to protect or enhance biodiversity.

Catalyze city twinning opportunities for knowledge sharing: One of the action points proposed at the Regional Partners Forum was to enable the twinning of cities for knowledge exchange. This has proven to be an effective way for cities to see and learn tangible and practical measures to help localize the SDGs and take meaningful climate action. ESCAP will consider supporting a more formal program of city twinning to this end.

2. Normative Guidance

It is customary for a normative guidance document to be launched at each APUF event. In 2019 at APUF-7 this was *The Future of Asian and Pacific Cities* report, which set out recommended policy pathways, structured around the four thematic pillars. As before, the report was published by ESCAP and UN-Habitat and developed in close partnership with, for this edition, the Ford Foundation, the ADB, UNDP and the Government of Singapore.

The challenge for designing normative guidance for APUF-8, will be to maintain consistency with the existing and still very relevant thematic pillars and policy pathways, as well as the Covid-19 specific guidance developed in 2020, while adding valuable guidance that is updated to take into account recent developments, including recovery from the Covid-19 pandemic. A strong partnership needs again to be brought together.

The 2019 guidance was forward looking and provided useful policy pathways. It formulated priorities set out in the wake of the formulation of the 2030 Development Agenda, which brought urban issues in the spotlight through SDG11 and clearly established the need for localization in order to reach the goals. The 2019 report also highlighted the convergence of climate action and disaster risk reduction. It recognized the leapfrogging in global urban development and data-driven management and confirmed the importance of urban territorial planning on par with governance so as to achieve effective implementation, and the critical role of urban finance.

While those policy pathways are still relevant, the 2023 normative guidance should provide an opportunity to take stock of the extent to which cities across the region are progressing along those policy pathways and identify obstacles and capacity gaps towards accelerating adoption of pathways. Also, the commitments of “Our Common Agenda” (UN75) and those forthcoming from the High-Level Meeting will need to be reflected.

To move forward with the development of this guidance, following actions are needed:

- **Establish a strong partnership to drive the thematic focus and support the research requirements**
- **Clarify the capacity gaps of cities on issues outlined in the 2019 Report**
- **Continue collection of data and case studies from cities and development partners in the region, to inform the content of the report and particularly to understand the latest Covid-19 context and implications.**
- **Develop a consultation and review process to support preparation and delivery of thematic sections and the final report.**

3. Awareness Raising

A number of important milestones should be leveraged to raise awareness of progress and regional needs in the run-up to AFUP-8. These are set out below, with notes on the rationale, timing and what needs to be prepared for each one.

- **Asia Pacific Forum on Sustainable Development (APFSD)**

In 2022, the Regional Forums on Sustainable Development, organized by the five UN Regional Commissions, have been requested to include a means to review regional progress on the implementation of NUA. In Asia Pacific, ESCAP will host the 9th APFSD in March 2022, during which interventions from member States and stakeholders can reflect on the progress of NUA. The outcomes of the Regional Partners Forum will help to inform stakeholders on progress in the region.

In advance of the APUF-8 in October 2023, the 10th APFSD may also serve as an opportunity to review progress on sustainable urbanization, the localizing of SDGs and VLRs and implementation of NUA.

- **Series of webinars on aligned topics**

The run-up to APUF-8 will present many opportunities to host webinars on the topics related to the APUF-8 priority areas, set out in Section 3. These should be aimed at national and sub-national government representatives, development partners, civil society organizations and other relevant urban practitioners in the region.

- **High-Level Meeting on the Implementation of the New Urban Agenda (NUA).**

The UN General Assembly will organize a high-level meeting following the launch of the Secretary General's 2nd Quadrennial Report on the Implementation of the New Urban Agenda. The meeting will allow member states to report on progress and reflect on gaps and potential mechanisms to accelerate implementation of NUA. The event will be an opportunity at the global level to raise awareness of NUA and the outcomes of the meeting can further inform and be incorporated into the planning of regional activities.

- **World Urban Forum WUF**

The 11th World Urban Forum (WUF-11) will be held in Katowice, Poland in June 2022 and provides another opportunity to focus attention on a consistent range of topics in the run-up to APUF-8. It is suggested that key activities include:

- Hosting side events on some of the relevant thematic areas set out in Section 3.
- Assessing progress against the APUF-7 voluntary commitments, as many of them are scheduled to be achieved by 2022 or 2023.
- Hosting a side event on urban financing (as a consistently high-priority topic), with a potential focus on catalyzing private sector investment.

- **World Habitat Day and Urban October Events**

World Habitat Day (First Monday of October) and World Cities Day (31 October) in what has been branded Urban October will, in 2022, provide another opportunity for a series of events that can help to shape the agenda of priority topics in the run up to APUF-8 the following year. It is suggested that the following strategic focus could be promoted during the event, although this should be revisited and decided closer to the event, in the context of recent Covid-19 and climate action developments.

- Nature-based solutions for climate action and a green and resilient Covid-19 recovery.
- Voluntary Local Reviews (VLRs) as an important process for integration of national and local sustainable urban development strategy
- Land-linked financing strategies in Asia Pacific: Learning from experience
- Affordable, green and resilient housing

4. Capacity Building

Consistent with the lessons and outcomes from APUF-7 in 2019 and other regional and global events, the Regional Partners Forum re-affirmed the need for continued capacity building in cities and towns across Asia and the Pacific. To be successful, efforts to localize SDGs, apply the policy pathways in *The Future of Asian & Pacific Cities* report, implement NUA and urban monitoring frameworks and undertake VLR processes must be accompanied by capacity building activities. Local authorities need to develop institutional structures to strengthen their planning processes and engage communities, create strategies to enhance urban resilience and leverage the innovations of technology and smart city solutions.

A recurring obstacle has been financing of urban solutions, which will require, especially in the context of COVID-19 recoveries, continued capacity building of local authorities to strengthen local revenue sources and diversify opportunities to build and maintain infrastructure. Capacity building platforms, such as the Asia Pacific Mayors Academy, which helps newly-elected or appointed mayors to understand sustainable urbanization pathways and access tools and resources, can be strengthened through collaborations among partners such as city networks, local authorities, national ministries, financial institutions, UN agencies and other organizations. In the lead-up to APUF-8, the Penang Platform for Sustainable Urbanization and other partnerships can help to identify and define capacity needs in the region.

Annex 1:

Summary of the Regional Partners Forum Outcomes

Overview of the main focus areas of the Forum

The Regional Partners Forum @Quito+5 was facilitated by ESCAP in collaboration with UN-Habitat and the Penang Platform for Sustainable Urbanization, represented by Urbanice Malaysia. The Forum acted as a regional contribution to the review of the progress made in Asia and the Pacific towards localizing the SDGs and implementing the NUA, and identified important areas of focus for continued and accelerated sustainable development. The Forum provided an opportunity to review progress on the voluntary commitments expressed at the Seventh Asia-Pacific Urban Forum in 2019,⁷⁰ and follow up on the declared actions of the Tenth World Urban Forum. A key output was discussions and initial strategic points to guide the future work plan of ESCAP, including the Eighth Asia-Pacific Urban Forum, that is to be held in 2023.

