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It has been a difficult year for cities and we are not yet past the COVID-19 pandemic.

We have been forced to live and work differently. Family, friends and colleagues have been afflicted, sometimes devastated, and our economies and politics have gone through convulsions. But cities across the world continue to rise to the occasion, bringing forward innovative and sometimes audacious new solutions. So too for WRI.

Around the world, hundreds of cities are converting car lanes to walking and biking infrastructure to accommodate a pandemic-driven surge in active mobility. Battered public transit operators have adapted to keep essential workers on the job. Public space and green space are being re-prioritized. Meanwhile, cities are also looking to the future. Rio de Janeiro and Bengaluru are investing in innovative transit-oriented development and land value capture to deliver better services to all. In China, the national government is planning grid upgrades to accommodate more electric vehicles and renewable energy. In Mexico, the right to mobility and road safety was officially enshrined in a constitutional amendment. COVID notwithstanding, 723 more cities embraced net-zero emissions commitments in 2020 compared to the year before.

At WRI, we feel that our solutions are more relevant than ever, and our mission to help shape a future where cities work better for everyone has never been as urgent. Around the world, our teams have been asked to help cities respond. Our global and local experts are providing timely data, tailored recommendations, and new analysis that is helping cities seize the opportunity to shift course onto a greener, more inclusive trajectory of urban development.

Throughout the year, we have found new ways of collaborating and organizing. This has brought challenges but also allowed us to reach a broader audience. This year’s all-virtual Transforming Transportation reached more than 22,000 viewers in more than 120 countries. The 2020-2021 Prize for Cities managed to attract more than 260 applicants on the theme of “inclusive cities for a changing climate,” including an incredible line-up of finalists and an all-star jury of global urban leaders. In the United States, we launched a major new initiative to help electrify the nation’s school bus fleet.

We have taken to heart calls for social justice and have committed to overcoming systemic and institutional racism. Drawing on the insights from the World Resources Report we are on a journey to make inclusion and equity part of everything we do, both internally and in our work on the ground. There is no climate justice without racial justice; no sustainability without equity.

From the World Resources Report to the Coalition for Urban Transitions’ Economic Case for Greening the Global Recovery Through Cities and NUMO’s COVID Mobility Works, we are helping city and national leaders harness the potential of cities to drive a green, inclusive and resilient recovery.

We know cities offer the best opportunities for transformative changes that improve people’s day-to-day lives and create a brighter future. Financial recovery packages in the trillions of dollars will affect how cities are built, managed and experienced for decades to come. As the world emerges from the pandemic, cities are proving their resilience and ingenuity.
Where We Work

WRI Ross Center’s global and local experts support city- and national-level change for people and the planet through three levels of engagement. In 2020-2021, we influenced more than 360 cities.
Deep city engagement is characterized by working closely with key stakeholders in a city over several years, from project inception to implementation, across multiple sectors.

Targeted city engagement includes technical partnership on a key solution. The objective is to establish or replicate a good practice via precedent-setting projects.

National engagement involves broad efforts to scale impact to multiple cities by creating enabling national policies and frameworks. This is achieved through research and knowledge exchange, engagement and outreach, capacity development, policy, and pilot projects.
Building Back Better for People and the Planet

The COVID-19 pandemic has had devastating impacts on cities – putting unprecedented pressure on municipal budgets and public services, exacerbating inequalities and revealing their extreme fragility to shocks. At the same time, cities offer among the most promising opportunities to build back better with speed and impact, and the crisis has increased public appetite and political space for bold interventions that can radically transform cities. WRI is helping city and national leaders turn crisis into opportunity by harnessing the potential of cities to drive a green, inclusive and resilient recovery in responding to the pandemic.
Our vision and solutions have been rendered more urgent by the unfolding pandemic. This has translated into greater opportunities and challenged us to be laser focused in adjusting to this historic moment. We have done so by making the following big shifts:

**Putting cities at the center of the economic recovery from COVID-19**

Shaping the economic response to COVID-19 is the most important task in front of us. With trillions of dollars now available for economic recovery, choices made will determine the trajectory for urban development for decades to come. Done right, this massive infusion of finance offers historic opportunities to build back a better world – one with an emphasis on resilience, inclusion, efficiency and sustainability. The Coalition for Urban Transitions has stepped up to the plate in helping national governments take concrete steps toward ensuring recovery funds are invested into making cities better. *The Economic Case for Greening the Global Recovery Through Cities* provides actionable recommendations focused on the “what” and “how” of a green recovery, identifying seven priority areas for investment by national governments that can rapidly create and protect millions of jobs and deliver quick, durable and inclusive economic, health and environmental benefits.

**Strengthening our work and external engagement on urban resilience**

The pandemic has exposed the startling lack of resilience in our cities, which function as key nodes for interconnected economic, energy, food, water and health systems. In much of the developing world, COVID-19 is just the latest – and will not be the last – of many risks and shocks calling for responses that strengthen resilience. Building on our agenda-setting work with the Global Commission on Adaptation, we helped launch a major new global initiative to accelerate adaptation in 1,000 cities by 2030 at the Climate Adaptation Summit in January 2021. Implementation has already started in Accra, Addis Ababa, Dire Dawa, Kigali and Johannesburg and will be upscaled to 300 directly supported cities and an additional 700 cities through dedicated hubs for capacity building and peer-to-peer learning by 2030. We have also significantly stepped up our programmatic work on water, with a major investment from the German government, and will be pushing for a major coalition on urban water resilience in Africa in the year ahead.

**Embedding equity across our program**

Another major lesson from the pandemic is how inequity drives systemic vulnerability, bringing...
Urban Inequality Index

Developed by WRI Mexico, the Urban Inequality Index aids decision-making in land use and urban planning by identifying development opportunities at the city-block level. The tool estimates access to basic facilities and services, as measured by travel time, by socioeconomic strata at a very granular scale. By enabling comparisons of socioeconomic indicators such as access to formal employment, education, public health, open spaces, cultural facilities and public transit, the data can be used to design more equitable solutions and track the impact of existing policies.
to life the old maxim that “we are only as strong as our weakest link.” Without better access to core services for all residents – including the more than 1 billion urban dwellers living in informal settlements – cities cannot achieve the resilience, higher quality of life, economic productivity and environmental sustainability that we all desire. The agenda-setting research of the World Resources Report: Towards A More Equal City has positioned us strongly to be a leading voice for the need to put equity at the center of efforts to reshape cities in the wake of the pandemic. We are focused now on operationalizing the central insights of the World Resources Report and putting equity at the heart of our work. Toward that end, we are building capacity on urban economics and inclusive governance to sharpen our thinking and impact as it relates to job creation, employment protection and inclusive economic development strategies.

**Reimagining public transport**

Urban transport networks are being upended by the pandemic. As biking and walking soars in some places, public transport is experiencing major financial challenges. WRI is working with cities to ensure passenger safety but also the long-term viability of public transportation networks. Integrated bus, rail and bike systems can create and maintain jobs more quickly than other transportation investments and offer wider benefits to society as well as drive more equitable access to jobs, education and services. We are therefore working to incorporate big investments in public transportation into recovery financing packages.

**Pushing Vision Zero**

The pandemic has created a moment of opportunity for our work on road safety and active mobility. As many cities reallocate street space to accommodate new norms of social distancing and changed patterns of commuting and mobility, bike lanes and wider sidewalks have been popping up. WRI’s Low-Speed Zone Guide helped equip communities and decision-makers with tools to implement successful low-speed zones that will suit their context. The Vision Zero Challenge, working with cities in Latin America and the Caribbean, also pivoted to provide immediate technical assistance to partner cities. And WRI India worked with the city of Kochi and the national government on safe operations measures for bus and metro systems, as well as the city of Bengaluru on pop-up bike lanes.

NUMO, the New Urban Mobility alliance, hosted at WRI Ross Center, is collaborating with local service providers and city officials to enable rapid, data-driven responses. NUMO experts worked with the cities of Detroit and Bogotá to enable safe mobility for essential workers and vulnerable communities, and with the U.S. Congress and major transit agencies to support vital infrastructure investment and safe operations nationally. A rapidly constructed new database, COVID Mobility Works, is also cataloguing public, private and nongovernmental adaptations from over 250 cities and counting.
Deep Engagement

Long-term, continuous engagement with cities is critical to WRI Ross Center’s strategy. It allows us to build trusted partnerships with locally based leaders and solution providers and customize solutions to the local context. Together, we work on strategies that are responsive to political economy factors and create momentum that disrupts the status quo, builds pressure for change, and sustains the conditions for urban transformation. In the past year, we have honed our deep engagement approach, as a key pillar of our strategy. By systematizing the approach, learning from it, and expanding it to more cities, we continue to maximize the chances for inclusive and transformative urban change.

