



GLOBAL ENVIRONMENT FACILITY
INVESTING IN OUR PLANET

Advancing Urban Sustainability for a Green Recovery

LEARNING FROM THE GEF'S
SUSTAINABLE CITIES PROGRAM



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EXECUTIVE SUMMARY

Cities are at a critical juncture. As major contributors to the global economy, they are playing a fundamental role in building global prosperity and achieving sustainable development goals. At the same time, their rapid and uncontrolled expansion is leading to environmental degradation¹ which needs to be checked urgently for its sustenance. On top of this, with 90 percent of all reported COVID-19 cases in the first wave in cities,² the pandemic has impacted almost every facet of urban development. Particularly, the poor and vulnerable urban population has been disproportionately impacted by the deepening of environmental, economic, social and health challenges.³ These interrelated challenges and dynamics have reinforced the need to develop cities that are sustainable, livable and resilient to shocks. With over two years since the pandemic began and a period which witnessed increased climate extremes and nature loss, cities have the opportunity to recover from the multiple impacts in a manner that systematically integrates nature, climate and social inclusivity. Embracing a green and resilient recovery at this point in time can be a cornerstone for a lasting urban transformation.

Recognizing the importance of addressing growing urban challenges to tackle environmental degradation, the Global Environment Facility (GEF) launched its Sustainable Cities Program as an Integrated Approach Pilot Program in 2017 under the GEF-6 phase. The cohort of cities was later expanded in GEF-7, as an Impact Program named *UrbanShift*. Combined, these two programs support more than 50 cities across 17 countries, have provided \$310 million in grant funding and leveraged nearly \$4 billion of co-financing. This report aims to capture lessons from the program and showcase how local and national governments can steer investments towards solutions that contribute to healthier and more inclusive cities and economic recovery, while at the same time generating environmental benefits.

Based on the experience from the GEF's sustainable cities program, the report highlights four key elements of urban sustainability that have emerged as relevant in tackling the COVID-19 pandemic. First, the pandemic serves as a reminder that it is through **integration** across three dimensions (institutionally, spatially and with nature) that cities have been able to move beyond suboptimal interventions and maximize their potential to achieve better results together. Secondly, the ability of cities to build multi-hazard **resilience** has been essential in managing the ongoing health crisis and will also be able to withstand future shocks, be it climate change, natural disasters, conflicts, or new pandemics. Thirdly, the pandemic has been a wakeup call for equality and environmental justice, emphasizing how **inclusion** can contribute to a fair urban recovery and catalyze the behavioral change needed to meet global environmental goals. Lastly, cities have witnessed how **health** underpins all aspects of human development. Within this context, the latest *Healthy Planet, Healthy People* approach has become increasingly relevant in an urban context where synergies between environmental and public health goals can lead to improved well-being of citizens.

Lessons learnt from projects under the GEF's Sustainable Cities Program as well as other initiatives show that many cities in developing countries have found innovative solutions that directly contribute to the four sustainability elements mentioned above. Cities adopting a strategic and well-planned density prevent urban sprawl and environmental degradation, and build vibrant and well-connected neighborhoods which create improved conditions for the delivery of various urban services, including public health. These advantages are demonstrated in the Transit-Oriented Development planning in Tianjin, Ningbo, and Shenzhen (China), through inclusive and resilient housing in Abidjan (Côte d'Ivoire), seen in a decentralized eco-district

in Johannesburg (South Africa), and are also guiding the planning of people-centered hubs in Mendoza (Argentina). Several cities that started implementation of designed projects for GEF funding during the pandemic prioritized Nature-based Solutions, considering the multiple environmental, social, and economic benefits that it offers and its direct contribution to public health. Inspiring progress was showcased through transboundary planning and integration of nature in urban areas in Asunción (Paraguay) and San José (Costa Rica), urban wetlands and forests for resilience and climate change mitigation in Kigali (Rwanda) and Freetown (Sierra Leone), and the proposed lake restoration for ecosystems and biodiversity benefits in Chennai (India). Cities also provide the perfect context for circular economy solutions for effective waste management, and to reduce the urban resource requirements or the “weight of cities.”⁴ Some successful approaches that are brought up in this report include a new multi-stakeholder platform for handling of electronic waste in Lagos (Nigeria), spatial optimization for solid waste management in Indore (India), and urban food production led by local communities in Rosario (Argentina). These three solutions have the opportunity to contribute to a green and resilient recovery in cities as they present high potential for creation of new jobs, improved productivity and revenues, reduced pollution and waste and better health and sanitation.

All such solutions have been adopted and advanced by cities thanks to a set of key enablers within the projects. They include the willingness of cities to strengthen partnerships for inclusive governance and co-creation which helped cities to engage with the private sector and civil society, and focus on the most vulnerable communities. Innovative financing mechanisms and instruments have emerged as important strategies for cities to mobilize financial resources by unlocking new investment opportunities including from the private sector. Finally, the use of data, indicators and digital tools in these cities is bringing endless possibilities to improve planning, tracking and monitoring progress,

with COVID-19 boosting use of new tools to combat not only the pandemic but also environmental challenges of climate change, waste and pollution, land degradation or biodiversity loss. These enablers are being underpinned by a strong city leadership demonstrated throughout the pandemic, and this will remain a critical driver to maximize opportunities and navigate cities towards urban transformation.

In looking ahead, strategic planning and investments that deliver sustainability benefits across multiple dimensions offer win-win opportunities for the environment, people and economic recovery. Cities adopting an integrated approach to urban planning and making use of data and evidence-based decision-making can learn the right lessons from the pandemic. A better understanding of the systemic impact of COVID-19 and its interaction with environmental stressors, including climate change and loss of nature, brings possibilities to transform cities to be better places to live. And as cities’ ambitions and leadership become stronger, and more aligned with national strategies, it will help countries bounce back from the pandemic while also contributing to their sustainability goals.

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This report draws on the experience and lessons learnt from the GEF-6 and GEF-7 Sustainable Cities Program, which have been made possible thanks to the work of several GEF Agencies in designing and implementing global coordination projects as well as country and city-level interventions. In

GEF-6, the Sustainable Cities Integrated Approach Pilot including the Global Platform for Sustainable Development (GPSC) is led by the World Bank in partnership with African Development Bank (AfDB), Asian Development Bank (ADB), Development Bank of Southern Africa (DBSA), C40, ICLEI – Local Governments for Sustainability, Inter-American Development Bank (IDB), UN Development Programme (UNDP), United Nations Industrial Development Organization (UNIDO), and World Resources Institute (WRI). The GEF-7 Sustainable Cities Impact Program, under its brand name *UrbanShift*, is led by the UN Environment Programme (UNEP), and implemented together with ADB, C40, ICLEI, UNDP, World Bank, and WRI.

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INTRODUCTION



Cities are emerging as agents of change in tackling the impacts of climate change, biodiversity loss and socio-economic disruptions caused by COVID-19.⁵ The growing political leadership of cities, their connections with other cities through global city networks, innovation potential and hubs of future investment are poised to support urban transformation of future cities. Several international conventions and frameworks have pointed out the important role of cities in achieving sustainable development, including the Paris Agreement, the Post-2020 Global Biodiversity Framework, and the 2030 Agenda for Sustainable Development.

The complex economic, social and environmental challenges arising from rapid urbanization and the COVID-19 pandemic, and the prospect of building back better and greener, has given cities a short but important window of opportunity to get onto a more sustainable path. The lessons of the past must now be applied to shape the urban future. Will cities grasp this chance to change path?