The outcomes will be taken forward for broader consultation at the 11th World Urban Forum in Katowice, Poland (26 June 2022), and the Asia-Pacific Forum on Sustainable Development, to be held in Bangkok, Thailand (March 2022). The context of recovery from the COVID-19 pandemic will be an important aspect of all of these considerations.

The Forum was attended by over 80 participants, representing national and subnational governments, the Asian Development Bank and other international finance institutes, city networks and partnerships, such as UCLG ASPAC, ICLEI and CityNet, various academic institutions and NGOs and various other stakeholders. A full list of the participants and the agenda is available upon request.

An interesting initial finding relates to the main priorities that participants wanted to achieve during the Forum. Figure A1 shows a word cloud generated by a Mentimeter sessions to identify priorities. It is clear that aspects such as knowledge-sharing, collaboration, partnership and assessment of progress against the principles of the NUA are important for many of the participants.

70. United Nations Economic and Social Commission for Asia and the Pacific (ESCAP) and others, Seventh Session of the Asia-Pacific Urban Forum (APUF-7), Summary Report, 15-17 October 2019. Available at [https://uploads-ssl.webflow.com/5ce1706c8eff8b55910872f6/5f1811a1ba281747f6fbf6d8_APUF-7Report\(final\)-compressed.pdf](https://uploads-ssl.webflow.com/5ce1706c8eff8b55910872f6/5f1811a1ba281747f6fbf6d8_APUF-7Report(final)-compressed.pdf).

Figure A1. Word cloud on priorities that participants wanted to achieve during the Forum



Source: Mentimeter results from the Regional Partners Forum

The main topics discussed at the Forum were:

- To encourage and implement more effective national NUA reporting;
- Current factors for success, barriers to progress and measures for improving SDG localization and VLR implementation;
- Important principles and actions in support of the policy pathways set out in the 2019 report, *The Future of Asian and Pacific Cities*, with the themes of urban and territorial planning; urban resilience; smart cities and urban finance, with the objective of informing an Action Plan for future initiatives and for APUF-8.

The findings from the Forum in these three areas are set out in the sections below.

More effective national NUA reporting

Five breakout groups discussed how the rate of development of voluntary National Reports on NUA progress could be accelerated. The findings from the groups can be condensed into the following points:

Guidelines and capacity-building support

- Provide clear guidelines and case study examples for reporting for countries.
- Continue to provide external support and capacity-building opportunities to countries from UN agencies, peer countries, donor institutions, etc., as this can be very useful to national governments.

In-country coordination

- Catalyse necessary action for the development of voluntary National Reports. It was recommended that a suitable mechanism, such as a high-level committee with authority be set up to request local level and inter-ministerial data contribution.
- Set up a leading entity or workgroup, perhaps organized by theme, to coordinate SDG and NUA reporting, to avoid duplication of effort. This will also help to ensure that the reports are prepared in good time.
- Set up one entity for data collection, in order to harmonise and synchronise between entities and to ensure consistency. However, having one body responsible for all data might be difficult for the organization and it could therefore be thematically led. To a great extent, each country context will require different data collection approaches.
- Take one step at a time and have incremental reporting on NUA achievement, including annual reports and online data monitoring. Considering common areas between different reporting mechanisms, coordination among different lead agencies for each reporting must be enhanced.
- Ensure synchronization between NUA and SDG reporting as it is generally conducted separately at the moment.

Incentivising subnational levels to provide data

- Provide guidance and support from national governments to subnational levels, on the harmonization of data collection and methods to ensure consistency, as both qualitative and quantitative data is a challenge. Integrating this into already full work schedules will be a challenge but there should be appropriate pressure on local governments to take data collection and reporting seriously.
- Contextualize data in changing governance structures as this is a struggle. For example, the shift to decentralized government has resulted in a mismatch in data over time, which delays the process of taking the reporting forward.
- Provide more financial and human resources at the subnational level to collect and manage the necessary data. Apart from producing the national report, data collection improvement is vital for many other aspects, such as planning and financing infrastructure.
- Automate translations to and from local languages. In countries with many subregions and local languages, this often proves to be a challenge. Automation of translations can be done through AI-based software, which is reliable, and helps to streamline the process.
- Use the national report and the processes required to compile data and information as a tool for increasing awareness of the links between NUA and SDG implementation and the need for partnership. It is important to turn the requests for inputs from subnational levels into something more attractive, and related to learning and improvement.

Synchronization between certain countries

- Increase synchronization between countries in some cases. For example, coordination of reporting has been beneficial for the Pacific Island nations. This can help to motivate action on reporting as well as sharing best practice and learning related to data and reporting processes.

Engaging stakeholders

- Engage a wide range of stakeholders, including CSOs and voice of vulnerable groups, and increase/build ownerships of NUA.
- Engage local-level stakeholders and provide them with opportunities to showcase their best practices on urban development at the national platform, which will be valuable for buy-in and knowledge-sharing.

Covering a broad range of integrated topics

- Include a comprehensive range of topics that are in line with the dimensions of the NUA, as NUA reporting is not only about urbanization, but climate change, disaster resilience, inclusion of migrant workers and many other aspects as well.

Localization of the SDGs and VLRs

The session on improving the localization of the SDGs and carrying out VLRs to assess progress and ensure reflection and learning was discussed in the second interactive session. The findings from the breakout groups are set out below:

What helped us move forward?

For localizing the SDGs, the following aspects helped:

- Focus on data has been emphasised by government and external partners.
- Provide conceptual frameworks on overriding global/regional/national priorities.
- In the context of SDGs localization, COVID-19 brought groups together with new entities.

In terms of completing VLRs, the following aspects helped:

- Support from national authorities and a proper set up of the VLR process. This included appropriate data localization, i.e., the coherent indicators and metrics at the local level which can be aggregated into the national level reporting.
- Presence and involvement of organizations on the ground, such as IGES, ESCAP, UN-Habitat, and universities, helped guidance on best practices and avoiding pitfalls.
- Focus on a target group of SDGs can make it more feasible. For example, Jakarta and Surabaya in Indonesia, in collaboration with UCLG ASPAC, are currently working on VLR by focusing on just a few SDGs (i.e., poverty, health, education), which makes it more feasible with limited time and resources, rather than addressing the full range of SDGs.
- Greater integration of VNR and VLR, following the lead of smaller and more developed countries like Japan and Finland. This is a cutting-edge area of NUA reporting and progress in this area will be valuable knowledge to share across the region.