Chandni Chowk has been redesigned to be safer, less congested and less polluted.
DELHI: 
A Pedestrian-Friendly Makeover for a Historic Thoroughfare

For centuries, a world-famous market street in one of the most densely populated sections of Delhi has attracted eager throngs of shoppers, merchants, vendors, sightseers and residents. Chandni Chowk, built in the 1600s by Mughal emperor Shah Jahan and designed by his daughter Jahanara, is a vibrant, boisterous bazaar that stretches 1.3 kilometers between two major historic sites: the Red Fort and Fatehpuri Masjid.

As Delhi’s central shopping district and a fabled destination for visitors, Chandni Chowk is one of the busiest places in the tumultuous capital, as well as one of the densest. The 6-square-kilometer neighborhood has a resident population of 250,000, and an additional 500,000 tourists visit the area daily.

With such intensive use, the street is a highly visible microcosm of the challenges faced by many Indian cities, which are striving to create efficient, people-friendly spaces for rapidly expanding populations. WRI India realized that a successful makeover of Chandni Chowk, a preeminent hub of commerce and culture, held the potential to become a model for other public spaces across the country.

Creating a standard for the future

By the 2000s, congestion along Chandni Chowk had reached alarming proportions. A glut of pedestrians, rickshaws, bicycles, handcarts, buses, trucks and cars choked the street and surrounding lanes. Four new underground metro stations and two major rail junctions dumped tens of thousands of commuters into the neighborhood. Tourists who had come to admire the ancient public space found snarled streets, unhealthy air quality and few accommodations for pedestrians. It was clear that a major redesign of the street was urgently needed, requiring substantial municipal planning and investment and years of construction.

Delhi began redevelopment of the street in December 2018, and the guiding vision focused on a plan that prioritized walkers instead of vehicles. The ideal of pedestrianization had long been promoted by WRI India, which had worked with the city to present its first car-free celebration, Raahgiri Day, at Chandni Chowk in 2014. The event gave thousands of residents their first public experience of a pedestrian-centric concept, and demonstrated the hunger for a new approach to urban design.

Over the next four years, WRI India played an active role in bringing that vision to life. Our team served as key advisors to the Shahjahanabad Redevelopment Corporation (SRDC) on the creation and adoption of a pedestrianization plan that would bar vehicles from the street, trigger a redevelopment of the entire area and provide better connections to other parts of the city. The goal of the Chandni Chowk Redevelopment Project was to increase walking and cycling mode shares through pedestrian-friendly infrastructure and new mobility solutions for last-mile connectivity, both of which would reduce congestion and air pollution.

The WRI India team was involved in multiple aspects of the project, including numerous stakeholder meetings, site visits for inspection, and participation in the design review process. Our direct input highlighted the need for pedestrian accessibility, drop-off points for cabs, electric vehicle charging stations and bike-share installations, and helped to identify solutions for loading and unloading, traffic management, parking and other issues.
Despite delays due to the global pandemic, the rebuilt Chandni Chowk was officially opened to the public in April 2021. The street is the first place in Delhi open only to pedestrians, cycle rickshaws and e-rickshaws, with motorized vehicles prohibited from 9:00 am to 9:00 pm. It has segregated lanes for pedestrians and non-motorized vehicles and access for differently abled persons. A multi-level parking facility nearby can accommodate 2,300 automobiles.

Improved safety was an important result of the project, as was beautification of the space. In addition to installing LED lighting, planting 250 trees, building medians and planters, and burying overhead utility lines, the city invested in 175 benches of red sandstone – a nod to its past, since the same material was used to build Shah Jahan’s Red Fort. With the makeover, Chandni Chowk had regained its original identity as a space designed for people.

Enduring benefits for residents

Without cars, traffic noise on the street has diminished and the air is less polluted, which helps create a more enjoyable ambience for patrons of Chandni Chowk’s renowned food carts, sweets shops and spice stalls. Abhishek Sharma, who manages an iconic restaurant opened by his grandfather 60 years ago, appreciates the difference. “Chandni Chowk has been home to us for generations, and I am glad to see these changes…The air will be cleaner, the road will have no traffic, no constant headache of honking cars,” he said. Added Priyank Sharma of Ram Vilas Milk Merchants, a milk shop established in 1943, “This is our city; we have to allow it to breathe. We are a bit hassled [by construction], but if this can end traffic on the stretch, I don’t mind the sacrifice.”

The fully renovated Chandni Chowk contributes to the global goal of creating compact, connected cities, accessible, affordable transport and healthier conditions for everyone. Planners expect the project to relieve congestion in a significant part of the old city and trigger sustainable redevelopment through the entire area. Municipal officials recently announced plans to evaluate six adjacent arterial roads for integration into the Chandni Chowk Redevelopment Plan, which could generate new mobility options and safer street designs. And if proposals made by the draft Master Plan for Delhi 2041 are implemented, the capital will see many more pedestrian-only streets in years to come. Chandni Chowk’s redevelopment has catalyzed a citywide reimagining of streets not only as a means of conveyance, but as safe, green, and accessible spaces where life takes place.

“Right from the early days, we worked collaboratively with local health officials to map critical data and with community groups to support emergency relief work. We supported the development of standard operating procedures for public buses, rail metros and supported new bike lanes. The second wave proved unprecedented in India, but shone a spotlight on the need to rethink urban development strategies. This gives us renewed vigour to pursue our goals of shaping cities that work better for all.”

Madhav Pai
Director, India,
WRI Ross Center for Sustainable Cities
Mexico City

Mexico City’s vast public transport network, used by 7.5 million people every day, comprises four different companies — Metro, Metrobús, Sistema de Transportes Eléctricos and Red de Transporte Público — as well as traditional public transport (minibuses). But the system is hobbled by the lack of a shared fare mechanism and an integrated financial structure, as well as a clear definition of the roles of the various supervisory agencies. Together with the Ministry of Mobility, the Transport Regulatory Body, public transport operators and the Ministry of Finance, WRI Mexico worked for a year and a half to design the implementation of solutions that will improve coordination and management. The result of more than 50 working sessions held with these groups and the Committee of the Integrated Public Transport System of the CDMX was a proposal for the creation of a government entity to strengthen the System of Fare Collection and Revenue Management of public transport in the city. A procedure for offsetting revenue between agencies was also produced as well as a registration tool to strengthen planning, administration and financial management of the Integrated Mobility System. These tools, among other elements, are essential for the proper implementation of transportation subsidies and possible cost reductions for public transport users.

Guadalajara

In Guadalajara, a major change in response to the decreased use of public transportation caused by the pandemic has been the creation of pop-up bike lanes: segregated spaces for cyclists that ensure safer, more sustainable commutes. The new, semi-permanent infrastructure accelerates the extension of the planned cycle lane network in the city, which will directly impact approximately 1 million low- and middle-income residents and reduce fatalities and injuries along the corridor. WRI Mexico’s analysis of the financial impacts of COVID-19 on different transit modes in Guadalajara, including the analysis of the existing instruments and alternate solutions, contributed a strong foundation for the project. We also provided an audit of potential road safety risks on different transit modes, including the analysis of the existing instruments and solutions. These recommendations helped local authorities implement a safer bike lane design. Partners included the Secretariat of Mobility and Transportation of Guadalajara, the Secretariat of Agrarian, Urban and Territorial Development (SEDATU) and Vital Strategies.

Bengaluru

As the state of Karnataka implements an ambitious blueprint to expand public mass transport for the city of Bengaluru, WRI India is supplying knowledge and
technical support to enable a shift toward sustainable, low-carbon modes. Our input includes planning and design suggestions related to transit-oriented development (TOD), land value capture (LVC) and multi-modal integration, focused on improving livability in station areas, ensuring safe access and providing last-mile connectivity to mass transit. Phase Two of the city's metro rail network, now under construction, will increase interconnectivity along the city's Outer Ring Road, a booming high-tech jobs corridor, and the international airport. WRI India’s engagement and subsequent outputs supported Bengaluru in securing financial backing for the project from the Asian Development Bank and the Japan International Cooperation Agency.