While much has been written and analyzed on sustainable urbanization in the developed world, cities in the developing world offer enormous opportunities to improve lives for large urban populations while contributing global environmental

benefits. Some of the world's developing and least developed countries are home to the fastest growing urban populations, and many cities are already taking action towards an urban transformation that can contribute directly to green economic recovery.⁶

The purpose of this report is to showcase how local and national governments can steer investments towards solutions that contribute to healthier and more inclusive cities and economic recovery, while at the same time generating environmental benefits. It captures lessons learnt from cities in the developing world, drawing from the experience of the GEF's Sustainable Cities program. The report also builds on the work of the GEF's Task Force on COVID-19⁷ as well as other publications on the topic of cities and the pandemic, including the UN Secretary-General's Policy Brief on COVID-19 in an Urban World.⁸

By highlighting key urban sustainability elements, impactful solutions, and effective enablers emerging from the GEF as well as other actors, these lessons can provide cues to decision-makers and key urban stakeholders engaged in shaping fiscal stimulus for economic recovery to adopt these in their urban plans and policies, for green, resilient and inclusive transformation.

SUSTAINABLE CITIES – THE CORNERSTONE FOR A THRIVING PLANET AND GREEN RECOVERY

Cities are drivers of economic growth and contribute 80 percent of global GDP as they draw in and metabolize resources to generate social and economic value.⁹ At the same time, unsustainable urbanization characterized by urban sprawl and growing inequalities is causing biodiversity loss, land degradation and social divides. Cities are also responsible for 70 percent of global GHG emissions,¹⁰ generate half of global waste¹¹ and contribute to air pollution and increased pressure on natural resources. Just over half of the world's population lives in cities today and this is expected to increase to two-thirds by 2050.¹² The land area covered by cities is also expanding rapidly, visibly, and often irreversibly. Unsustainable urbanization and urban sprawl could have serious consequences for the health of the planet and lead to loss of 290,000 square kilometers of natural habitat by 2030.¹³ Although urban areas currently cover only a small fraction of habitable land, a novel urbanization model suggests that fraction could increase up to sixfold by 2100¹⁴ and the fact that many environmental aspects, such as water and air-quality, are not limited by city jurisdictions adds complexity.

Urban areas in low- and middle-income countries are expanding much faster than those in wealthier countries. With most of the fastest-growing cities located in Asia and Africa, countries like India, China and Nigeria are projected to together account for 35 percent of the world's urban population increase between 2018 and 2050.¹⁵ This rapid urbanization in low-income countries in Sub-Saharan Africa and South Asia is likely to overwhelm the capacity to provide the necessary infrastructure, and according to the African Development Bank, most of the estimated \$40 trillion investments needed for new and upgraded infrastructure between 2005 and 2030 will be directed to cities in developing countries.¹⁶ Adding to that, the impact of climate change and

environmental degradation will be particularly acute in countries that are resource-constrained, stressed, or fragile.¹⁷ Health problems such as malnutrition, malaria, diarrhea, and heat stress caused by climate change will lead to 250,000 deaths every year, with direct costs of damage to health estimated to between \$2 and 4 billion per year by 2030.¹⁸ Much of that will hit developing countries.

Since its start in late 2019 the COVID-19 pandemic has had a tremendous impact on cities. Lockdowns and various restrictions have deepened many economic, social and health challenges, adding to existing environmental challenges that cities face. Public transportation systems almost halted, affecting connections inside and into cities for the many people who rely on that system, loss of livelihoods created pressure on governments to ensure food security, access to health services and decent housing. The virtual mode of working became a new normal, but was also characterized by inequitable access affecting the urban poor. While the first wave of the infections affected cities the most with 90 percent of all reported cases,¹⁹ the later waves of infection became more acute in suburbs and rural areas where the capacity to deal with such a pandemic was low.^{20,21}

The informal sector, a defining feature in many cities in developing countries, was hit particularly hard by the pandemic. Globally, as much as one billion people live in informal urban settlements, and with current trends this figure will be 3 billion by 2050.²² Around 90 percent of urban expansion in developing countries happens near hazard-prone areas, often as unplanned settlements located in exposed areas with inadequate infrastructure and low-quality housing.²³ The informal sector also represents 90 percent of total urban employment in low income countries,²⁴ and in Africa and Latin America informal workers





lost almost 80 percent of their income during the first month of the pandemic.²⁵ People in informal settlements struggled to access timely urban services such as health, housing and other social protection schemes. This compounded their rapidly increasing vulnerability from the impacts of climate change. Children and youth were among the most affected,²⁶ and for women the changes caused by COVID-19 increased their vulnerability due to increased time of unpaid work, higher rates of domestic violence, and larger economic uncertainty.²⁷

Now that cities are starting to recover from the pandemic, there are new opportunities to shift urban development in a direction that is more sustainable and resilient. Evidence indicates that well planned density, the integrated nature of cities and quality urban services such as good road networks and access to health services positively influenced cities' capacity to tackle the pandemic better.^{28,29} And as much as the pandemic exposed systemic urban challenges, it also showed how quickly behavioral change can come about when absolutely necessary. The importance of environmental

sustainability gained strong momentum, and many cities saw a more widespread use of green spaces and non-motorized transport, more efficient waste management and air quality benefits, and improved coordination between different levels of governments.

This development brought a growing recognition among city networks and urban leaders that adopting environmental sustainability approaches and tackling the pandemic need to go hand-in-hand to make cities resilient and livable.³⁰ During the time of recovery from the pandemic, more than 1000 cities committed to join the call for the Race to Zero and Race to Resilience – UN-backed global campaigns rallying non-state actors.³¹ This encouraging trend needs to be scaled up particularly in developing countries by translating these into policies, plans, incentives and investments in sustainability solutions. Cities focusing on climate, nature and people to build back better and greener present a unique opportunity to steer a clean and inclusive global economic recovery.

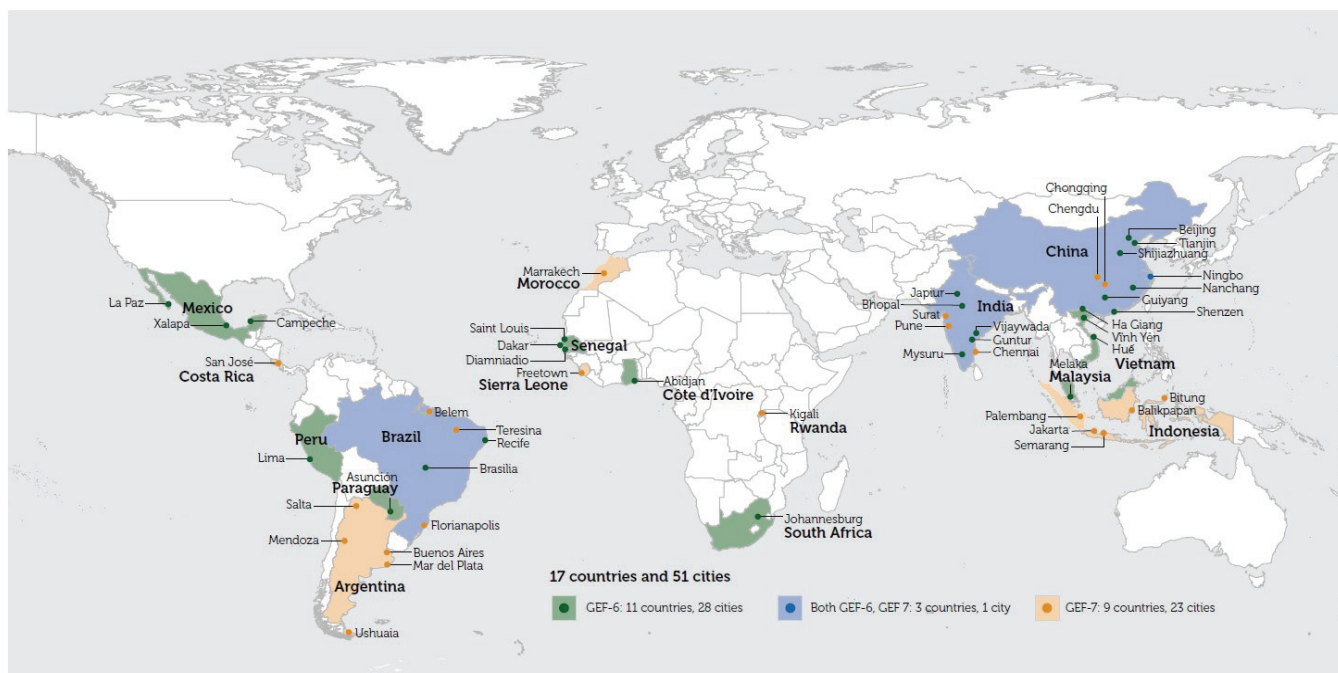
GEF'S SUSTAINABLE CITIES PROGRAM

In recognition of the growing needs for urban transformation to achieve sustainable development, the Global Environment Facility (GEF) launched the Sustainable Cities Integrated Approach Pilot Program in 2017 as part of the Sixth Replenishment phase (GEF-6). The pilot supports integrated solutions for urban mobility, clean energy, climate adaptation, and solid waste management in 28 cities across 11 countries located in the global South. Under leadership of the World Bank, the *Global Platform for Sustainable Cities* (GPSC) was created to facilitate city-to-city exchange and knowledge creation.