What held us back?

For both localizing the SDGs and preparing VLRs:

- Data and quality issues at the local level is a major constraint.
- Lack of incentives for cities to carry out VLR is another barrier. There can also be a lack of transparency of a city's finances, capacity and capabilities, which makes it challenging. Poor vertical integration between national and local governments is often a cause of this breakdown. In many cases it is unlikely that this barrier can be overcome without support from the national government in terms of providing resources for data collection and reporting.
- Low public finances at the national and subnational level is often cited as a barrier to VLR. It is important to motivate local governments via other means, such as the opportunity to learn best-practice approaches and recognition of progress on the international stage.
- Low engagement with multi-stakeholders was another barrier to both localizing the SDGs and conducting VLRs. In addition, it has been difficult to engage with stakeholders during the restrictions imposed by COVID-19. While digital solutions can be valuable in supporting stakeholder engagement in the absence of in-person meetings, this is less effective in smaller cities, where there is a greater digital divide.

How could we do things differently?

- Reinforce the value of VLRs by integrating various initiatives. VLR should not be just a document but a catalyst for changes in communities.
- Establish responsibility on VLR reporting to ensure ownership and progress. This could be the sustainability office or the city planning office, or similar, depending on the context.
- Coordinate data. Closely interrelated with each other, cross-sectoral data sharing and coordination to enhance quality of data is vital. Emphasising the importance of data for the subnational government in accessing public and private sector finance is likely to be an important motivator.
- Build communities of best practices or promote existing ones, to add great value. It is important to continue sharing promising practices and lessons learned on VLRs, including practical experience on what enabled progress in certain areas.

What should we do next?

- Advocate for the integration of VLRs in the reporting of local government units through national policies.
- Provide incentives on VLRs to local government, including additional resources, capacity development support, recognition at the national and regional level.
- Motivate local governments to focus on SDGs that are easier to measure, with the available data. However, this risks a rather selective review of progress against NUA and the SDGs, neglecting reporting on more challenging but equally important SDGs.
- Support local governments on robust, virtual data collection, including understanding what is possible, how to maximise quality, how to verify data etc., especially in the era of COVID-19.

Policy and Action Points related to the four thematic areas

The main session on Day 2 allowed participants of the Forum to discuss recommended policy areas, structured around the four main themes from AFUF-7: Urban and territorial planning; Urban resilience; Smart cities; and Urban finance. Two breakout groups were held for each theme, enabling participants to attend their preferred two thematic discussions. The key outcomes are set out below, along with results from the Mentimeter voting on the relevance of suggested policy areas.

Urban and territorial planning

As shown in Figure A2, there is strong agreement among participants on the relevance of all proposed action points, with a lead for 'improved approaches to community engagement, data collection and mapping to inform policymaking' and for 'support to cross-government and cross-sector collaboration'.

Figure A2. Extent of participant agreement on proposed Urban and Territorial Planning action points



In addition to these policy recommendations, the discussion highlighted several valuable points on how changes to recommendations could be made or how recommendations could be actioned:

Changes to recommendations:

- Make vertical and horizontal collaboration within the government a top priority in many contexts. This should be emphasized on the point related to cross-government collaboration.
- Emphasize the role of private sector stakeholders, in terms the value of partnership in data collection, mapping and planning, among many other functions.
- Increase the integrated approach for housing, rather than being seen just through a COVID-19 recovery lens, as it is a topic of interest and concern in the vast majority of cities.
- Emphasize gender and social inclusion strongly in the policy areas.

Making recommendations actionable:

Participants suggested a number of approaches to help action the recommendations:

- Increase the pronounced acknowledgement of data collected by grassroots level organizations and communities. Insufficient technical capacity can be partly offset with locally collected data on aspects relating to land-use, vulnerability to disasters and land tenure related aspects.
- Set up a form of partnership or institutionalization, which is required to recognize the role of the community in urban planning and implementation of initiatives.
- Mainstream gender and inclusion through everything related to urban planning, from understanding and improving land-use tenure rights to representation in stakeholder engagement and participation in the profession of planning and other related technical roles.

Urban resilience

Figure A3 shows that ‘participatory approaches’ are seen as a high priority policy are when planning and implementing urban resilience initiatives. In addition to the proposed policy recommendations, the discussion highlighted several valuable points on how changes to recommendations could be made or how recommendations could be actioned.

Changes to recommendations:

- Includes capacity development of planning and resilience building in planning processes.
- Change the wording in recommendation 1 from “disaster resilient” to “climate resilient”. However, this may narrow the field of shocks and stresses for which urban areas should be prepared.
- Emphasize on the role of local governments in developing resilience-related plans and interventions.
- Support cities to build local climate action plans and include it as a policy pathway.
- Mainstream locally-led insights and actions, into formal plans and strategies for resilience.

Figure A3. Extent of participant agreement on proposed Urban Resilience action points



Making recommendations actionable:

- Identify, consolidate and disseminate existing tools for circular economy approaches for local governments and other stakeholders. It is also important to continually assess the values and effectiveness of such tools, approaches and project examples.
- Establish performance indicators for senior members of local government for implementing climate actions, thereby helping to incentivize action.
- Support the scale-up of small but effective resilience practices and participatory approaches from community level upwards. This could be done via normative guidance, Communities of Practices or other similar methods. Examples include resources available from the International Association on Public Participation (IAP2) on public consultation guidelines and locally used practices (esp. among indigenous people), following local culture.⁷¹
- Build the capacity of local governments to integrate COVID-19 recovery with approaches such as nature-based solutions (NBS), post-COVID-19 Local Economic Development strategies and incorporate effective informal economy sector initiatives.
- Organize dialogues at regional level and/or normative guidance to showcase examples of data management and how communities used disaggregated data during COVID-19.
- Establish clear links in climate strategies that are linked to a range of urban financing options, which are suitable and feasible for the context.

71. International Association for Public Participation, “IAP2 Resources”. Available at <http://www.iap2.org/general/custom.asp?page=resources>.

Smart cities

As shown in Figure A4, there is broad consensus among Forum participants for harnessing data for sustainable development and building on the recent acceleration of digital solutions that have occurred in the context of COVID-19. There is also strong agreement on improving smart city governance and thematic focus for data, in health monitoring and in transport and mobility. The only change to the recommendations raised in the breakout groups was to have more focus on addressing the digital divide.