For the past five years, WRI India has worked closely with the city bus agency, Bengaluru Metropolitan Transport Corporation (BMTC), on various aspects of bus service design, funding, implementation and monitoring. WRI India has continually supported BMTC towards improved utilization of its Intelligent Transport System (ITS) for efficient service and operations planning. It has also provided support for the development of funding proposals, including INR 450 crores ($59.7 million) from the state government for the purchase of 1,500 buses and INR 450 crores ($7.4 million) to improve safety and accessibility for women. Our support of the Better Bus Challenge project enabled a start-up to demonstrate the potential of retrofitting existing diesel buses with electric powertrains, which could halve the costs of achieving an all-electric fleet. WRI is currently supporting BMTC as it assesses the integration of Bengaluru’s bus and metro systems.

Following WRI India’s review of Bengaluru’s draft Comprehensive Mobility Plan in 2019, we have been engaged to provide detailed inputs on strategies to improve road safety. Our team has advised and supported actions such as bus priority lanes, safe pedestrian crossings, segregated cycle tracks, speed limit reductions and other measures to ensure pedestrian safety and improve traffic flow.

During the COVID-19 pandemic, as bicycles emerged as a safer commuting option for essential workers than public transport, WRI India collaborated with state and city agencies and numerous citizen stakeholder groups in Bengaluru to explore ways to improve cycling infrastructure. These discussions resulted in innovations to pilot a 34-kilometer pop-up cycle lane along the Outer Ring Road, build 5 kilometers of cycle tracks and pedestrian infrastructure, and enhance bike sharing systems.
Rio de Janeiro

In Rio de Janeiro, WRI Brasil continued to help planners revise the existing urban Master Plan. Our team provided technical assistance and guidance on defining a new macro zoning of the city, which has the potential to create the conditions for compact, connected and cleaner development. Our analysis focused on Planning Area 3, the area around a planned bus rapid transit (BRT) line, and delivered recommendations for implementing transit-oriented development strategies and incentives. Rio expects to enact the revised urban Master Plan by the end of 2021.

Recently re-elected Mayor Eduardo Paes of Rio, with whom we worked during previous terms, has identified revamping the city's BRT as a top priority. WRI Brasil is supporting his administration as it defines its vision of success for the BRT system and structures a bidding process for the three existing corridors as well as for TransBrasil, the next corridor planned for the network. The process, to be launched in 2022, is exploring new concepts in regulation and is likely to enable the implementation of e-buses.

Rio's new administration also committed to advancing road safety through Vision Zero, a strategy to reduce traffic deaths. WRI Brasil will help train and support local staff in the development of Rio's Road Safety Plan to include a Safe System approach, similar to the work we developed in Buenos Aires and São Paulo.

Two Complete Street pilot projects were implemented in the metropolitan region of Rio in 2020, ensuring safer conditions for pedestrians and cyclists. The cities of Niterói and Mesquita, part of the National Network for Complete Streets launched by WRI Brasil and the National Front of Mayors (FNP) in 2017, realized an important paradigm shift in urban road design by prioritizing people over motorized vehicles. Niterói transferred 35% of the road space previously assigned to cars to public transport, increased the space dedicated to pedestrians by 20%, and added 68% more vegetation along its roads. Extensive replacement of paved surfaces with green areas nearly tripled the permeability rate. WRI Brasil promoted an intense exchange of experiences among the network's 20 participating cities, in addition to providing training and recommendations for projects.
**Belo Horizonte**

A WRI Brasil accessibility analysis in Belo Horizonte examined the city’s Public Green Areas to identify which neighborhoods have the best and worst access to public parks and squares, then correlated those findings with income and poverty indices. Our involvement on issues of urban accessibility and equity is expected to inspire other cities to conduct similar work, especially among Cities4Forests project members.

In Belo Horizonte’s Santa Tereza neighborhood, a “tactical urbanism” intervention by WRI Brasil resulted in installation of high-quality infrastructure near an important community plaza. Measures included closing off a street for pedestrian-only use and creating a low-speed zone. In addition, we provided recommendations on a new cycle lane along the main street that connects to the city’s cycling network. The activities are part of a wider plan for making the neighborhood more sustainable and reducing emissions.

**Istanbul**

In 2020, the Istanbul Metropolitan Municipality (IMM) approached WRI Turkey Sustainable Cities to co-develop a city-wide program to encourage walking and cycling as active mobility choices during the pandemic. We collaborated with IMM to launch “Move for Your Health!,” a multimedia program aimed at reducing individual car use and reminding citizens of the hygiene and distancing measures in place on public transportation. The campaign aims to highlight alternative commuting choices and rebuild trust in the public transportation system by reminding citizens of the hygiene measures taken by IMM.

The measures taken against the pandemic have helped us make the point about how important it is to build cities at the human scale. We collaborated with cities to encourage cycling as a healthy commuting mode by developing new bike lanes and communication campaigns, and encouraged walking by designing parklets that give road space back to pedestrians.

*Gunes Yerli*
Director, WRI Turkey Sustainable Cities
ImpactAr

Developed by WRI Brasil in partnership with the Children’s Investment Fund Foundation, ImpactAr tracks how changes to Brazil’s urban bus fleets can affect human health via air pollution, from number of fatalities and hospitalizations to economic and welfare costs. By making the impacts of air pollution on health and well-being visible, ImpactAr encourages cities to initiate or accelerate the transition to green bus fleets.

Methodology Steps Used in ImpactAr Tool

- Fuel combustion and others
- Pollutant emissions
- Pollutant concentration levels
- Mortality and morbidity
- Monetary costs
Targeted Engagement

Drawing upon our experience working with cities, we have learned that sectoral shifts can be observed through wide and sustained adoption of new technologies, business models, policy and regulation, or institutionalized practices. By applying lessons learned from our Deep Dive Engagement, our Targeted Engagement approach catalyzes shifts across key sectors which form the backbone of cities: land use and economic development, transport, and energy and resource efficiency. In each of these sectors, we aim to foster equal access to urban services, which in turn serves as an entry point for equitable urban sustainability. Our approach relies on fostering collaboration and creating synergies across departments, which in turn enables long-lasting and potentially transformative results.
TERESINA: A New Framework for Equitable Development

The riverside city of Teresina is the capital of Piauí, the second-poorest state in Brazil. It’s the largest metropolis in the region, and like many other expanding centers has grown haphazardly over the course of a century. Today, it sprawls in many directions, accommodating a population of more than 850,000 residents. Development is mainly low-density; on the outskirts of town, poor communities cluster informally, often in environmentally sensitive areas.

Urban Master Plans, which are required under Brazilian law, are intended to address these kinds of conditions and encourage better norms for land use. In practice, however, they are often poorly executed. Most Master Plans in Brazil do not have the quality and complexity needed to advance sustainable urban development. Such was the case in Teresina, where the former Master Plan had allowed the city’s growth to exacerbate problems including inadequate infrastructure, inefficient urban services and social inequalities.

However, according to the national statute, Brazil’s urban Master Plans must be revised every 10 years. That mandate gave Teresina the opportunity to realize a transformation — one that would encourage compact, connected and coordinated urban development and promote equality.

New strategies, new incentives

The revision of Teresina’s Master Plan began in 2018, just as major investments in public transport (the BRT, or bus rapid transit system) were being completed. City planners saw the chance to create a blueprint for more sustainable development, but faced major challenges in changing the existing paradigm. With strong support from WRI Brasil, they succeeded. After three years of work, a new urban Master Plan law for Teresina was approved by the city council in November 2019 and sanctioned by the mayor in March 2020.

The new Master Plan includes two key strategies to promote a more just and livable city. First, a land value capture (LVC) instrument was introduced. This tool uses incremental increases in land value to boost public revenues in the form of taxes and fees, which support onsite improvements in the community. The entire city benefits, but especially the poorest areas, which lack basic infrastructure. Second, a requirement for transit-oriented development (TOD) zoning was introduced, promoting the intensification of land use (e.g., higher height limits and density permits, as well as mixed-use and polycentric approaches).
Incentives were also established to promote housing construction along the BRT corridors. (Discounts in LVC charges can be applied in TOD zones if some conditions on housing, mixed-use and other sustainability criteria are met.) This encourages real estate investment in TOD corridors along the BRT system, enhancing the delivery of services and increasing city revenues for investment in other areas.