In the Seventh Replenishment phase (GEF-7), the Sustainable Cities Impact Program (branded as *UrbanShift*) was launched in 2021 to further advance GEF support to countries seeking to advance urban sustainability. Building on experience from the GEF-6 pilot and under leadership of the United

Nations Environment Programme (UNEP), *UrbanShift* aims to further advance the integrated approach through land use planning, urban plans and policies, vertical integration between national and local governments, enhanced finance mobilization and expanded partnerships. By addressing drivers of environmental degradation and working at the systems level to support policies, planning, financing and capacity development, the integrated programming approach brings together global, national, and local stakeholders towards a common vision of sustainable, inclusive, and resilient urban development.

The Sustainable Cities Program now supports more than 50 cities across 17 countries (Figure 1), with \$310 million in grant funding and nearly \$4 billion of co-financing from diverse sources. The country- and city-level investments focus on delivering integrated



Disclaimer: This map is for illustrative purposes and does not imply the expression of any opinion on the part of the Global Environment Facility, concerning the legal status of any country or territory or concerning the delimitation of frontiers or borders.

Figure 1. Map of countries and cities participating in the GEF's Sustainable Cities Program.

urban solutions for local and global environmental benefits, while the global platform enhances the potential for amplifying the benefits across many more cities in recipient countries. Through this strong partnership approach, the program aims to scale up knowledge and innovation and bring together aspirational cities aiming for urban transformation for people and the planet.

With COVID-19 posing huge challenges for cities worldwide, harnessing urban sustainability opportunities to build back better has become a cornerstone of the program. The integration and systems level approach of the program driven by

the flexibility to support immediate as well as long term opportunities provided a great impetus to cities and program partners in aligning the program to contribute to green, resilient and inclusive recovery in cities. The collaborative approach further facilitated linkages with other programs and initiatives to add value to the global green recovery efforts by bringing new stakeholders, supporting best practices and fostering collaboration among cities.

More information and details can be found on the project pages at the [GPSC](#) for GEF-6 and at [UrbanShift](#) for GEF-7.



APPROACH AND STRUCTURE OF THE REPORT

Building on the GEF's experience with the Sustainable Cities Program, this report aims to provide insights on sustainability approaches that can contribute to urban transformation while also facilitating a green and resilient recovery in cities. It also benefits from work by the GEF's Task Force on COVID-19, which noted the need for cities to strengthen and extend their networks and focus on sectors that can support ecological transformation and job creation, such as decentralized urban energy, local food systems, and retrofitting buildings.³²

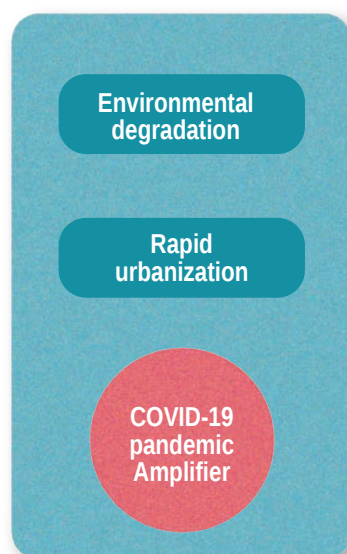
The sections below are structured around three main angles of incidence – Elements, Solutions and Enablers:

- Section 1 highlights key sustainability elements that have been derived from experience of

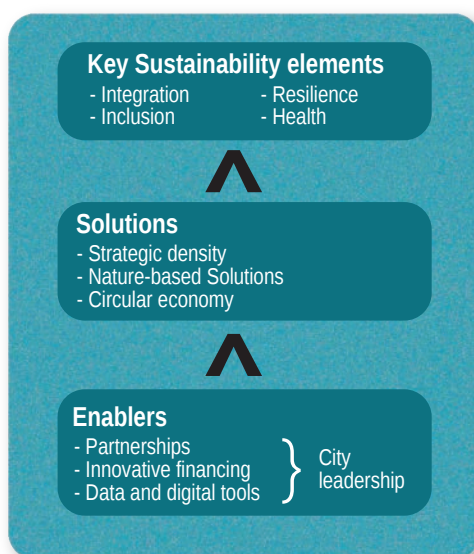
integrated urban planning within GEF's portfolio, and also informed by recent literature and publications on the impact of COVID-19 on cities specifically. The latter include the UN Secretary-General's Policy Brief on COVID-19 in an Urban World;³³ UN-Habitat's report Cities and Pandemics: Towards a More Just, Green and Healthy Future;³⁴ the Coalition for Urban Transitions' report Seizing the Urban Opportunity;³⁵ and OECD's publication Building back better: A Sustainable, Resilient Recovery after COVID-19.³⁶

- Section 2 presents concrete solutions that directly contribute to urban sustainability and resilience, while also contributing to a green recovery. This captures lessons learnt from the GEF's portfolio as well as from other partners and cities in developing countries.

Challenges



Responses



Goals



Learning from
GEF Projects



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GEF's Sustainable Cities Program

Figure 2. Connections between key elements, solutions and enablers needed for green recovery, global environmental benefits and urban transformation.

- Section 3 emphasizes some of the emerging enablers that have helped the successful implementation of these solutions, and which have benefitted an enabling environment for integrated urban planning.

The links between these responses, the challenges to tackle, and the goals they ultimately aim to fulfill are shown in Figure 2 below. It outlines how existing

challenges of environmental degradation and rapid urbanization are further amplified by the pandemic, highlighting the importance of green urban recovery response by cities to build more inclusive and resilient cities while delivering global environmental benefits and contributing to a long term urban transformation.



1. KEY ELEMENTS OF SUSTAINABILITY TO BUILD BACK BETTER

Just as a strong focus on cities is vital in solving the world's environmental and climate challenges, a global economic recovery is set to be driven by cities in terms of creation of new jobs and generating income.³⁷ This combination clearly sets cities as the units where green recovery will be shaped. But what elements of urban sustainability are particularly important to support cities in tackling these interlinked challenges? Experiences from the GEF's Sustainable Cities Program and other initiatives indicate *Integration, Resilience, Inclusion and Health* as key elements that came to light during the pandemic as essential building stones for sustainable cities. While these aspects are not entirely new and have been adopted by cities globally to some degree prior to the pandemic, it has often happened in a siloed or reactive manner rather than considering these together to tackle multiple challenges and stresses which cities are exposed to in the current times. This section gives an overview of these four key elements and their potential to support cities as they build back better and greener. More concrete examples of how cities are working with specific solutions and enablers to support these are described in Section 2 and Section 3.