Figure A4. Extent of participant agreement on proposed Smart City action points



Making recommendations actionable

- Focus on the importance of supporting local governments and other stakeholders in data collection, and make sure it is in line with gender and inclusion principles, such as appropriate data disaggregation as digital and smart city solutions are based on data.
- Involve citizens in data collection and be as inclusive as possible. Closing the Loop, an ESCAP programme on digital solutions for plastic waste, is an example of engaging citizens in data collection.
- Provide a national level roadmap and contextualize smart cities. National governments should conduct this for their country, so that their cities have a consistent approach to smart cities, particularly for low-income countries with rapidly growing cities.
- Build partnerships with the private sector, as this is very important to harness innovation and leverage technical ability.
- Implement pilot projects in cities to provide valuable demonstration opportunities to show how countries/cities can move forward with sustainable smart city approaches.
- Increase PM2.5 and PM10 real time data collection, as this is particularly important in all cities. There could be more consistent and widely available support on how to set up the necessary infrastructure and database as well as consistent data entry.

Urban Finance

Figure A5 shows strongest support for the first two policy areas, which are improving national and subnational government capacity on municipal finance options available and helping municipalities to improve their data collection and management processes, which, in turn, have strong synergies with the smart city policy areas.

Figure A5. Extent of participant agreement on proposed Urban Finance action points



Making recommendations actionable

- Focus, strongly, on supporting municipalities to generate their own revenue and attract private sector investment.
 - Leverage private sector investment, by focussing on creditworthiness, including how to work with credit rating agencies regarding assessment of secondary and tertiary cities.
 - Implement participatory and transparent governance processes to help establish municipal budget priorities. SDGs should be mainstreamed and closely tied to budget expenditure.
 - Help transition segments of the economy from informal to formal sector, to gain greater contribution from tax revenues, which can greatly support infrastructure financing.
 - Increase engagement of local legislative bodies to create more transparency in municipal financial systems.
- Use and share a data bank at local levels to support risk rating of project concepts. The network of local authorities should share the data base at the provincial and national level, and with the private sector. Precise methodology/regulation should be required to set up the data bank.
- Provide greater national incentives for local government and other stakeholders to align with more effective use of the funds available to municipalities, in terms of priorities. For example, many cities continue to build flyovers instead of cycling and walking facilities, even though the same budget could have a transformative impact for walking and cycling, compared to a rather limited section of flyover.
- Increase knowledge-sharing mechanisms as they remain extremely important for municipal governments. There are many useful examples to share in terms of financing routes and lessons learned.
 - For example, the transition to e-buses, via leasing models to cover upfront costs and reduce subsidies, has been proven in cities like Shenzhen. Opportunities to share between cities and countries should be maximized and supported by international development partners.
 - The Cities for Climate Finance Leadership Alliance (CCFLA), for example, is a useful source of information for cities on climate finance options. It represents 60 organizations, including the ADB.

- A task force could be a useful mechanism, to assist secondary and tertiary cities on aspects such as municipal bonds or to access processes related to credit worthiness.
- Emphasize risk mitigation mechanisms, such as guarantees by donor institutions, to leverage and de-risk private sector investment.

An Action Plan Towards WUF 11 and APUF-8

The final main session of the Forum, built on the views and ideas that had been shared above and proposed and gauged participant agreement with a series of action points. The first set of action points are to be achieved by the 11th World Urban Forum, to be held in June 2022. These are presented in Figure A6 below.

Figure A6. How strongly do you support these action points: By WUF in June 2022?



It is clear that there is broad agreement for all of the action points, with marginal preference to:

- Highlight national reporting of member States on the implementation of the NUA; and
- Confirm that urban recovery strategies in the Asia-Pacific region are on track, towards green, resilient and inclusive development of urban areas.

In addition to the action points suggested within the WUF 11 timeframe, participants were also asked the extent to which they agreed with action points to be achieved by APUF-8, as shown in Figure A7. There is a clear prioritization to:

- Launch relevant task forces to accelerate knowledge-sharing and exchange; and
- Establish normative guidance based on a review of progress and identified capacity gaps.

The other action points are also seen as important by the majority of participants, although there was a higher level of disagreement for:

- Establishing twinning opportunities based on portfolios for investment; and
- Expanding the membership of the Penang Urban Platform.

Figure A7. How strongly do you support these action points: By APUF-8 in 2023?



Following the Forum and the analysis of these action points, ESCAP and UN-Habitat will jointly prepare an Action Plan for strategy towards WUF 11 and APUF-8, to be shared in separate outputs.

Annex 2: Progress on the APUF-7 Voluntary Commitments

Overview of the main focus areas of the Forum

During the APUF-7, voluntary commitments were made by several participating organizations, partnerships and cities. Voluntary commitments were one of the outcomes of the Forum to increase concrete investments and high impact initiatives for the implementation of sustainable urban development at the local, national and regional levels.

The 11 voluntary commitments and a brief assessment of progress to date, are set out below:

Table A8. APUF-7 Voluntary Commitments and brief assessment of progress to date

Voluntary Commitments from APUF-7 and Progress to October 2021	
Commitment:	Supporting cities and region to conduct VLRs
Organization:	Institute for Global Environmental Strategies
Description:	To provide at least 10 cities and regions capacity development and technical assistance to conduct VLRs by 2021.
Progress to date:	IGES have delivered a comprehensive status update on VLRs; "State of the Voluntary Local Reviews 2021: From Reporting to Action". ⁷² They have disseminated information on VLRs in public media including: <ul style="list-style-type: none"> • IISD Article: "How Can Voluntary Local Reviews (VLRs) Amplify Local Sustainability?"⁷³ • Tokyo updates: The Making of Future Tokyo - The Reasons why the Local Governments work on the SDGs⁷⁴ IGES have facilitated several VLR-focused webinars including: <ul style="list-style-type: none"> • IGES Webinar on VLRs⁷⁵ • Innovate4Cities 2021 thematic session on VLRs and climate action⁷⁶ • VLR Session on Yokohama Smart City Conference⁷⁷ IGES have facilitated an Energy Compact for Shiokara, Toyama, and Taiyo Junke ⁷⁸
Commitment:	Sustainable Development Education and Literacy
Organization:	University Putra Malaysia
Description:	To embed teaching about sustainability across all of its major courses, including urban planning and development, by 2022.
Progress to date:	TBC

72. Fernando Ortiz-Moya and others, "State of the Voluntary Local Reviews 2020: Local Action for Local Impact in Achieving the SDGs", Working Paper, Institute for Global Environmental Strategies, April 2020. Available at <https://www.iges.or.jp/en/pub/vlrs-2020/en.Working Paper>, Institute for Global Environmental Strategies, April 2020. Available

73. Fernando Ortiz-Moya and others, "How Can Voluntary Local Reviews (VLRs) Amplify Local Sustainability?", International Institute for Sustainable Development (IISD), SDG Knowledge Hub, 22 September 2021b. Available at <https://sdg.iisd.org/commentary/guest-articles/how-can-voluntary-local-reviews-vlrs-amplify-local-sustainability/>.