The revised Master Plan will benefit Teresina citizens in myriad ways over the coming years — for example, through better access to jobs, education and housing and potential improvements in air quality. With densification and mixed-use development along the BRT, residents could see potential GHG emission reductions related to increased use of public transport, as well as reduced travel times. Housing incentives and complementary laws could also provide accommodations for low-income citizens and can be prioritized, especially in the TOD zone.

Establishing a model

WRI Brasil played an active role throughout Teresina’s Master Plan revision process, serving as analyst, convener and advisor. Throughout the project, we worked closely with Latus Consultoria, the consultancy firm hired to develop the new guidelines. During three years of direct and intense technical support to the municipal government, especially the Municipal Planning Secretariat, we conducted capacity building sessions for the technical team, arranged hands-on meetings to redesign plan maps and law articles, and facilitated public discussions and a public hearing about the proposals. Former Mayor Firmino Filho, Urban Planning Secretary José João Braga and Undersecretary Jhamille Whellen were important allies.

“It was challenging but rewarding to contribute to building a better future for Teresina,” Whellen noted. “We counted on immense support from WRI Brasil to make it happen. From the beginning, the WRI team embraced the city, and after several workshops, meetings, seminars and public hearings, we were able to build public support to include TOD into our new Master Plan. Now, we’re establishing a model that will drive Teresina towards urban sustainability.”

With a new, binding Master Plan that addresses key concepts of compact urban development, urban sustainability and equity in land market management, Teresina is now poised for its second century — and a promising future.

The October 2020 election of city mayors all over Brazil coincided with the start of a massive second wave of the pandemic. COVID-19 is impacting our society in a very disproportional way, hitting harder the poor that live in the periphery of our large cities. It’s highlighted the need for interventions capable of closing the huge inequality gap. Despite the difficulties inherent to working from home and in isolation, our staff is keeping the spirit high and effectively collaborating to deliver positive impact to cities and the national policy dialogue.
In São Paulo, WRI Brasil supported the development of six basic project designs for the implementation of Educational Territories, a program supported by the Road Safety Plan and the Plan for Early Childhood. With the goal of reducing social vulnerability in peripheral neighborhoods, especially in early childhood, these designs could presage a wide transformation of areas lacking infrastructure. The projects were completed in January and supported by the Bernard van Leer Foundation and the Bloomberg Initiative for Global Road Safety.

2020 also saw the launch of São Paulo’s Urban Design and Road Works Manual. Defined as one of the most important deliverables of the first phase of the Vida Segura Road Safety Plan, the manual encompasses all modes of transport and essential elements of public areas, from the distribution of space for each user to green infrastructure and traffic-calming solutions. WRI Brasil provided extensive support for the manual in partnership with Cities4Forests, the Bloomberg Initiative for Global Road Safety, and Vital Strategies.

For SPTrans, São Paulo’s transit agency, WRI Brasil evaluated the financial impacts of electric buses for the city’s fleet. We also developed a tool for the financial assessment of 32 different plans proposed by private operators to achieve emission reduction targets during their contract period, which will assist SPTrans in the approval process.

**Campinas**

In Campinas, WRI Brasil is strengthening the case for investments in natural infrastructure that will improve the supply and the quality of city water. With financial support from ICLEI, our team is producing an Investment Case with empirical evidence, as well as a study on investing in natural infrastructure for ecosystem-based adaptation and water security.

**Buenos Aires**

The city of Buenos Aires launched an updated version of its Road Safety Plan for 2020-2023, embedding Vision Zero concepts and committing to cut its traffic fatalities in half by 2030. WRI Brasil guided the structure of the plan, defining actions and indicators, and encouraged the city to launch it with an event during UN Road Safety Week.

**Santiago de los Caballeros**

To improve the integration of public transport systems and provide new services, such as passenger information, cities need data — data that are especially scarce in small or informal systems. Santiago de los Caballeros in the Dominican Republic had neither data nor experience in providing information services but wanted to fill critical gaps in its transportation coverage and access, especially for poorer citizens.

Engaging local universities, civil organizations and the transportation ministry, WRI served as the technical lead for a 2020 project to build a new interface for Santiago’s public transit users, enabling them to see real-time service updates. Our team helped students and government officials collect data through the use of open-source tools and build an online stockpile of information on routes, origins, destinations and schedules. A schematic system map, which had never existed before, was an important addition. Santiago is the first city in the Caribbean to offer such passenger information.
**Addis Ababa**

Each year, millions of trees are planted in Addis Ababa as part of Ethiopia’s ambitious plan to build resilience to climate change and contribute to the nation’s green legacy. In 2021, Cities4Forests launched a pilot project to monitor tree planting efforts in specific sites in the capital. The project deploys GIS tools to chart the growth and survival of trees planted during this year’s rainy season, and follows them over the long term to assess new urban forest cover and the social, economic and environmental outcomes resulting from the conservation and reforestation efforts. The pilot, done in collaboration with Ethiopia Institute of Architecture, Building, Construction and City Development, Addis Ababa City Government’s River Basins and Green Areas Development and Administration Agency, and Addis Ababa City Government’s Environmental Protection Commission, will provide city decision-makers with real-time, reliable data to measure and improve the success of their tree planting projects. It also sparked a dialogue among city government organizations, the public and private sectors and academia on how to maximize the benefits from trees and optimize the allocation of limited tree planting resources.

**İzmir**

The Kemeraltı neighborhood of İzmir, a historic and commercial center in one of Turkey’s largest cities, has been revitalized with a “pedestrians-first approach”. With recommendations and solutions first provided to the city in a 2017 report by WRI, a charming network of old, narrow streets is now rejuvenated and updated for the 21st century, with safe, affordable and accessible public transportation, walkable and bikeable areas, and new public spaces. All are components of healthy, sustainable urban development.

WRI’s analysis focused on improving the transportation network and ensuring cyclists’ well-being in the area, with a goal of creating safe living spaces for all residents. One of the principal WRI suggestions implemented by the city was to close Kemeraltı center, where pedestrian use is heaviest, to motor vehicle traffic between 10:30 am and 5:30 pm and establish a more comfortable circulation pattern for pedestrians. These and other changes have transformed Kemeraltı into a compact, connected and vibrant city center. By taking into account the unique identity of the neighborhood, the project is expected to become a model for other historic cities in Turkey.

**Delhi**

To improve urban air quality in Delhi, WRI India assumed a foundational role in the development of electric vehicle policy for the capital. In 2018, when Indian states were starting to formulate electric vehicle guidelines, WRI undertook a comprehensive evaluation of electric vehicle policies throughout India and initiated a conversation on the urgent need for an electric vehicle policy for Delhi to help mitigate ever-increasing air pollution. WRI India submitted the very first draft of the EV policy framework for Delhi, which set the approach for developing the city’s plan. As discussions continued, WRI was engaged by the government of Delhi to be part of an informal EV policy review group. WRI was tasked with identifying the pros and cons of various policy interventions from an implementation perspective.
Months of work came to fruition in August 2020, when Delhi’s electric vehicle policy was finalized. It focuses not only on the adoption of electric vehicles, but also on job creation in this newly expanding sector. In accordance with the plan, the city government has initiated multiple projects to build a charging network in the city, and to establish a tax exception and subsidy for electric vehicles.

With one of the world’s worst air quality indices, Delhi has now embraced a vision to become the EV capital of India. The shift to cleaner fuels could result in a significant dip in vehicular emissions, signaling a brighter future for more than 30 million residents.

**CityAQ**

Faced with worsening pollution, eight pilot cities across the globe — Bogotá, Guadalajara, Kigali, Leon, Monterrey, São Paulo, Jakarta and Addis Ababa — are strengthening their ability to anticipate and manage air quality, thanks to a new, WRI-developed data tool. CityAQ, created in partnership with NASA’s Global Modeling and Assimilation Office, combines globally available, publicly funded, open resources with harder-to-collate local data, allowing cities to track and forecast air pollution and determine its sources. Sharing this easy-to-use, accessible tool, WRI is creating a network of city allies that can then implement new approaches to air quality management.

**Building Efficiency Accelerator**

For five years, the Building Efficiency Accelerator (BEA) has worked with seven cities to speed up commitments to, and implementation of, sustainable building policies and projects. Through technical assistance, peer-to-peer learning, and the facilitation of multi-stakeholder planning processes, the BEA engaged at either a deep level (with dedicated resources for full-time support) or a network level (with minimal dedicated support).