1.1. Integration – Institutionally, Spatially, and with Nature

One of the main features of the GEF's Sustainable Cities Program is the integrated approach to urban planning. During the pandemic, integration has also been embraced as a foundation for successful urban responses. City leaders and stakeholders became increasingly aware of the importance of sharing knowledge, tools and lessons learnt to take on the recovery mission together and work across departments. Scientific evidence also suggests that integrated approaches can help solve complex environmental and socio-economic challenges

and deliver multiple environmental benefits by enhancing synergies and managing trade-offs.³⁸ This is particularly relevant in the urban context, given that cities are naturally integrated systems. Experience from numerous cities show how the integration aspect is being followed across three main dimensions:

- **Institutional integration** – with vertical alignment and coordination between national and local government towards common sustainability goals, and horizontal alignment with collaboration across sectors in urban planning, financing, and delivery of services to avoid siloed action.
- **Spatial integration** – both within cities to allow addressing multiple needs such as mobility, food production, waste management and settlements, as well as regionally by connecting cities with their surrounding metropolitan areas, their economies, and livelihoods.
- **Integration with nature and climate** – establishing synergies between natural systems and the built environment by i) bringing nature into cities, ii) connecting cities with natural ecosystems around them for key urban services such as clean air, water security and flood management, iii) linking cities and their ecological footprint with other regions or countries, through their supply chains and consumption patterns, and iv) mainstreaming climate action into urban policies and plans.

1.2. Resilience – Learning from the Pandemic to Prepare for Future Shocks

The resilience concept fundamentally recognizes that humans and nature are strongly coupled, and that rapid human development is pushing our planet dangerously close to its boundaries. Cities are in many ways a prime example of this.³⁹



However, the world's cities were not in a position to respond quickly in a state of added pressure from the COVID-19 pandemic. This revelation has created a much-needed window of opportunity to build back and become resilient to future stressors and shocks, and a lesson to learn from both the pandemic and extreme weather events is the need to better understand the vulnerability of individuals, communities, and societies, calling for strengthened risk communication, risk analysis, and monitoring methodologies and approaches.⁴⁰ As a response, cities and local governments worldwide are now increasingly integrating resilience in a more systematic way as they:

- **Build multi-hazard resilience in a more flexible manner, given the unpredictable future and interconnection of hazards such as climate and health**, through multifunctional land use, infrastructure and services, and by shaping their plans and policies to better allow for future upgrades depending on different scenarios.⁴¹
- **Prepare to tackle a wide range of unexpected future shocks to build long-term transformation for resilience and adaptation**, and develop interventions and governance models that do not limit themselves to pandemics but respond to the root causes and discover synergies between urban resilience, economic development, and green growth.⁴²
- **Recognize that urban resilience is never stronger than its weakest link**, to identify their vulnerabilities and weaknesses and apply resilience thinking to the whole system and all societal groups.

1.3. Inclusion – Enhancing Urban Equality and Equitable Benefits

Poorly planned or unplanned urban areas often broaden gaps between different community groups inside the cities, and between urban centers and their outskirts.⁴³ In addition, the pandemic has hit vulnerable groups disproportionately.⁴⁴ With people at the center, cities can create a fair urban recovery

and catalyze the behavioral change needed to meet global environmental goals.⁴⁵ Many cities are already advancing urban inclusion and environmental justice through:

- **More equitable access to essential urban infrastructure and services for higher quality of urban life**, while transitioning to low-carbon, nature-based and climate resilient infrastructure and services.
- **Addressing the specific needs of informal settlements and inclusion of the informal sector** in the creation of new green jobs in high-impact areas such as clean energy, green mobility, waste management and small industries, by prioritizing urban regeneration investments in informal settlements and formalizing relevant job sectors through participation by affected communities.
- **Enhanced the inclusion of women and youth in urban sustainability**, to not only address social inequities, but also to unlock their potential to contribute to economic growth and environmental decision making. Gender-inclusive design of urban spaces, infrastructure and services, and new governance models to promote women's and youth's leadership and voice in decision-making are among the solutions and enablers.

1.4. Health – Linking Human Health and Environmental Health in Cities

Health concerns have always been a driving factor in the planning and design of cities, with pandemics such as cholera and the Spanish Flu shaping cities in the past.⁴⁶ We now see how public health is far more than something to pay attention to once other basic needs are met; it is a foundation for all human development. The One Health approach, which emphasizes the interdependence between the health of humans, natural and built ecosystems, has increasingly been adopted across a broad range of sectors.⁴⁷ Further, research shows that over 50 percent of the factors that determine our state of health are linked to the physical, natural, and social environment, which are strongly influenced by the

cities we live in.⁴⁸ Transformative change in cities has the potential to address challenges to health and environmental sustainability simultaneously, as the two are interlinked and can mutually benefit from more integrated approaches.⁴⁹ There is a growing trend where cities now are benefitting from this to:

- **Let current public health services bring opportunities for environmental action**, recognizing synergies between human health, development and the environment, health as a motivating factor to tackle challenges such as climate change, which also helps preventing malnutrition, malaria, diarrhea, and heat stress.⁵⁰
- **Make use of the One Health approach, which can be applied across different sectors and scales, including cities and local communities**. This focus can be taken beyond the ongoing pandemic, and be applied not only to natural systems but also to urban and peri-urban settings.⁵¹
- **Address contextual root causes of poor urban health and its linkages with environmental aspects**. In the developing world, where unsafe water and poor hygiene kill an estimated 1.7 million people annually,⁵² this includes interventions to guarantee clean water, reduced air pollution, and sustainable waste management. Safer and cleaner mobility is becoming a priority, and much needed as 90 percent of global road deaths and injuries as well as most recorded air pollution-linked deaths occur in developing countries.⁵³
- **Use 'healthy cities' as a business case**, now that governments, mayors, and the private sector are increasingly seeing the importance of healthy residents and a healthy environment for social and economic benefits and have started sharing experience through initiatives such as Cities for Global Health.⁵⁴

2. SOLUTIONS DRIVING URBAN SUSTAINABILITY AND GREEN RECOVERY

The integrated and systems-based approach to urban planning that characterizes GEF's Sustainable Cities Program has led to a range of sustainability solutions that have emerged from embracing the four key elements of integration, resilience, inclusion and health identified in the previous section. These include strategic and well-planned density, nature-based solutions and circular economy. These all have the potential to address several environmental issues simultaneously and bring economic and social benefits for green recovery. It is important to acknowledge that there are other high impact solutions including scaling up clean energy and low carbon infrastructure in cities that can create jobs, revenues and tackle environment including climate change. As they have been already advanced and deliberated widely, this report focuses on the three solutions where efforts are emerging and more thrust is needed.

2.1. Strategic and Well-planned Density and Mobility

The ability of cities to manage density is imperative to tackle environmental degradation. In many cities worldwide carbon emissions continue to go up despite the advance of clean technologies, which is partly linked to vast outward expansion and suburban growth. The large impact of the pandemic on cities also raised questions what urban density should look like, and if cities will survive in their current forms. However, several studies show that density does not necessarily correlate with the spread of the pandemic.^{55, 56} Instead, it is poor living conditions and lack of access to services that drive the spread. In many countries the top hotspots of infection were in or around informal settlements and sprawling areas,⁵⁷ and a study by the World Bank⁵⁸ showed that many densely populated cities in China had fewer cases than less dense counterparts. Dense cities like Singapore, Hanoi and Seoul have

also proved to be fairly resilient throughout the pandemic.^{59, 60}

Sustainable mobility and Transit-Oriented Development (TOD) can drive compact, vibrant and better-connected urban development, bringing increased dynamisms, efficient urban services and improved public health to cities. Mass transport solutions including bus and metro rails are the backbone of urban economy and key solutions to reduce urban GHG emissions, and the TOD approach to urban development has the potential to reduce global urban infrastructure capital requirements by more than \$3 trillion between 2015 and 2030.⁶¹ Therefore, it is a key element of green and equitable recovery from the pandemic. The pandemic also triggered greater use of non-motorized and active transport options including biking and walking, which presents great opportunity for cities to build supportive infrastructure for their greater uptake. Recognizing the value of this, the city of Asunción in Paraguay, with support from GEF and in collaboration with urban planners and civil society, designed a 600 kilometer bike lane in the metropolitan region during the pandemic period. In China, with support from GEF, cities like Tianjin, Ningbo, and Shenzhen are tackling environmental degradation and greenhouse gas emissions through TOD. The strategy is applied at city, corridor, sub-district, and station levels and is helping to reverse the trend of automobile-dependent urban sprawl in China, which has a profound impact on urban spatial layout and resulting travel behaviors. This new approach increases livability, supports strategic density and overall sustainability of cities by introducing walkable, mixed-use, and low-carbon urban development near transit stops, which attracts people, supports the local economy and contributes to a vibrant society.