74. Fernando Ortiz-Moya, "The Making of Future Tokyo – The Reason Why the Local Governments Work on the SDGs". Tokyo Updates, Society, 7 September 2021c. Available at <https://www.tokyoupdates.metro.tokyo.lg.jp/en/post-374/>.

75. Institute for Global Environmental Strategies (IGES), "From Reporting to Action: How 'Voluntary Local Review' can Amplify Local Sustainability", IGES webinar on VLR, 28 June 2021. Available at <https://www.iges.or.jp/en/events/20210628>.

76. Fernando Ortiz-Moya and others, "Accelerating Sustainable Transitions Through Voluntary Local Reviews (VLRs)", Presentation, 13 October 2021a. Available at <https://i4c.conference.evey.live/conferences/innovate-4-cities/stage/parallel-session/session/199>.

77. Yokohama Partnership of Resources and Technologies (Y-PORT), "The 10th Asia Smart City Conference", 26-28 October 2021. Available at <https://yport.city.yokohama.lg.jp/en/city-promotion/asia-smart-city-conference-asc-2>.

78. United Nations Energy, "The UN-Energy Pledge". Available at <https://www.un.org/en/energycompacts/page/registry>.

Commitment:	Commitment to Making Cities More Liveable
Organization:	Asian Development Bank
Description:	To provide US\$ 2.5 billion annual financing for urban infrastructure projects from 2020 to 2024, which will support cities to improve the coverage, quality, efficiency and reliability of services in urban areas; strengthen urban planning and financial sustainability of cities; and improve urban environment, climate resilience, and disaster management.
Progress to date:	ADB is now committed to providing upwards of US\$ 3 billion in annual financing for urban infrastructure projects from 2021 to 2024, of which 25 per cent will be climate-related financing. The financing will support cities to improve the coverage, quality, efficiency and reliability of services in urban areas; strengthen urban planning and financial sustainability of cities; and improve urban environment, climate resilience, and disaster management, with focus on building back better post COVID-19. This includes a new carbon fund, the Climate Action Catalyst Fund (CACF) that was announced at COP26. ⁷⁹
Commitment:	Localizing SDGs for Asia-Pacific Cities
Organization:	United Governments and Local Governments, Asia Pacific (UCLG ASPAC)
Description:	To support at least 50 cities and provinces to develop SDG aligned local plan, climate change action plans, local disaster plans and/or participatory design and construction of public spaces by 2022.
Progress to date:	<p>UCLG ASPAC has already achieved its commitment. They have supported more than 30 local governments in Indonesia in mainstreaming the SDGs to the local development plan and SDGs action plan under the EU-funded programme LOCALISE SDGs (Leadership, Ownership, and Capacities for Agenda 2030 Local Implementation and Stakeholders Empowerment for Sustainable Development Goals) which concluded in June 2021. The LOCALISE SDGs programme has raised the awareness of more than 200 local governments in Indonesia and provided capacity-building programmes to more than 6,000 local government officials.</p> <p>UCLG ASPAC is also working with two provinces in Pakistan in mainstreaming the SDGs in the local development processes under the EU-funded LEAD for SDGs (Local Empowerment, Advocacy and Development for SDGs Localization in Pakistan) program that is expected to end by 2023.</p> <p>In addition, UCLG ASPAC is working with 10 pilot cities in Indonesia to integrate climate resiliency in local development plans under the EU-funded CRIC (Climate Resilient and Inclusive Cities) program that is expected to end by 2024. ESCAP and UCLG ASPAC have also produced modules on SDG 7 localization. Prior to the modules' development, UCLG ASPAC undertook a survey on the training needs of local governments in SDG 7. As the host of GCoM SEA Secretariat, UCLG ASPAC supports cities and local governments on issues related to climate change, including the race to resilience and race to zero. More than 80 cities in South-East Asia are currently involved in GCoM, and are expected increase to 150 by 2023.</p>
Commitment:	Better Knowledge on Urban Post-Earthquake Restoration
Organization:	Kumamoto City, Japan
Description:	To contribute to the further development of the international community as an SDG city, by sharing the urban development initiatives, disaster prevention plans, and emergency response strategies that the city developed through experiences in the Kumamoto Earthquake on both the international and domestic levels by 2023.
Progress to date:	TBC
Commitment:	Sustainable Development for Local Governments in the Asia-Pacific Region
Organization:	CityNet Secretariat
Description:	To accelerate engagement of capacity-building activities of its 154 members to localize SDGs in sustainable infrastructure, climate action, disaster risk reduction, affordable housing, smart cities, and waste management to support localization of the SDGs by 2021.
Progress to date:	TBC
Commitment:	Green Low Emission Urban Development
Organization:	Seberang Perai City Council, Malaysia
Description:	To become a low-carbon city that: utilizes 15 per cent renewable energy; requires the installation of all street lights to be LED lights; increase its recycling rate to 70 per cent and reduce garbage by 50 per cent per capita; and plant 100,000 trees by 2022.
Progress to date:	TBC

79. Asian Development Bank (ADB), "ADB launches new carbon fund to incentivize climate investments", News Release, 10 November 2021. Available at <https://www.adb.org/news/adb-launches-new-carbon-fund-incentivize-climate-investments>.