In 2020, the BEA introduced a new program of small Leadership Grants, which has led to outsized impact per dollar. It had unprecedented success in strengthening building efficiency efforts by setting three objectives: to “count it” by gathering stakeholder feedback and building sector data and working with award-winning BEA-tested tools like the Building Efficiency Targeting Tool for Retrofits; to “change it” through BEA-guided work plans, best practices, policy development, and pilot programs and projects; and to “scale it” through regional city peer learning and through national-subnational engagement that encourages building efficiency action at larger scales.

Together, these approaches resulted in BEA cities making more documented progress toward building efficiency goals in 2019-2020 than any previous year. This work is projected to mitigate 110 million tCO2e by 2030.

Africa’s cities can become thriving and resilient, but only if we move beyond the usual approaches towards research, data and critical analysis. Cities need to move towards integrated and inclusive planning and discard administrative and political boundaries that are stifling resilience.

Aklilu Fikresilassie
Director, Thriving Resilient Cities, WRI Africa; Representative of WRI in Ethiopia
National-Level Engagement

While action by city governments is critical, they cannot deliver on their own. Leadership from national governments is needed to create enabling conditions for local innovation and investment to drive inclusive, resilient and low-carbon urban development. National governments are increasingly recognizing the crucial role of cities in delivering development and climate goals, yet less than two in five countries have an urban strategy that is reflected in their economic framework, budget allocations, infrastructure planning or governance structures. Through the Coalition for Urban Transitions and other partnership platforms, WRI Ross Center works with national governments to develop policies to support urban transformation and unleash the power of cities.
MEXICO: 
Mobility and Road Safety Are Recognized as Constitutional Rights

Amending a nation’s constitution is a difficult and deliberative process, and a successful outcome is far from assured. When it does occur, as happened last year in Mexico, the change can signal a new understanding of the government’s role in building a society that supports the well-being of every citizen.

Although most national constitutions include the right to free movement and rights to life, health and a clean environment, Mexico took an important step forward in specifically declaring safe mobility a human right. It further affirmed that mobility should be sustainable, accessible, efficient, high-quality and inclusive. Passage of the amendment reflects growing concern over how dangerous the country’s roads and transport systems can be. Despite efforts to reduce traffic fatalities, the number of deaths on Mexico’s roads held steady over the last decade. According to the World Health Organization, it remained at more than 16,000 annually between 2010 and 2019.

Since 2012, WRI Mexico and more than 40 social, technical and activist organizations had urged legislators to adopt more policies, laws and national rights to promote and improve public mobility. Because the Mexican Congress lacked a mandate to legislate on mobility, a constitutional reform was needed. Over the past eight years, our team developed legal and technical analyses that underscored the need for a constitutional amendment to support a new law. We provided four major assessments on its feasibility, as well as other documents and presentations, and encouraged a dialogue between the Presidency and local mobility authorities. Ongoing, WRI-led communications campaigns and workshops and a constant exchange with legislators emphasized mobility and road safety as national priorities. By 2019, the Senate had voted to approve the constitutional reform, and the measure then passed to the House of Deputies for discussion.

A coalition for change

Multiple allies joined the pro-amendment cause, including NGOs like ITDP and Centrico. Mexico’s cycling groups and victims’ associations were also strong champions, calling attention to the country’s multiple cyclist fatalities in recent years. One prominent victim was Emmanuel Vara Zenteno, a cyclist and activist who served as the director of mobility management in the city of Puebla; he died after being struck by a bus in November 2018. During the October 2020 congressional session, Areli Carreón, a cycling and road safety activist and one of the most vocal
advocates for the change, posted a striking photo thread on Twitter of cyclists who had died in recent road crashes. Carreón’s organization, Bicitekas, noted, “They are not statistics; they are people we love.”

On October 14, 2020, the country’s Chamber of Deputies unanimously voted in favor of adding the amendment to Mexico’s constitution. It reads: “Every person has the right to mobility under conditions of safety, accessibility, efficiency, sustainability, quality, inclusion and equality.” During the Chamber of Deputies session, speakers recognized the victims of road crashes, and representatives invited cyclists and victims’ relatives to the stage. The level of emotion grew with each vote cast. The final tally was 351 in favor, 0 abstentions and 0 votes against (out of 500 deputies). On December 18, 2020, the constitutional reform was officially approved and published when 23 out of 32 local congresses ratified the change.

From declaration to legislation

Within six months of the amendment’s ratification, the Federal Congress is required to approve a General Law on Mobility and Road Safety — a law that would clarify roles and responsibilities at local, state and federal levels, improve the distribution of funding for mobility projects, and create a unified database for the administration of licenses, plates and fines. In February 2021, WRI Mexico presented a top-level forum introducing 10 guiding principles that the new law must consider to guarantee the right to mobility and its application in the national territory.

The principles were the product of a WRI initiative that convened five roundtable discussions with more than 100 key actors from the three levels of government, civil society, state and municipal mobility authorities, the private sector and multilateral organizations. “These guidelines are based on multisectoral consensus, with the vision of guaranteeing the right to mobility to all people,” stated Adriana Lobo, executive director of WRI Mexico. She called on the government to act quickly to formulate and approve the General Law of Mobility and Road Safety.

The newly enshrined constitutional right to mobility establishes a solid legal foundation to ensure all Mexican people have access to safe modes of travel, and will help to reduce the tragic toll of road deaths throughout the country. The long-term effects of the mandate and the regulatory scheme it empowers are expected to be far-reaching, as the states that make up the Mexican Republic harmonize their legislation with the constitution and the eventual mobility law. In the future, other Latin American countries could follow suit, extending the concept of mobility as a human right across the region.

“We are convinced that we shouldn’t aspire to go back to normal, that this crisis is a call to solve the urgent structural problems of inequality and sustainability. Recovery requires collective engagement, partnerships and decisions based on data and research. Despite the challenges of the past year, we see a strong willingness and commitment to act and collaborate for a better future.”

Adriana Lobo
CEO, WRI México
China

Electric vehicles have already gained significant traction in China, prompting an urgent need to improve the national charging station network and address the current lack of grid capacity. Policymakers have spent several years devising a plan to coordinate integrated development of vehicle electrification with the emerging renewable energy sector. WRI Ross Center has been a close partner in this work, conducting and sharing international research that demonstrates electric vehicles can be aggregated and mobilized to provide a wide array of grid services. In 2020, takeaways from the joint research were incorporated into a draft of China’s 2035 Plan.

WRI mapped out the China-specific regulatory and technical barriers to vehicle grid integration as well as potential solutions. In addition, we organized a large-scale, open-door workshop in October 2019 to solicit expert opinions across different sectors and promote buy-in of WRI’s recommendations. The event engaged a wide array of possible stakeholders, from state utility councils to industry representatives. Presentations indicated that “smart charging” is a commercially and technologically feasible solution, ready for scaling up.

India

Air pollution is one of India’s most significant development challenges. To address this growing threat to public health, agriculture yields, climate and water security, the country must adopt new financial and governance approaches. In 2020, WRI Ross Center’s work with India’s 15th Finance Commission contributed to a turning point in both the amount of public investment and the methods for air quality management.

The country has had clean air legislation and national ambient air quality standards in place since 1981, but regulatory enforcement has been limited. Until recently, there were few mechanisms for considering clean air goals in the evaluation of public investment programs in transport, energy, and other infrastructure that contribute to greenhouse gas emissions. Our engagement with the 15th Finance Commission, the first Finance Commission ever to discuss air pollution, helped to elevate air quality into a central development concern, and resulted in specific allocations to states to address poor air quality. On the basis of recommendations in the interim Commission report, the national Union Budget for air pollution in 2020 was 10 times higher than in the previous year.
In addition, the Finance Commission introduced a new approach to air pollution investment, directing funds managed by the Ministry of Housing and Urban Affairs to be invested in infrastructure and services that enable low-emission urbanization. It also introduced the new concept of airshed-level governance to reflect the reality of pollution’s movement across boundaries.

The WRI team achieved results by focusing attention and technical support on a high-level, constitutionally mandated body that has the power to shape not only regulations, but also the public investment required to tackle air pollution. Our approach to solving a complex health and environmental challenge is replicable, and some of its tactics are included in the new USAID-funded program that will work in Indonesia and Africa.

**Turkey**

From 2019 to 2020, WRI Turkey developed a national-level communication program to promote cycling as a commuting mode in three pilot cities (İzmir, Eskişehir and Lüleburgaz), and supported these cities with training and mentoring to develop their own campaigns. In June 2020, İzmir and Lüleburgaz executed their own COVID-related cycling promotions to encourage citizens to use cycling for their daily transportation needs.