Compact cities and orderly urban expansion can improve urban inclusion and environmental justice. Urban sprawl poses a significant risk to the environment and people's health and wellbeing, leads to inefficient use of scarce natural resources and often results in increased vulnerability of urban poor who are pushed towards areas highly vulnerable to floods, landslides, polluted air, and contaminated soil. Addressing the vulnerability to climate risks and pandemics of these areas with often unlivable density and poor quality of urban services will be an essential aspect for building back better in many cities in the Global South. Abidjan in Côte d'Ivoire is an example of a coastal city that is vulnerable to external shocks of storm surges and sea level rise, with uncontrolled densification in informal areas. Supported by the GEF, the city's new master plan promotes denser, mixed land use and zoning for a more compact growth model and a shift toward non-motorized transport modes. Thanks to a city-wide climate change adaptation strategy for the Greater Abidjan area, the city has been able to identify vulnerable areas and reduce flood risk by improving road and drainage infrastructure. Better planned and strategic density in suitable locations has helped provide more inclusive and resilient housing and can help reducing public health risks in case of new pandemics or unexpected events. As a complement to increased density, cities can proactively prepare for urban growth by anticipating informal settlements and by providing the base conditions for sustainable urban living.⁶²

Mixed land-uses, eco-districts and decentralized neighborhoods create more vibrant and self-sustained communities. Creating a "15-minute city", where everyone can meet most of their needs within a short distance, will reduce unnecessary travel across cities and strengthen the sense of community in urban neighborhoods. In the wake of COVID-19, such revival of city life can result in sustainable and safe approaches to density planning, which is critical to combat urban sprawl and car-dependency.⁶³ COVID-19 has already made people go local, by choice or by restrictions, and

cities can seize the opportunity to activate less advantaged neighborhoods and improve services in a more decentralized manner. One forward-looking example is Johannesburg in South Africa, a participant in the GEF-6 Sustainable Cities Integrated Approach Pilot, where the city is developing Corridors of Freedom and low-energy zones with the goal of integrating traditional sectors such as sustainable housing, transport, and recycled materials.⁶⁴ These eco-districts aim to promote the use of decentralized, innovative green technologies where the new development can absorb its own infrastructure services and come closer to net zero targets, while reducing operational costs and enhancing environmental regeneration and resilience. Supported by GEF, the city of Mendoza in Argentina is planning a pilot for a sustainable hub in order to promote social, environmental and economic integration between the city center and the La Favorita neighborhood. In doing this, the project aims demonstrate an alternative and more sustainable concept of the city center that is promoting a more livable and people-focused spaces.

2.2. Nature-based Solutions and Ecosystem Services in the Cityscape

Nature-based Solutions (NbS) can be effective strategies to improve urban environments, tackling both the pressing challenges of COVID-19 and the long-term threats of environmental degradation and climate change.⁶⁵ NbS refers to actions to protect, sustainably manage, and restore natural and modified ecosystems that address societal challenges effectively and adaptively, simultaneously providing human well-being and biodiversity benefits,⁶⁶ and there is rich evidence that this approach of working with nature has the potential to drive a sustainable economic recovery and create new green jobs in the aftermath of the COVID-19 pandemic. In cities worldwide, urban NbS can help tackle the multiple environmental, social and economic challenges through investments in solutions such as parks, green corridors, urban agriculture and green and blue infrastructure. Well-

managed NbS in cities can also mitigate unhealthy interaction between animals and humans along urban-rural frontiers, where overexploitation of land-use and wildlife trade has led to rapid loss of biodiversity and has potentially contributed to the spillover of zoonotic diseases such as COVID-19.^{67,68} The direct value of nature to people has been highlighted in the Dasgupta Review,⁶⁹ confirming the interconnections between economies, livelihoods, and the services and goods provided by nature.

A transboundary approach to urban planning helps connect cities with their natural surroundings.

Cities need nature's ecosystem services for its people and communities, and nature needs cities to stop threatening its biodiversity in urban and peri-urban areas. A holistic approach to nature in cities becomes even more important given that most of the world's urbanization is occurring in the world's biodiversity hotspots regions.⁷⁰ The link between cities and nature can be strengthened by bringing nature into cities, and by connecting cities with natural support systems that surround them. This is well demonstrated in Paraguay, where Greater Asunción is a meeting point for several ecoregions of global importance, with rich biodiversity in the savannas, palm groves, forests and humid woodlands surrounding the city. Supported by the GEF, a green corridor is protecting and connecting natural reserves and urban green areas in Asunción's metropolitan area, which benefits the population and the biodiversity. San José in Costa Rica is initiating interurban biological corridors, which will be operationalized through GEF's Sustainable Cities Program, to restore critical urban areas that build resilience of vulnerable urban populations and contributes to the mitigation of climate change. Reconnecting cities with surrounding biodiversity and green spaces is not only providing carbon sinks, but also promoting human health, socialization and overall well-being, all important aspects for urban life post the pandemic.

Nature's ability to build resilience can improve quality of life for the most vulnerable urban communities. In Kigali, Rwanda, the GEF

supports financial innovation to accelerate the implementation of urban planning solutions centered around biodiversity and ecosystem services for climate adaptation and mitigation. Wetland planning for the city is expected to improve living conditions for the urban population, especially the over 125,000 people living within 500 meters of the wetland. Here, green infrastructure contributes to urban upgrades in priority unplanned settlements, as well as flood risk management in key hotspots. The urban forestry initiative "Freetown the TreeTown" in Sierra Leone aims to plant one million trees by the end of 2022 and increase the amount of green space and vegetation cover in the city to reduce the likelihood and severity of future floods, as a direct response to the devastating landslide in 2017. Similarly, in Battambang in Cambodia, a project by the Asian Development Bank supports nature-based solutions through rehabilitation of a canal system for flood control and the development of a multi-use zone with natural drainage infrastructure, incorporating housing for the residents in informal settlements around wetlands that flood each year.⁷¹ This shows how natural spaces can serve as an accessible and low-tech solution to cope with many shocks, and lead to increased resilience. Incorporating larger green spaces in cities can also be useful during emergencies such as pandemics or natural disasters, when cities might need open spaces for evacuations, or for staging shelter and relief activities.⁷²

Investing in urban green spaces and biodiversity brings many economic, social and health benefits, which can help promote nature in the cityscape.

Among the positive effect of a growing focus on public health post COVID-19, many cities are suspending vehicle traffic in favor of green pedestrianized zones. In South Korea, people craving parks and green spaces have influenced cities and mayors to invest in more urban nature and biodiversity.⁷³ In Chennai metropolitan area, India, GEF will support the city corporation to rejuvenate Lake Kadapakkam, to enhance the lake's ecosystem services in terms of water supply, flood retention,

recreational value and well-being for citizens. Given the important role of the lake in conserving urban biodiversity in the region, the project will also support the creation of a 5-hectare forested island using the Miyawaki Forest method, to serve as a resting place for migratory birds, complementing two critical wetlands of the region. In Albania, the city of Tirana is planning to increase the area of high-quality green spaces to tackle challenges of biodiversity loss, lack of recreation spaces, and polluted water.⁷⁴ New pocket parks, expanded urban forests, rehabilitated lakes and new green infrastructure will improve flood storage capacity and promote biodiversity, and is expected to generate socioeconomic benefits of better citizen health, increased tourism, higher land and property value, and new green jobs. And in the San José metropolitan area of Costa Rica, a new decree of urban protected areas has been issued which aims to conserve ecosystems and benefit the physical and mental health of the people living in cities.⁷⁵

2.3. Circular Economy Solutions to Increase Resource Efficiency and Resilience

The close nexus between industry and urbanization makes cities the perfect space to improve resource efficiency and move towards a circular economy, thereby managing its waste and reducing its resource requirement.⁷⁶ By identifying strategic and contextual entry points, cities can start shifting urban metabolisms from linear to circular models. With the COVID-19 pandemic came a much-needed conversation on a more regional supply network and urban production to reduce cities' dependency on imports and to increase resilience. The complexity of many value chains calls for more transparency that better show how labor, consumption, production, and disposal in cities are linked, and draws attention to the informal sector where a lot of circularity already happens.