Commitment:	A New Partnership for Action to Implement the New Urban Agenda and the Urban SDGs in the Pacific
Organization:	Pacific Islands Forum Secretariat and Pacific Island Forum Partners
Description:	To ensure successful implementation of the outcomes of the Pacific Urban Forum by 2023.
Progress to date:	<p>Emerging from the Fifth Pacific Urban Forum (PUF5) in 2019 and to accelerate the implementation of the Pacific New Urban Agenda, the <i>Pacific Partnership for Implementing the New Urban Agenda (PP-NUA)</i> was formed. A virtual Pacific Urban Forum event was held in 2021, from which several key urban development challenges and priority areas arose, as well as the country interview process and a regional literature review. The following topics will form the basis of a longer-term workplan for implementation by the PP-NUA in collaboration with Pacific Island Countries and regional development partners.</p> <ul style="list-style-type: none"> • Pillar 1: Social Equity and Urbanization • Pillar 2: Environment, Resilience and Urbanization • Pillar 3: Urban Economy • Pillar 4: Urban Governance
Commitment:	The Penang Platform for Sustainable Urbanization
Organization:	ESCAP and UN-Habitat, on behalf of 15 member organizations
Description:	To provide joint technical assistance to at least 10 cities for localizing the SDGs by 2023, including by applying the policy pathways (See Section 2) from <i>The Future of Asian and Pacific Cities</i> report.
Progress to date:	<p>ESCAP and UN-Habitat have already fulfilled their commitment of providing technical assistance to 10 cities for localizing the SDGs by 2023. Most recently, a project on SDG localization was completed in 5 cities across Asia and the Pacific (Battambang, Cambodia; Nadee, Thailand; Naga, the Philippines; Nassinu, Fiji; and Ulaanbaatar, Mongolia). Through the project, local and subnational government officials gained knowledge of social, economic and environmental context (SDGs) as linked to natural resource management and sustainable consumption and production, including increased capacity with evidence-based decision-making through multi-stakeholder consultations, reliable data and statistical analysis, and systems-thinking approach. The vertical integration of SDGs between local and national levels ensured that SDG-aligned resource management issues in urban areas are taken up by the national government when conducting follow up and review for the Voluntary National Reviews are fed into the High-level Political Forum.</p> <p>Further, ESCAP co-developed and launched Regional Guidelines on Voluntary Local Reviews, and then initiated a pilot to support six cities from the region: Dhulikhel, Nepal; Naga City, the Philippines; Nakhon Si Thammarat, Thailand; Singra, Bangladesh; Subang Jaya, Malaysia; and Surabaya, Indonesia, to report on progress and challenges in implementing the SDGs through VLRs as part of national and regional VNR support processes. As part of its support package, ESCAP has also developed a dedicated e-learning portal to provide tailored guidance on the VLRs. The portal will also act as a platform for local and national stakeholders to engage and share experiences and lessons learnt from their VLR journey with their peers. UN-Habitat is supporting the development of the VLR of Moscow, the Russian Federation, and in Bhopal, India. Furthermore, a UNDAT14 project on VLRs will start in 2022, supporting pilot cities in Georgia and Kyrgyzstan. ESCAP is a project partner.</p> <p>ESCAP and UN-Habitat are also supporting SDG localization through other projects, such as Implementation of the New Urban Agenda in Cambodia (Battambang), Philippines (Naga) and Kazakhstan (Almaty), which is considered as the SDG accelerator and providing technical assistance in economic recovery in the post-COVID era in India (Pune), Viet Nam (Hoi An); Fiji (Suva) and Malaysia (Subang Jaya). In Thailand, trainings on SDG localization will be delivered by UN-Habitat in three cities during November 2021: Hatyai, Chiang Mai and Khon Kaen.</p>
Commitment:	Asia Pacific Mayors Academy
Organization:	Presented by Mayor of Nili City, Afghanistan, on behalf of Academy partners.
Description:	To build the capacity of at least 20 mayors and create a network of sustainability champions in the region with partners by 2021.
Progress to date:	<p>The Asia Pacific Mayors Academy was launched at APUF-7 in October 2019 through a partnership among ESCAP, UN-Habitat, UN University Institute for Advanced Study of Sustainability (UNU-IAS), United Cities and Local Governments Asia Pacific (UCLG-ASPAC), Association of Pacific Rim Universities (APRU), and the Institute for Global Environmental Strategies (IGES).</p> <p>The partners developed and delivered a curriculum on sustainable urban development based on the thematic pillars of <i>The Future of Asian & Pacific Cities</i> report (Urban and Territorial Planning; Urban Resilience; Smart Cities and Technologies; Urban Finance). Over two Academy classes, 21 mayors have completed the course and developed local initiatives which incorporated and expert feedback from the Academy.</p> <p>In the first class of the Academy in 2019-2020, 12 mayors from seven countries (Afghanistan-3; Kiribati-1; Malaysia-1; Myanmar-1; Nepal-3; Philippines-3; Solomon Islands-1). The class developed initiatives including on waste management, flooding, eco-tourism, urban planning, urban resilience, sewage and wastewater management. Experts from ADB, World Bank, UNDRR, UNEP and other institutions provided feedback to the mayors on their local initiatives.</p>

Progress to date:	For the 2020-2021 class, 10 mayors from 5 countries (Indonesia, Iran, Philippines, Sri Lanka, Thailand) completed the curriculum, developing initiatives on waste, relocation, cultural heritage and disaster preparedness. Similarly, mayors received expert feedback on planning and implementation of sectoral initiatives.
Commitment:	International Urban Cooperation Programme Asia, Phase II
Organization:	European Union – International Cooperation Programme
Description:	To share knowledge, create innovative solutions, generate new economic opportunities by supporting cooperation on sustainability for at least 30 Asian cities by 2023.
Progress to date:	<p>UC contributed to localizing the SDGs in the following way:</p> <ul style="list-style-type: none"> • Political endorsement by the Chinese Government (NDRC), by cities / regions from Europe, China and Malaysia • Strong participation in relevant international events like the Asia Pacific Urban Forum (here IUC authored the resilience chapter of the UN ESCAP Report The State of Asian Pacific Cities 2019 and chaired the resilience thematic activities) • Cooperation with UNESCAP during 2020 especially on post Covid cities scenarios and on Voluntary Local Reviews (VLR) • Delivering concrete gains for EU, Chinese & Malaysian cities through plans with pilot projects driven by stakeholders • Delivering over 20 concrete pilot projects within the EU China cities cooperation based on a triple helix approach • Establishing structured , ongoing thematical exchanges through digital means (webinars, coachings, matchings) • Engagement of high level political leaders and experts from Europe & Asia in the cooperation <p>Contribution to SDGs Climate Action</p> <ul style="list-style-type: none"> • Successful cooperation with national authorities in Indonesia (MoEF), Vietnam MoNRE), Malaysia (Plan Malaysia / Ministry of Housing and Local Government) for vertical integration of the climate action planning process. • Engaging with international (CDP, C40, ICLEI, UN), European (JRC) and local (CCROM, UTM) climate action partners • 13 CAPs in pilot cities in Indonesia, Malaysia and Vietnam. • 4 provincial CAPs in Korea revised. • Strong endorsement by the Chinese Government (MEE) in the cooperation with the EU on mitigation and adaptation • EU cities CAPs recognized best practices for cities in Asia (both mitigation and adaptation), including China.

The need for a better monitoring framework for voluntary commitment progress:

APUF-7 served as a platform for collective accountability and self-reporting exercises for the 10th World Urban Forum (held in Abu Dhabi in 2020), as well as the Asia-Pacific Forum on Sustainable Development (hosted by ESCAP every year in March).

In obtaining an update on voluntary commitments, it has become evident that the planned data collection methods via the 10th World Urban Forum, as well as the annual Asia-Pacific Forum on Sustainable Development, are not sufficient for partners to update each other on progress. There is a lack of data to monitor progress towards realizing the commitments. It is therefore recommended that a formal mechanism should be implemented within the APUF structure, to follow-up on commitments. It is also recommended that future commitments are clearly measurable, with indicators that can be monitored over time.

References

Abu Dhabi Declared Actions. Available at <https://www.urbanagendaplatform.org/actions#:~:text=The%20Abu%20Dhabi%20Declared%20Actions%20The%20Tenth%20Session,Sustainable%20Development%20Goals%20in%20the%20Decade%20of%20Action>.