**Brazil**

As part of Cities4Forests efforts, WRI Brasil delivered a condensed version of a nature-based solutions (NBS) financing accelerator lab. The accelerator is based on TheCityFix Lab methodology, implemented in India and Mexico, which utilizes a series of cohort-based workshops to nurture innovative ideas from urban stakeholders, and help evolve those ideas into actionable business models that suit municipal decision-making and markets.

The event, held in October 2020, provided support to the staffs of three urban NBS projects in the cities of **Palmas**, **Rio Branco** and **Recife**. Topics discussed in the capacity-building sessions included how to financially structure sustainable projects and pitch them to potential investors. The project teams are now finalizing steps for pre-feasibility studies and defining potential financing opportunities. WRI Brasil is using the workshops to pilot the methodology and seek partners for a year-long implementation of the accelerator.

WRI Brasil continued to manage several coalitions, groups and networks of stakeholders to promote debate, learning and dissemination of the sustainable cities agenda in Brazil. Fruitful conversations on the topics of Urban Finance, Urban Development, Complete Streets and Public Transport were conducted with organizations such as the Network for Financing Sustainable Infrastructure in Cities (FISC network), whose members include international and national development banks, research institutions, project preparation facilities and the National Front of Mayors. The group’s discussions were published in August 2021 to promote the implementation of sustainable urban infrastructure investments in Brazil.

The QualiÔnibus Benchmarking Group, also coordinated by WRI Brasil, presented an overview of cities’ transport experiences during COVID-19 that reached more than 650 people from 125 cities and 13 countries. The group’s membership grew from 14 to 22 cities during 2020, and now covers all regions of the country.

COVID-19 was also the topic of four meetings held during 2020 with secretaries and directors of urban planning institutes from 11 cities across Brazil. WRI
Brasil partnered with the Lincoln Institute of Land Policy, the National Front of Mayors, ArqFuturo and Insper to host discussions of current and future challenges in city planning as a result of the pandemic. Topics spanned fiscal challenges, urban development tendencies and economic recovery response to the crisis. Partners identified a list of research agenda opportunities and regulatory framework improvements.

**The Stockholm Declaration**

As a member of the steering group for the Third Global Ministerial Conference on Road Safety, WRI Ross Center helped to initiate a new decade of action for road safety worldwide. In February 2020, the conference announced The Stockholm Declaration, an ambitious and forward-looking proposal that connects road safety to the implementation of the 2030 Agenda for Sustainable Development. The declaration highlights the need to improve dangerous intersections and reduce traffic fatalities in tandem with global efforts on climate, poverty and equity, ensuring that these goals will be important priorities for organizations such as the UN and WHO.

WRI experts participated in strategic planning meetings for more than a year in advance of the Conference, helping to shape speaker selection and discussion topics to develop the link between road safety and sustainable development. These theses, detailed in WRI’s 2018 report, “Sustainable and Safe,” make up the key elements of the Stockholm Declaration.

**Data Portal for Cities**

Developed in partnership with the Global Covenant of Mayors for Climate & Energy, the Data Portal for Cities is a user-friendly, online database that provides city-level emissions data for the four key sectors responsible for the majority of urban emissions: residential buildings, commercial buildings, on-road transportation and solid waste. By providing openly accessible data, the Data Portal helps city and national leaders build community-scale greenhouse gas inventories and craft appropriate policy.
Coalitions

WRI Ross Center helps build breakthrough coalitions that engage diverse partners in innovative collaborations to shape new narratives, policies and practices that disrupt the status quo and help catalyze low carbon, climate resilient and inclusive urban development. We foster dialogues, facilitate peer-to-peer learning, and sustain collaboration through a collection of national, regional, and globally focused coalitions. A core tenet of this approach is the development of in-country coalitions of local stakeholders and national-government representatives, whose collective aim is to identify challenges and advance solutions.
Coalition for Urban Transitions

Co-hosted by WRI Ross Center and C40 Cities Climate Leadership Group (C40), the Coalition for Urban Transitions (CUT) supports national-level decision-makers in meeting their economic, social and climate goals by unlocking the power of cities to reduce emissions and boost living standards. During the global pandemic, the Coalition responded to an urgent need, providing new analysis and research on how to build back better through cities.

In March 2021, the Coalition released Seizing the Urban Opportunity, a flagship global report that provides research on key sectors in six emerging economies and how national governments can recover from COVID-19, tackle the climate crisis and secure shared prosperity through cities. Seizing the Urban Opportunity provides research and national policy recommendations for China, India, Indonesia, Brazil, Mexico and South Africa on how to utilize cities as catalysts for sustainable, inclusive and resilient growth. The report outlines how these national governments can create low-carbon, resilient and inclusive futures by adopting measures to cut emissions; enabling new infrastructure, technologies and practices to reduce climate risks; and supporting vulnerable populations and marginalized communities. The report was created in consultation with experts and policymakers in the six focus countries and more than 36 organizations on five continents. Its release was intentionally timed to precede the 26th UN Climate Change Conference of the Parties (COP26) scheduled for Glasgow in November 2021.

The CUT Mexico team also co-hosted several Building Back Better events with WRI Mexico to engage directly with decision-makers. With local stakeholders, the team is working to advance zero-carbon, resilient and inclusive cities through national public policies, programs and projects that enable Mexican cities to enhance economic, social and environmental conditions.

The COVID crisis also presented the Coalition with opportunities for national-level engagement in Ethiopia, Indonesia, Kenya and South Africa. Broadly speaking, these countries have requested assistance to revise/implement national urban development policies and to build COVID-19 recovery into their urban frameworks, with the potential for longer-term engagement beyond initial policy revision. The Coalition signed a Memorandum of Understanding with the South African government prioritizing a green recovery from COVID through equitable economic growth in compact, connected, coordinated cities.

Accelerating China’s Urban Transition, a flagship report published by the Coalition in March 2021, explores how cities can help China advance toward high-quality growth and carbon neutrality. It provides a robust economic case for transforming China’s urban development model, outlines key priorities to be taken in specific sectors and sets out strategies for financing this transition. The report was led by the Grantham Research Institute on Climate Change and the Environment at the London School of Economics, WRI, Hong Kong University of Science and Technology and Tsinghua University.

The Coalition’s Global Finance Workstream, led by LSE Cities, focused on how national governments’ sustainable fiscal policies and financing strategies can support the development of clean, compact and prosperous cities, with a geographic concentration on China and Mexico.
In March 2020, the Coalition published *Financing a Sustainable and Inclusive Urban Transition in China*. The publication, informed by seven academic papers which were independently published by a peer-reviewed journal, was shaped through sustained engagement with the Asian Development Bank, China’s National Development and Reform Council and its Ministry of Finance.

Also in 2020, the Coalition launched the Global Economics Workstream, led by the University of Leeds. It focuses on the wider social and economic impacts of frontrunning climate action in China and Mexico. The Coalition established a Steering Group composed of representatives from leading global academic, multilateral, non-profit and private sector organizations, and published a series of policy briefs focused on frontrunning climate action in both countries. And the Coalition published the second and final knowledge product for this workstream in September 2021, *Mexico: Building Back Better – Financing Urban ‘Hubs’ for Sustainable Employment Generation*.

In other actions, the Coalition partnered with the German government to explore new options to create a “lighthouse” initiative to bridge the gap between national and city-level engagement — an example of how the Coalition’s influence continues to expand among regional and national governments.

**NUMO, the New Urban Mobility Alliance**

The COVID-19 pandemic spurred new pilots, research and policy recommendations by NUMO, the New Urban Mobility alliance, in 2020. As the group quickly launched new initiatives to connect frontline workers with bikes and e-scooters for commuting, it also developed an online platform to track and share COVID mobility solutions — a resource for cities around the globe. NUMO’s decision framework to guide safety measures in urban transportation also helped systems weather the crisis. Our policy experts continued to urge governments to make investments in public transit and infrastructure key pillars of their economic recovery plans.

Beginning in 2020, a pilot program launched in Detroit connected essential workers to safe, reliable transportation during the COVID-19 pandemic. The program, which matched participants with Spin and General Motors e-bikes and MoGo e-scooters, provided low-cost mobility for those who needed it most. Hospital, grocery store, pharmacy, manufacturing and other employees living within six miles of their place of employment participated. The program built on recent city efforts to expand access to affordable mobility for residents and was the result
of a collaborative partnership led by Detroit’s Office of Mobility Innovation (OMI), NUMO and NextEnergy.