Innovative models for management and recycling of hazardous waste and e-waste have the potential to create new jobs and improve human health in cities. While the knowledge and science to a



large extent already is available, more work lies ahead to concretize, coordinate, and scale up circularity in cities, to minimize waste output or make more utility from waste streams. In Nigeria, the import of waste from electrical and electronic equipment has generated a rapidly growing amount of hazardous waste in the country's largest city Lagos, and dumping and burning of e-waste causes severe pollution from heavy metals and persistent organic pollutants. To find a solution, the Extended Producer Responsibility Organization of Nigeria (EPRON) brings together governmental agencies with all levels of the private sector in a multi-stakeholder platform to establish a levy system to collect fees and cover costs for environmentally-sound management of e-waste.⁷⁷ With stakeholders ranging from international experts to informal waste pickers, the project presents a superb model of private sector engagement through a value chain approach. Thanks to this innovative and integrated platform, it promotes a financially self-sustaining circular economy model that can create new green jobs, boost economic recovery post COVID-19, and reduce chemical hazards that threaten public health in cities.

Sustainable food systems are a vital component of urban circularity and can strengthen resilience, health, and local economies. With the current trends in diets and population growth, the world must produce 60 percent more food by 2050.⁷⁸ Low- and lower-middle-income countries only produce one third of the food per capita compared to upper-middle- and high-income countries, and therefore face higher dependency on food imports and a greater risk of food insecurity as they urbanize.⁷⁹ COVID-19 showed the fragility in food supply chains in many countries. Cities and local governments can play a key role to improve efficiency of urban food systems through a more holistic approach. A great example is Rosario, Argentina's third largest city, where a peri-urban agriculture program launched in 2001, with support from UN-Habitat and several local actors, has become a cornerstone in responding to climate change and boost the local economy.⁸⁰

Strategic conversion of underutilized areas such as flood-prone lowlands, strips along highways, and designated greenbelts into agricultural spaces have provided employment for the urban poor and shortened the food supply chain. These green spaces also absorb excess water and prevent floods, and the greenhouse gas emissions linked to vegetable deliveries are estimated to be reduced by an impressive 95 percent.

Cities are creating an enabling policy and investment environment for local businesses to develop and adopt circularity models. Innovative examples of policies and regulatory support for spatial co-location are emerging from Indian cities such as Indore, where better waste management and cleaning of contaminated land helps free up urban land for housing or renewable energy. Costa Rica is supporting circularity through an extensive urban policy reform, where the San Jose metropolitan area will map existing circular economy initiatives and invest in new business ventures with clear circularity focus, prioritizing the employment of women and providing training in business management. Another example is Sierra Leone's capital Freetown, which is looking at livelihood alternatives through investment and capacity building that will stimulate the recycling sector and support workers within small-scale waste management businesses. By creating opportunities for local businesses to work on circularity solutions, cities are able to harness their potential towards economic recovery.

3. ENABLERS FACILITATING SUSTAINABLE CITY ACTION WORLDWIDE

The solutions described in the previous section were successful to a large extent thanks to some key enablers that made effective implementation possible. Based on experiences and lessons from the cities under GEF's program and other initiatives, three enablers seem to be accelerating sustainability action in cities during the pandemic. These include urban partnership and governance; innovative financing models; and the application of data and digital tools that have helped cities work together with stakeholders, mobilize resources and track progress. Adding to this, the political leadership of mayors and city administrators is fundamental for such an enabling environment as their political will can drive action and mobilize necessary resources for green and resilient recovery planning and solutions (Box 1). As an amplifier of emerging trends, COVID-19 changed the pathway for economic, social and technological development, as it accelerated the world, and especially cities, into advancing technologies and habits in a way not conceived of prior to the crisis.

3.1. Partnerships for Inclusive Governance and Co-creation

Stronger collaboration, across multiple governance levels and with urban stakeholders, can support cities in their economic recovery and at the same time help them combat the root causes of environmental degradation. COVID-19 made the interlinkages between health, nature, economic recovery, and resilience clear to city leaders; their existing partnerships have helped them tackle the pandemic and can now pave the way for enhanced leadership on sustainable urban development beyond the pandemic. Climate change is another complex societal challenge that, just like COVID-19, has shown how we are ultimately bound together. Both will benefit from strong city leadership and

urban collaboration. Especially in the Global South, the high influx of people to cities and the associated environmental, economic, and social challenges calls for dynamic and evolving city governance.

City leadership as a key enabler

At the center of the COVID-19 response, the world's cities have demonstrated remarkable leadership throughout the pandemic, underpinned by integration, innovation and collaboration. From new and progressive partnerships to creative use of cutting-edge technologies, cities have stepped up to lead the way forward. Cities are also taking strong action together to tackle climate and nature loss challenges through partnerships such as Race to Resilience, Race to Zero and the Urban Nature Declaration. The urban leadership on these two fronts of tackling the pandemic and the environmental challenges provides great opportunities to have a combined approach to shape new processes and innovate technologies and urban services that can advance green and resilient recovery, and future urban transformation.

City networks, platforms and partnerships help cities learn from each other's lessons and build back better. At a time of great pressure, many of the existing networks, platforms, and coalitions for urban climate action, biodiversity conservation, and sustainability stepped up and showed the way. The UN Decade on Ecosystems Restoration working with the RegionsWithNature and CitiesWithNature are rallying points for greening and restoration of wildlife habitats within cities. Efforts from C40 Cities were behind the Global Mayors COVID-19 Recovery Task Force and the C40 Mayors Agenda for a Green and Just Recovery,⁸¹ which brought cities around the world together to push for a green and just urban recovery, backing action to keep the last decades progress on public transport, urban services and sustainable livelihoods.⁸² Similarly, ICLEI – Local Governments for Sustainability – has continued to support cities in sharing knowledge, best practices and guidelines tailored according to different regional needs. Platforms such as the Global Platform for Sustainable Cities, funded by the GEF, helped by bringing together the perspectives of city leaders, financial institutions, private sector, and others to suggest pathways for environmentally and socially sustainable recovery.⁸³ These urban networks and platforms can play a strategic role going forward in facilitating sustainable cities, particularly in the developing world, by translating knowledge and innovation into mainstream urban planning, policies and investments. They can foster collective city leadership and bring other partners from private sector and civil society to drive large scale green recovery anchored at city-level.

Improved local governance, driven by an integrated approach, can take cities beyond business as usual. As urban areas grow and become hubs for technology, innovation, and economic activity, cities and local governments are evolving as drivers of governance innovation, having the advantage of being closer to the people and the problems on the ground. This enabled a number of city governments globally to become the first line of defense and action against the pandemic. Integrated urban

governance with economic and social support to vulnerable and disadvantaged populations enabled many cities to prevent the spread of COVID-19.⁸⁴ This has been seen in for example the Vietnamese cities of Hanoi and Ho Chi Minh City, which have been recognized for their relative success in flattening the infection curve. In the Latin America, the city of Lima (Peru), in collaboration with the national government, is not only working towards guaranteeing public transport, waste and security of its citizens but also continues to work on its green vision through measures such as bike paths and planting two million trees by 2022 as part of its economic recovery plan.⁸⁵ These efforts demonstrate that cities are well positioned to go beyond just responding to challenges to convert these into opportunities which can take them to a more sustainable path, with integrated governance and stronger partnerships between different sectors.