Ali, Mansoor and Di Bella, Veronica (2016). Topic guide: Solid waste management, Evidence on Demand Series, UK Department for International Development (DFID). April. Available at https://assets.publishing.service.gov.uk/media/57a08954e5274a31e000001c/EoD_Topic_Guide_Solid_Waste_Management_Final.pdf.

Asian Development Bank (ADB) (2010). Wastewater treatment: Case Study of public–private partnerships (PPPs) in Shanghai. November. Available at https://ppp.worldbank.org/public-private-partnership/sites/ppp.worldbank.org/files/documents/Shanghai_urbandev-prc-nov2010-wastewater_EN.pdf

_____ (2021). ADB launches new carbon fund to incentivize climate investments. News Release. 10 November. Available at <https://www.adb.org/news/adb-launches-new-carbon-fund-incentivize-climate-investments>.

_____ (n.d). Asia and the Pacific is the frontline of the climate change battle. Available at <https://www.adb.org/climatebank>.

Association of Southeast Asian Nations (ASEAN). ASEAN Smart Cities Network. Available at <https://asean.org/our-communities/asean-smart-cities-network/>.

_____ ASEAN Smart Cities Network, Concept Note. Available at <https://asean.org/wp-content/uploads/2019/02/ASCN-Concept-Note.pdf>.

Berlin, A., X. Zhang, and Y. Chen (2020). Case Study: Electric buses in Shenzhen, China. Available at <https://iea.blob.core.windows.net/assets/db408b53-276c-47d6-8b05-52e53b1208e1/e-bus-case-study-Shenzhen.pdf>.

Block-by-Block Foundation. Available at <https://www.blockbyblock.org>.

C40 Cities Finance Facility (2017). Explainer: How to finance urban infrastructure. Guidance Document. Available at <https://www.c40cff.org/knowledge-library/explainer-how-to-finance-urban-infrastructure>.

Cities Climate Finance Leadership Alliance (CCFLA). Available at <https://citiesclimatefinance.org>.

Cyber Security Agency (CSA) Singapore (2021). The Singapore Cybersecurity Strategy 2021. Available at <https://www.csa.gov.sg/News/Publications/singapore-cybersecurity-strategy-2021>.

Faust, Amy and others (2020). Land pooling in Nepal: From planned urban ‘islands’ to city transformation. South Asia Working Paper Series, No. 72. Manila, Philippines: Asian Development Bank. August. Available at <https://www.adb.org/sites/default/files/publication/626076/sawp-072-land-pooling-nepal.pdf#:~:text=Land%20pooling%20is%20one%20of%20several%20tools%20that,landowners%2C%20who%20get%20back%20more%20valuable%20serviced%20land>.

GreenCambodia. Available at <https://play.google.com/store/apps/details?id=org.i4di.t4gc&hl=en&gl=US>

Hoegh-Guldberg, Ove and others (2018). Impacts of 1.5°C global warming on natural and human systems. In *Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty*, V. Masson-Delmotte and others, eds. In Press.

Institute for Global Environmental Strategies (IGES) (2021). From Reporting to Action: How 'Voluntary Local Review' can Amplify Local Sustainability. IGES webinar on VLR. 28 June. Available at <https://www.iges.or.jp/en/events/20210628>

Intergovernmental Panel on Climate Change (IPCC) (2014). Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II, and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. Geneva, Switzerland.

_____ (2021). Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change. Cambridge University Press.

International Association for Public Participation. IAP2 Resources. Available at <http://www.iap2.org/general/custom.asp?page=resources>.

Kaza, Silpa and others (2018). What a waste 2.0: A Global Snapshot of Solid Waste Management to 2050. Urban Development Series. Washington, D.C., World Bank.

Makumbe, Pedzi and others. Proven delivery models for LED public lighting: Municipal financing delivery model Quezon City, Philippines, Case Study. Available at https://www.esmap.org/sites/esmap.org/files/DocumentLibrary/Quezon%20City%20-%20Proven%20LED%20Delivery%20Models8_Optimized_Final.pdf.

Mehrotra, Shagun and others (2020). Greater than parts: A metropolitan opportunity. Washington, D.C., World Bank. 13 November. Available at <https://www.thegpsc.org/knowledge-products/GTP#:~:text=Greater%20Than%20Parts%3A%20A%20Metropolitan%20Opportunity%20presents%20nine,and%20inspire%20action%20by%20cities%20around%20the%20world.>

Moon-Miklaucic, Christopher and others (2019). Financing electric and hybrid-electric buses: 10 questions city decision-makers should ask. Working Paper. Washington, D.C., World Resources Institute. Available at <https://wrirosscities.org/sites/default/files/financing-electric-hybrid-electric-buses.pdf>.

New Delhi Declaration. Available at <https://apmchud.com/PDF/NEW%20DELHI%20DECLARATION%202016.pdf>.

Ortiz-Moya, Fernando and others (2020). State of the Voluntary Local Reviews 2020: Local Action for Local Impact in Achieving the SDGs. Working Paper. Institute for Global Environmental Strategies. April. Available at <https://www.iges.or.jp/en/pub/vlrs-2020/en>.

Ortiz-Moya, Fernando and others (2021a). Accelerating Sustainable Transitions Through Voluntary Local Reviews (VLRs). Presentation. 13 October 2021. Available at <https://i4c.conference.evey.live/conferences/innovate-4-cities/stage/parallel-session/session/199>

Ortiz-Moya, Fernando and others (2021b). How can Voluntary Local Reviews (VLRs) Amplify Local Sustainability?". International Institute for Sustainable Development (IISD), SDG Knowledge Hub. 22 September. Available at <https://sdg.iisd.org/commentary/guest-articles/how-can-voluntary-local-reviews-vlrs-amplify-local-sustainability/>

Ortiz-Moya, Fernando (2021c). The Making of Future Tokyo – The Reason Why the Local Governments Work on the SDGs. Tokyo Updates, Society. 7 September. Available at <https://www.tokyouupdates.metro.tokyo.lg.jp/en/post-374/>

The Global Innovation Lab for Climate Finance. Breathe Better Bond. Available at <https://www.climatefinancelab.org/project/breathe-better-bond/#:~:text=The%20Breathe%20Better%20Bond%20is%20a%20bond%20issued,reduce%20both%20air%20pollution%20and%20greenhouse%20gas%20emissions.>

_____ GROVE: Forestry Smart Ledger (FSL). Available at <https://www.climatefinancelab.org/project/grove-forestry-smart-ledger/>.

The Royal Society (2020). If emissions of greenhouse gases were stopped, would the climate return to the conditions of 200 years ago?. Royal Society Answer 20. March. Available at <https://royalsociety.org/topics-policy/projects/climate-change-evidence-causes/question-20/>.