In Colombia, NUMO worked with a group of epidemiologists, data scientists and transportation planners to understand how transit agencies can reduce the risk of COVID-19 transmission while allowing for increased occupancy of vehicles. The collaborative research effort found that a combination of five factors can substantially reduce the risk of transmission vehicles. Based on the findings, NUMO developed a decision tree for transit operators to guide them through how these key factors interact. The recommendations will be published in the peer-reviewed journal *Infectio*. NUMO is currently engaging with APTA, MTA, WMATA, and other transit agencies to adapt and contextualize these recommendations for the United States.

COVID Mobility Works, launched by NUMO in June of 2020, is an independent platform dedicated to collecting, synthesizing and sharing mobility initiatives that are keeping the world moving during the COVID-19 pandemic. It was designed to help policymakers, planners, innovators, researchers, service operators and advocates share responses to the public health and safety crises brought on by the pandemic, learn about other efforts, and act to create more resilient, inclusive and sustainable transportation systems. The platform tracks more than 500 initiatives from Ecuador to United Arab Emirates and is the result of partnership with Polis, TNO, the Transportation Sustainability Research Center at the University of California Berkeley, TUMI, the Urbanism Next Center at the University of Oregon, and the World Economic Forum’s Global New Mobility Coalition.

In other actions, NUMO worked with the city of Bogotá in 2020 to develop a public engagement campaign to redesign Séptima Avenue, one of its principal transit arteries. Using Streetmix, an online platform that can be accessed by anyone, citizens were invited to drop and drag street infrastructure elements to build their ideal configuration of the thoroughfare. The program received an unprecedented response, with over 6,000 proposals from citizens in two weeks. NUMO conducted a quantitative analysis to generate insights into how the populace thinks the street’s right of way should be allocated. These insights will guide the new conceptual design for Séptima slated for 2021.

Additional online tools developed by NUMO in 2020 are helping cities understand the possibilities of micromobility. The first illustrates how data generated by micromobility businesses can show how the services are impacting and integrating communities and existing transportation networks; the second is a guide to how cities can engage communities and new mobility services, such as electric scooters and ride-hailing, to deploy transportation innovations inclusively and intentionally.
Knowledge Sharing

WRI Ross Center has earned a global reputation as a source for reliable, practical research on how fast-growing cities can deliver core urban services. During the past year, COVID-related travel restrictions and safety concerns for in-person engagements pushed us to lean more heavily on virtual knowledge sharing as a means of providing technical support to urban stakeholders.

Through online events, an expanded webinar program, and digital dissemination of action-oriented research, we have not only adapted to the pandemic’s limitations, but have developed new engagement methods that will enable us to expand the reach, and potential impact, of our resources. We also worked with city governments and other partners to help develop knowledge resources on how cities are responding to the pandemic’s myriad challenges.
The COVID-19 pandemic necessitated a host of shifts in how we think about knowledge sharing—both in our methods and in the nature of the resources we create. These adaptations have provided us with powerful insights that will help us build on our legacy of action-oriented research.

**WORLD RESOURCES REPORT: Towards a More Equal City Synthesis Report**

The synthesis report of the World Resources Institute’s flagship research project on cities, *World Resources Report: Towards a More Equal City*, will launch in fall 2021. The report synthesizes research from 14 working papers and case studies led by 31 authors over six years, documenting how improving access to core urban services like water, sanitation, and housing leads to citywide economic and environmental benefits.

Addressing inequities in cities has never been more important. The COVID-19 pandemic has laid bare growing urban inequalities between those who have the resources and options to remain safe and employed and those who do not. It has exacerbated a long-standing urban services divide, with disastrous consequences. The synthesis report, *Seven Transformations for More Equitable and Sustainable Cities*, highlights seven necessary transformations cities can make to bridge the urban services divide and move towards greater equality.

The global launch event for the report is designed to coalesce support around a shared agenda for urban equity. Following the release, the team will focus on ongoing engagement with stakeholders around the world—including in-country workshops and messaging on putting urban equity at the heart of climate action—to further disseminate our findings and to encourage change on the ground.

**Urban Water Resilience in Africa**

City leaders in Africa face converging challenges: providing water and sanitation services for growing populations, managing the risks of watershed degradation and competing water demands, and designing for a changing climate. WRI’s Urban Water Resilience initiative works with cities in Africa to meet these challenges through research partnerships that enhance capacity and support collective action to improve access to clean water, water resource management and climate resilience.

A new report, *Water Resilience in a Changing Urban Context*, demonstrates that African cities can address these challenges with a fresh approach centered on water resilience and identifies four priority pathways for action for cities to build urban water resilience.

A webinar hosted by WRI in December 2020 explored how to raise political ambition. Experts from WRI as well as thought leaders in Africa working on WASH, water security, and climate change highlighted key opportunities to elevate investments in water resilience in COVID-19 stimulus packages and opportunities for collaboration.

In spite of the pandemic, work in Addis Ababa and Kigali advanced steadily with water assessments finalized and priority actions defined together with a broad range of city stakeholders. Activities in Musanze, Dire Dawa, Johannesburg and Gqeberha have started. Working closely together with WRI Africa and local partners and institutions has ensured on-the-ground agility and local ownership of the initiative and its outcomes.
**Water Resilience in a Changing Urban Context**

Cities in Africa face escalating water-related challenges, compounded by worsening climate change and rising urbanization. This report frames core challenges and major barriers that prevent water resilience in African cities and offers four priority pathways for action as a starting point to build resilience.

**Seizing the Urban Opportunity**

This global report by the Coalition for Urban Transitions shows the power of urban transformation in six major emerging economies – China, India, Indonesia, Brazil, Mexico and South Africa – outlining how national governments can create low-carbon, resilient and inclusive cities.

**Costs and Benefits Appraisal Tool for Transit Buses**

This working paper explains an updated version of the Costs and Emissions Appraisal Tool for Transit Buses. It aims to inform bus operators and city officials of the costs, emissions, and social benefits associated with bus fleets using different fuel types.

**The Economic Case for Greening the Global Recovery Through Cities: 7 Priorities for National Governments**

This paper by the Coalition for Urban Transitions explores priorities for national governments that can yield substantial economic dividends, rapidly create and protect jobs for vulnerable populations, and deliver quick and durable health and environmental benefits for residents.

**How Dockless Bike Sharing Changes Lives: An Analysis of Chinese Cities**

This report investigated the comprehensive nationwide impact of dockless systems in 12 Chinese cities with relatively high bike-share usage and a thriving bike-share economy: Shanghai, Beijing, Guangzhou, Shenzhen, Chengdu, Wuhan, Hangzhou, Nanjing, Xi’an, Jinan, Xiamen and Lanzhou.

**Informal and Semiformal Services in Latin America: An Overview of Public Transportation Reforms**

This paper, with the Inter-American Development Bank, examines semi-formal and informal transport services as viable and legitimate public transport options in Latin America. It critically analyzes the advantages and disadvantages of bus reforms and alternative approaches such as mapping.
This paper presents analysis of the fiscal and equity impacts of urban land value capture instruments based on three case studies. These include the Lideta redevelopment in Addis Ababa, Ethiopia; the Outer Ring Road in Hyderabad, India; and Água Espraiada Urban Operation in São Paulo, Brazil.
WRI Ross Center Prize for Cities

Inclusive cities for a changing climate

The 2020-2021 Prize for Cities was awarded to Rosario, Argentina, where a remarkable urban agriculture program turned vacant lots into gardens that create jobs and feed local residents.

The independent Prize for Cities jury was impressed by the scale and adaptability of Rosario’s agroecology program and how it addressed this cycle’s theme of “inclusive cities for a changing climate.”

Originally created in response to the 2001 Argentinian economic crisis to provide low-income residents with a source of healthy food and income, over its nearly two-decade tenure the program has adapted to become a cornerstone of local climate action planning, as more extreme flooding and heat have impacted the city.

Rosario has worked to embed agriculture across municipal programs, from climate action to social development, and across settings, from local markets to parks to the greenbelt in the peri-urban area. In doing so, the urban agriculture program has fundamentally changed the way the city uses land – a huge hurdle for any locale – and demonstrated how local food systems can be a part of a city’s core infrastructure.
The COVID-19 crisis has exposed and exacerbated the deep inequities in our society, putting into sharp relief the need for positive urban transformation. Indeed, the gravity of the pandemic has shown how important it is to build inclusive resilience, to think creatively and collaboratively, and to address problems holistically.