Citizen and civil society engagement can deliver inclusive benefits to the poor and marginalized groups in cities. Cities can play the role of an orchestrator, to foster co-creation and bring urban actors together around a common vision. In doing this, cities can better engage communities and civil society, and thereby work towards sustainability benefits that are more inclusive. In Senegal, where the GEF is supporting clean industrial production and low-carbon energy technologies in several cities, an early gender gap analysis identified a lack of gender-sensitive strategy for green industrial parks and integrated urban planning, and highlighted that women are more heavily impacted by health-related issues linked to emissions. To tackle these challenges, the project team worked with gender-specialized NGOs on gender capacity-building activities and the integration of gender dimensions into a Toolkit for the environmental assessment of industrial parks in Senegal.⁸⁶ The important role of grassroots organizations has also become apparent during the pandemic. They helped generate inclusive, collective responses to COVID-19 across the Global South, demonstrating a great capacity to respond to needs of especially the urban poor.

Grassroots groups in India and the Philippines supported targeted aid as they identified households with specific needs, and in Argentina progressive social movements contributed to a major COVID-19 reconstruction program with increased support to informal settlements.⁸⁷ Such efforts can be strengthened and scaled-up with formal partnerships and aligned ambitions between civil society and local governments to foster a green recovery that increases urban inclusion along the way.

3.2. Innovative Financing Mechanisms and Instruments to Mobilize Resources for Cities

In the Global South, many local governments struggle to invest in sustainable urban infrastructure, and the barriers faced often relate to insufficient capacity and financial resources.⁸⁸ Cities are already constrained with budgets, with COVID-19 widening this gap further. This has affected investment in sustainability solutions, where the low scale of public and private financing is impacting cities' abilities to meet their urban sustainability goals.⁸⁹ International financing is helping to create an enabling environment, which can be scaled up for solutions like Nature-based Solutions, low carbon transport, waste management and clean energy infrastructure in cities that all have great potential to contribute to green recovery as they can deliver socio-economic benefits such as jobs and improved health. Financing mechanisms that enable mainstreaming sustainability in conventional budget outlays and build on the externalities of sustainability investments to attract market-based financing can mobilize large scale investments to spur a green and resilient recovery in cities.

National governments have an important role to play in enhancing access to finance at the cities level for green and resilient infrastructure and services. While the overall responsibility of economic recovery lies with the national governments, it is clear that cities can play an important role in driving this recovery. Without national leadership and support, cities are not able to realize their full potential as engines of sustainable, inclusive

growth.⁹⁰ National governments can ensure an effective flow of finance to cities within their governance structure by strengthening the role of cities in national-level investment planning for urban development, directing stimulus packages which are based on city needs of green and resilient infrastructure, and building institutional capacity of municipal bodies to manage and access financing. Equally, as countries aim to fulfill their global climate and sustainability commitments, cities are the places where transformations need to happen to meet these dual goals. To strengthen this vertical integration, UrbanShift organizes "National Dialogues" that aim to unlock barriers and promote collaboration between national and city governments. By facilitating such multi-level coordination, additional finance can be mobilized for sustainability solutions that will have direct benefits to cities.

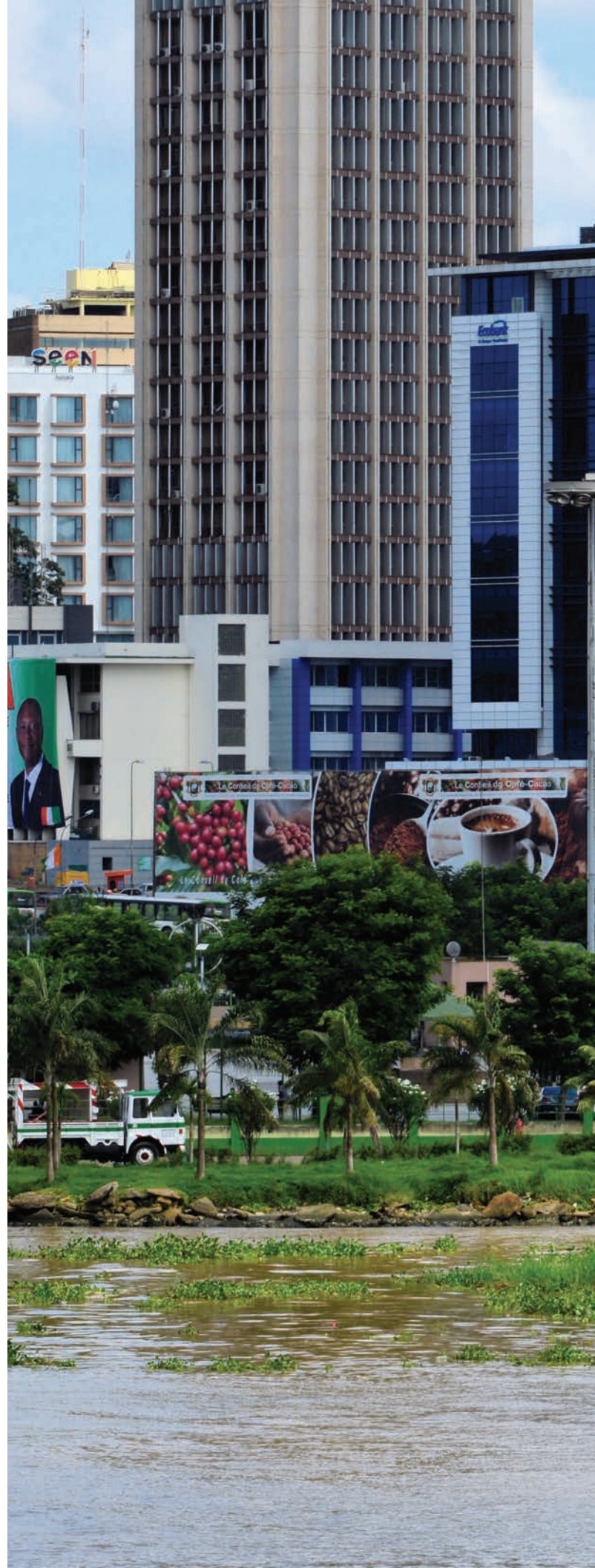
Innovative market-based mechanisms which value sustainability and other co-benefits can mobilize financing building on public private partnership models. A number of cities globally are able to raise financing for green infrastructure through municipal green bonds. With stronger institutional capacity and credit ratings, secondary cities in developing countries can utilize bonds as an effective source to finance green recovery. Mechanisms such as land value capture, water credits, carbon finance and payment for ecosystem services (PES) are emerging as instruments to finance nature based and other green infrastructure projects in cities. With support from the GEF's Sustainable Cities program, Recife in Brazil and several cities in Indonesia are working on land value capture and PES as options to develop bankable projects. To overcome borrowing and balance-sheet restrictions, many cities are adopting a public-private partnership (PPP) approach to invest in infrastructure projects which can be extended to green projects by effectively addressing risks associated with the PPP models.⁹¹ As part of UrbanShift, the global project is bringing a set of "Finance Academies" for cities to exchange knowledge and learn innovative business models to

scale up urban infrastructure projects. The program has already delivered a Finance Academy for African cities focused on adaptation finance.

International environmental finance can play a catalytic role in creating an enabling investment climate for green investment in cities. In recent years, a number of facilities are being created by global funds and multilateral financial institutions which aim to help cities in building their capacity on policies and regulations and preparing feasible projects which can raise funds. The City Climate Finance Gap Fund managed by WB and EIB, Transformative Actions Program of ICLEI, C40 Cities Finance Facility and other facilities of WB, IADB, AfDB and ADB are currently in place to support cities to develop projects that directly contribute to a green recovery. The GEF's Sustainable Cities Program is collaborating with these facilities by providing upstream capacity building and integrated urban planning support to cities to strengthen their investment readiness. The NBI Global Resource Center, supported by the Special Climate Change Fund of GEF and managed by IISD, is helping cities in assessing the monetary value of nature-based infrastructure, using a systems-based financial model that captures economic and climate change adaptation and mitigation benefits. This will help strengthen the overall financial case to attract public and private investment in nature-based solutions. UrbanShift's global coordination project in GEF-7 is also planning to host "Investors Roundtables" to create a platform for municipal authorities to engage directly with external stakeholders, including the private sector and development finance institutions, during the different stages of development and implementation of municipal infrastructure projects. In the GEF-8 phase, the Sustainable Cities Program will look to expand its cohort of cities and provide new opportunities to access international finance that can support urban green recovery.