United Cities and Local Governments Asia-Pacific (UCLG ASPAC) (2020). Surabaya: Host of the World Habitat Day 2020. 30 October. Available at <https://uclg-aspac.org/en/surabaya-host-of-the-world-habitat-day-2020/>.

United Nations Department of Economic and Social Affairs (UN DESA). Global Guiding Elements for Voluntary Local Reviews of SDG implementation. Available at https://sdgs.un.org/sites/default/files/2021-06/GlobalGuidingElementsforVLRs_FINAL.pdf.

_____ Sustainable Development Knowledge Platform: Voluntary National Reviews. Available at <https://sustainabledevelopment.un.org/vnrs/>.

_____ Voluntary Local Reviews. Available at <https://sdgs.un.org/topics/voluntary-local-reviews#:~:text=Paragraph%2089%20of%20the%202030%20Agenda%20calls%20on,SDG%20implementation%2C%20also%20called%20Voluntary%20Local%20Reviews%20%28VLRs%29>.

United Nations Economic and Social Commission for Asia and the Pacific (ESCAP) (2019). *The Future of Asian and Pacific Cities 2019: Transformative Pathways Towards Sustainable Urban Development*. United Nations publication.

_____ (2020a). *Asia-Pacific Regional Guidelines on Voluntary Local Reviews: Reviewing Local Progress to Accelerate Action for the Sustainable Development Goals*. United Nations publication.

_____ (2020b). *The Future of Asian and Pacific Cities: Transformative Pathways Towards Sustainable Urban Development in the Post COVID-19 Era*. United Nations publication.

_____ (2020c). *Vertical Integration of Climate Policies and Actions in Asia-Pacific Cities*. United Nations publication.

_____ Closing the Loop. Available at <https://www.unescap.org/projects/ctl>.

_____ Voluntary Local Reviews. Available at <https://vlr.unescap.org>.

United Nations Economic and Social Commission for Asia and the Pacific (ESCAP) and others (2019). Seventh Session of the Asia-Pacific Urban Forum (APUF-7). Summary Report. 15-17 October. Available at [https://uploads-ssl.webflow.com/5ce1706c8eff8b55910872f6/5f1811a1ba281747f6fbf6d8_APUF-7Report\(final\)-compressed.pdf](https://uploads-ssl.webflow.com/5ce1706c8eff8b55910872f6/5f1811a1ba281747f6fbf6d8_APUF-7Report(final)-compressed.pdf).

United Nations Economic and Social Commission for Asia and the Pacific (ESCAP) and National Institute of Environmental Research (2020). Introduction to Geostationary Environmental Monitoring Spectrometer and Pandora Asia Network. 24th session of ICC on RESAP. 18-19 August. Available at https://www.unescap.org/sites/default/files/21.%20NIER_Introduction%20to%20Geostationary%20Environmental%20Monitoring%20Spectrometer%20and%20Pandora%20Asia%20Network.pdf.

United Nations Energy. The UN-Energy Pledge. Available at <https://www.un.org/en/energycompacts/page/registry>.

United Nations Human Settlements Programme (UN-Habitat) (2021). *Cities and Pandemics: Towards a More Just, Green and Healthy Future*. Nairobi, Kenya May 2021. Available at https://unhabitat.org/sites/default/files/2021/03/cities_and_pandemics-towards_a_more_just_green_and_healthy_future_un-habitat_2021.pdf.

_____ Her City tool. Available at <https://hercity.unhabitat.org>.

_____ Republic of Turkey: Progress in the implementation of the New Urban Agenda. Available at <https://www.urbanagendaplatform.org/member-states/republic-turkey/republic-turkey-national-report-oct-2020-sep-2024>.

_____ Urban Agenda Platform. Available at <https://www.urbanagendaplatform.org>.

_____ Voluntary Local Reviews. Available at <https://unhabitat.org/topics/voluntary-local-reviews>.

United Nations Human Settlements Programme (UN-Habitat) and Global Land Tool Network (GLTN). Social Tenure Domain Model. Available at <https://stdm.gltm.net>.

United Nations Human Settlements Programme (UN-Habitat) and Habitat III Secretariat (2017). *Habitat III Regional Report: Asia and the Pacific: Transformative urbanization for a resilient Asia-Pacific*. United Nations publication.

United Nations Human Settlements Programme (UN-Habitat) and United Cities and Local Governments (UCLG) (2020). Guidelines for Voluntary Local Reviews: Volume 1 – A comparative Analysis of Existing VLRs. Barcelona. Available at https://www.uclg.org/sites/default/files/uclg_vlrlab_guidelines_2020_volume_i.pdf#:~:text=Voluntary%20Local%20Reviews%20and%20Voluntary%20National%20Reviews%20should,government.%20VLRs%20are%20more%20than%20just%20mechanisms%20for

_____ (2021). Guidelines for Voluntary Local Reviews: Volume 2 – Towards a new generation of VLRs: Exploring the local-national link. Kenya. July. Available at https://unhabitat.org/sites/default/files/2021/07/vlrguidelines_vol2.pdf.

United Nations Sustainable Development Group (2020a). COVID-19 in an urban world. Policy Brief. July. Available at <https://unsdg.un.org/resources/policy-brief-covid-19-urban-world#:~:text=Policy%20Brief%3A%20COVID-19%20in%20an%20Urban%20World%20July,areas%20have%20become%20the%20epicentre%20of%20the%20pandemic>.

_____ (2020b). Framework for the immediate socio-economic response to COVID-19. April. Available at <https://unsdg.un.org/resources/un-framework-immediate-socio-economic-response-covid-19>.

Wilson, Matt and others (2021). Digital Dividends in Plastic Recycling. GSMA Climate Tech Report. April. Available at <https://www.gsma.com/mobilefordevelopment/resources/digital-dividends-in-plastic-recycling/>.

World Bank (2016). Case studies in blended finance for water and sanitation: Pooled municipal bond issuance in Tamil Nadu (India). Summary Overview. August. Available at <https://documents1.worldbank.org/curated/en/702211472040099035/pdf/107974-BRI-P159188-BlendedFinanceCasesIndia-PUBLIC.pdf>.

World Health Organization (WHO) (2018). One third of global air pollution deaths in Asia Pacific. News Release. Manila, Philippines. 2 May. Available at <https://www.who.int/westernpacific/news/item/02-05-2018-one-third-of-global-air-pollution-deaths-in-asia-pacific>.

Yokohama Partnership of Resources and Technologies (Y-PORT). The 10th Asia Smart City Conference. 26-28 October 2021. Available at <https://yport.city.yokohama.lg.jp/en/city-promotion/asia-smart-city-conference-asc-2>.

Zickfeld, K., and others (2013). Long-term climate change commitment and reversibility: An EMIC intercomparison. *Journal of Climate*, vol. 26, No. 16 (May), pp. 5782–5809.