Launched just before the pandemic, the 2020-2021 Prize cycle nonetheless received over 260 submissions from 54 countries for the $250,000 grand prize and $25,000 finalist awards. These urban change-makers show what’s possible, demonstrating how big transformations can start small and create remarkable outcomes.

The 2020-2021 finalists were:

**GRAND PRIZE WINNER**

**Sustainable Food Production for a Resilient Rosario**
Growing food for a healthier, more resilient city
ROSARIO, ARGENTINA

**DistritoTec**
Innovating district transformations for more compact, livable cities
MONTERREY, MEXICO

**Kibera Public Space Project**
Co-creating infrastructure for resilient, thriving neighborhoods
NAIROBI, KENYA

**London’s Ultra Low Emission Zone**
Ensuring clean air is a right, not a privilege
LONDON, UNITED KINGDOM

**Women’s Action Towards Climate Resilience for the Urban Poor**
Empowering women to be community climate leaders
AHMEDABAD, INDIA
Looking Ahead

Across the world, cities are seeking to shift from business as usual to new ways of managing land, infrastructure and services. The COVID-19 pandemic has only intensified the need for innovative approaches that center equity. In a time of increasing climate variability and a tightening carbon budget, WRI Ross Center is providing the tools cities need to meet the challenges ahead.

We are responding to emerging opportunities and growing political momentum with major pushes in four areas. First, we are stepping up work on electric mobility, drawing on new funder interest and a key window of opportunity. Second, we are building a world-class air quality program that is integrated across our portfolio, cementing our ability to be a go-to partner in this crucial area. Third, we are strengthening our data and spatial analysis capabilities and sharing them with partners. Fourth, we are galvanizing a locally led, globally supported initiative to advance urban water resilience in Africa.

Electric Mobility

The electrification of school buses represents a unique opportunity to accelerate decarbonization while bringing direct, tangible benefits to every community in the United States. WRI’s Electric School Bus Initiative focuses on electrifying the entire fleet of 480,000 U.S. school buses by 2030. Partnering with school districts, utilities, manufacturers, and local, state and federal authorities, we are working to aggregate demand, scale manufacturing, change policy incentives and develop new financing models.

As electric vehicle adoption accelerates, so is demand for public charging infrastructure. Accommodating this growth equitably and at the speed needed will require a concerted effort. WRI Ross Center is actively collaborating with a range of stakeholders on new solutions, including using existing streetlight infrastructure to increase availability of on-street charging.

WRI Ross Center is also a key partner of the TUMI E-Bus Mission, which aims to help hundreds of cities procure at least 100,000 e-buses by 2025. Through technical materials and training workshops, we are helping cities navigate the challenges of e-bus adoption. A related project, TUMIVolt, is helping cities build key technical capacities, including on renewable energy use, battery production and recycling, charging infrastructure, financing concepts and types of e-vehicles.
Air Quality

It is imperative that we work at all levels of government and across every sector to establish new partnerships and governance frameworks to tackle air pollution at the scale and speed needed. Air pollution is the world’s number one environmental health risk, affecting cities of all types. Overall, air pollution kills more people than TB, HIV/AIDS and malaria combined. It increases vulnerability to infectious disease and affects every organ in the body. And it is a development and climate challenge, reducing crop yields, damaging trees, limiting carbon sequestration and accelerating ice melt.

Clean Air Catalyst, a new flagship program launched by the U.S. Agency for International Development (USAID) and a global consortium of organizations led by WRI and Environmental Defense Fund, uses new approaches to unraveling the air pollution knot to better understand and address source emissions. Together with USAID, we are using new data, community and media engagement, science alliances, and tools to build source awareness at the city level, converting the intense demand for clean air into momentum on solutions.

Data

Despite the data revolution, most city leaders have poor information about what is happening in their cities. These knowledge gaps are particularly acute in low-income and fast-growing cities, which have fewer resources to invest in data collection, processing and analysis. This “knowledge drought,” however, exists amid a flood of data from remote sensing, citizen science, social media and big data generated by the digital economy.

WRI Ross Center’s data initiative is focused on leveraging new streams of data to enable integrated, strategic and collaborative urban planning in more cities. We aim to increase the use of open data, open methods and open code to spread information, exploring thematic areas including water and climate resilience, land use and urban expansion, equity and social vulnerability, and access to services and opportunities. Our goal is to match the supply of analytics to the demand for solutions.

Urban Water Resilience in Africa

African cities need to be both more resilient to water risks and provide better water services. Nearly half of all city dwellers in sub-Saharan Africa lack access to piped water, while nearly 90% lack access to piped sewer connections. Meanwhile, nearly two-thirds of the continent’s cities are at extreme risk of climate- and water-related shocks. In the next 20 years, Africa’s urban population will double, the demand for water will quadruple, and the effects of climate change, including flooding and scarcity, will compound the crisis.

Cities across the continent face three immediate challenges: expanding water and sanitation services for growing populations, managing watershed risks largely outside city jurisdictions, and designing for climate resilience. WRI Ross Center is undertaking a three-year program to help cities address their water risks and vulnerabilities through research, technical assistance and knowledge sharing. Through partnerships with six cities, we are developing data-based action plans to address Africa’s urban water dilemma.

We have already launched a major report and are working closely with local and regional stakeholders to implement assessments and priority actions. A high-level steering committee, including leaders on public and private finance in Africa, has also been established to help design a new catalytic fund to scale investments in water resilience in African cities. Key stakeholders will be engaged at COP26 to support the building of an Africa-led Coalition on Urban Water Resilience supported by the new fund.
The resilience of WRI Ross Center was tested over the past year. But thanks to the support and flexibility of our donors, the commitment of our staff and partners, and a diversified portfolio, our finances remained stable in FY20. Our FY21 budget is projected to grow to over $30 million.
WRI Ross Center Funding

**In-country direct grants include:** Bernard van Leer Foundation, PROTRAM, Qualcomm, British Embassy, European Commission, Pirojsha Godrej Foundation, ICS, Energy Foundation, Transsantiago, Scotliban-Optimo, Danfoss, Fondation Botnar, Shakti Sustainable Energy Foundation, Ford Foundation, Lincoln Institute, Itaú, EQFCO, Omidyar Network

**Other funders include:** European Climate Foundation, Swedish Fund, McKinsey, Arconic, EcoDIT, Energy Foundation, ODI, Cities Alliance, FIA, NREL, Climateworks, Uber, C40, National Geographic Society, Summit Foundation
The work of WRI Ross Center is made possible by the generous support, collaboration and partnership of our donors. Many of these contributors maintained or increased their support during the global pandemic, recognizing the relevance of our work to a green and inclusive economic recovery and allowing us flexibility to adapt to changing circumstances on the ground.

We are immensely grateful for their commitment to our work and to our shared vision of resilient, inclusive and livable cities.

A generous reinvestment of $63.5 million from Stephen M. Ross Philanthropies has given us a strong foundation to deliver against an ambitious strategy for the next five years. At more than double the amount of the initial grant that established WRI Ross Center, this renewed commitment will give us the resources to step up the pace of change and increase the scale our impact. It will ensure that NUMO, the New Urban Mobility alliance, remains on a stable course and it will enable us to continue amplifying innovation in urban transformation through the WRI Ross Center Prize for Cities.

We are grateful to have received several large, multi-year grants, including $30 million from the Bezos Earth Fund to scale e-mobility in the United States through school bus electrification. Funding of up to $20 million from the U.S. Agency for International Development will strengthen our air quality program, Clean Air Catalyst. We thank Bloomberg Philanthropies for their generous renewal of more than $19 million for global road safety work. The Global Environment Facility is supporting UrbanShift, a partnership enabling integrated approaches to urban development, with a grant of $16.2 million, as well as the Zero Carbon Building Accelerator, with a grant of $2 million. We also acknowledge grants from the German government totaling $12.5 million, which will support our work on the Transformative Urban Mobility Initiative E-Bus Mission, NDC Transportation Initiative in Asia, Transformative Governance in Cities in Latin America, and Urban Water Resilience in Africa.
2020-21 Donors
(Includes revenue received between June 1, 2020 and July 1, 2021 and older grants still open as of October 1, 2019)

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We are leased to acknowledge our institutional strategic partners, who provide core funding to WRI:

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