3.3. Data, Digital Tools and Indicators for Improved Urban Planning and Tracking of Progress

The pandemic hit the world in the middle of a digital





revolution. Data emerged as a fundamental driver to tackle the pandemic and digital solutions enabled functioning of the global economy to a large extent amidst restricted physical movements and lockdowns. More importantly, the crises informed the importance of data-driven decision making which found particular relevance in cities where issues are complex and connected to each other. It helped identify vulnerable areas and hot spots for targeted response and enabled integration of urban services. However, it is important to acknowledge that a number of developing countries were left out of this opportunity due to limited digital infrastructure. As cities in these and other countries ramp up their digital infrastructure, there is a great opportunity to utilize its power to enable a green and resilient growth.

Joining efforts in the battle against COVID-19, many institutions within cityscapes have increasingly started to collaborate to fill data gaps and facilitate sharing of data between actors and sectors. Despite many challenges with jobs and services forced to go online, COVID-19 has accelerated digital technologies as a key enabler addressing complex urban challenges while also supporting a green recovery.⁹² Understanding that digital tools can respond well to both the health crisis and environmental challenges, cities in Brazil are promoting sustainable urban solutions through integrated and innovative technologies. As part of the CITinova project,⁹³ new data and information tools have been developed to provide cross-referenced data in areas such as environment, climate modeling, health, and territorial management, which helps understanding issues such as the relationship between environmental health, deforestation, urban patterns, and zoonosis such as COVID-19. In China, cities like Ningbo and Shenzhen have partnered with the bike sharing company MoBike to use data for evidence-based urban planning and inform a Transit Oriented Development, showing how digital collaboration can accelerate action to address complex urban challenges and support the recovery process.



Strategic use of data supports improved integrated planning and urban partnerships. Many cities are increasingly integrating satellite data in their response to the pandemic. With more elaborate use of geospatial data, cities can also monitor and prevent urban sprawl, enhance the climate resilience in vulnerable areas, and conserve green spaces.⁹⁴ To support this, UrbanShift conducts specific Labs and Geospatial Analyses to provide all participating cities with a common set of critical open source spatial data layers. Taking this even further, cities like Lima (Peru), Dakar (Senegal) and Bhopal (India) are integrating geospatial data in their sustainability planning to catalyze city innovation thanks to a strategic partnership with the European Space Agency, supported by the Global Platform on Sustainable Cities. In Costa Rica, the GEF's Sustainable Cities program is supporting a national platform for information exchange on issues related to sustainable cities, biodiversity conservation and climate change mitigation in urban landscapes, promoting the country's evidence-based policy reform and sustainable integrated planning. The GEF is also supporting the Argentinian municipalities of Mar del Plata, Mendoza, Salta and Ushuaia in developing and strengthening their digital platforms, which incorporate urban sustainability indicators and geospatial information such as georeferencing of biodiversity and ecosystem services, to support integrated urban planning.

Local communities can help bridge the data gap, and contribute to more inclusive urban development. Despite progress on digitalization, the perspective of lower-income countries has largely been absent in the debates.⁹⁵ Unlocking data in low-income countries requires collaboration with new actors, where community participation can support the process of making urban data more available. To generate better data in informal settlements, case studies from Kenya and Malawi show how Slum Dwellers International use digital tools in participatory processes together with local communities.⁹⁶ As many of the challenges of informality are aggravated by climate change, the

assessments also incorporate climate indicators for frequency of floods, storms, and fires. Supported by digital tools such as GPS, digital cameras and smartphones, local people are trained to map high risk areas, allowing them to organize themselves more easily, and communicate challenges of urban poverty, infectious diseases and climate vulnerability to policymakers.

New frameworks, indicators, and metrics can help measure urban systems transformation as part of building back better. Urban transformation is complex, but a number of efforts are being made to provide cities with frameworks and guidelines to measure various urban sustainability aspects. As an example, the Urban Sustainability Framework developed by the World Bank and supported by the GEF was launched in 2018 in an effort to support cities to achieve a greener future.⁹⁷ It lays out six key dimensions of urban sustainability: governance and integrated planning; fiscal sustainability; economic competitiveness; environment and resource efficiency; low carbon and resilience; and social inclusiveness, all highly relevant for cities to consider as they build back better. To support cities in measuring the benefits of nature, the well-established Singapore Index⁹⁸ allows urban leaders to make decisions on a better understanding of the value of ecosystem services. It includes four metrics to track levels of urban biodiversity, nature, and ecosystem services and has been applied in 50 cities globally.⁹⁹ Another concrete example is the Science Based Targets Network, promoting science-based decision-making with measurable targets can give urban policymakers access to a body of knowledge and good practices. This helps cities setting clearly defined climate targets and align their action with global sustainability goals.¹⁰⁰ In utilizing new and innovative tools, cities can move beyond simply measuring GDP for economic growth, and develop their own system to track how they can build back better and greener.

INSIGHTS AND WAY FORWARD

The process of building back better brings opportunities for cities in developing countries to accelerate urban transformation and contribute to global environmental goals. Based on the sustainability elements, enablers and examples of cities implementing solutions for potential economic recovery, this report calls for greater action by cities and highlights some key takeaways that can help them adopt a green recovery pathway:

Understanding the systemic impact of COVID-19 and its interaction with multiple environmental stressors is critical to learn from the pandemic and inform future urban planning.

- The pandemic has exposed existing gaps in urban planning and governance, from lack of trustworthy data to siloed interventions and inequalities. Better understanding of these gaps in cities and their linkages with the pandemic will allow cities to respond to the challenges.
- Monitoring and tracking of urban trends post COVID-19 will be important, so that cities can hold on to the positive changes, address remaining challenges and respond to changing demands in housing, commerce, and mobility.

- By exploring systematic synergies between economic recovery and other hazards such as climate change and environmental degradation, cities will be able to optimize their investments.
- Strengthening urban data systems and infrastructure will help cities take an evidence-based approach and measure urban systems transformation as part of building back better.

Stronger collaboration between urban actors allows for better mainstreaming, inclusion, innovation and scaling up of sustainability solutions.

- City-city partnerships and networks have helped cities learn from each other during the pandemic, and strengthening these connections will prepare them to better tackle future challenges in a collective manner.
- Engagement with the private sector, together with a proactive citizen-oriented approach as adopted by cities in tackling the pandemic, can lead to better inclusion and support from communities towards a green recovery.





- Close collaboration across local and national government departments can yield various co-benefits of sustainability investments, and help closing the large financing gap that cities in developing countries are facing.
- By bringing additional actors into the partnerships, including financial institutions, civil society organizations and the private sector, local governments will be well placed to work with partners on the ground and create a common sustainability vision.

Enhanced city leadership and alignments with national governments on green recovery enable greater results.

- Stronger alignment between national and local governments can give cities more opportunities to act, and national governments to benefits from city-level interventions in meeting national sustainability and environmental targets.
- A stronger role local governments will help integrating important environmental aspects such as biodiversity, land use or resource planning directly into their urban plans, and mobilize more financing and direct access to resources for these purposes.

An integrated approach to urban planning leads to sustainability benefits across multiple dimensions, which can contribute directly to economic recovery.

- The severe impact of the pandemic on health, social and economic dimensions has forced cities to respond in a more integrated manner.
- Integrated approaches for sustainability solutions, such as strategic density, nature-based solutions and circular economy, are emerging as effective solutions that contribute to environmental, economic and social benefits.
- Adopting an integrated approach also helps cities avoid trade-offs and build synergies between sectors and actors, to tackle drivers of environmental degradation as well as other systemic urban and peri-urban challenges such as inclusion and resilience.
- With the demonstrated results and lessons learnt from the different cities presented in the report and the importance of green recovery for urban transformation, the GEF in its next phase (GEF-8) aims to further support this transformation process with a dedicated focus on green and resilient recovery.¹⁰¹

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