

WORLD Resources | Ross Institute | Center

WRI ROSS CENTER PRIZE FOR CITIES

Accelerating momentum for climate-ready communities

2023-2024





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Cities are on the frontline in the battle against climate change, and many are fighting back. The projects highlighted in this book represent the vanguard of urban innovation, showing some of the many paths toward climate-ready cities.

Given the urgency surrounding climate action – with deadly heatwaves, flooding and landslides becoming commonplace – we selected the theme of "Accelerating Momentum for Climate-Ready Communities" to guide this cycle of the Prize. Each initiative featured here is a testament to visionary leadership and unwavering dedication to create transformative change. We believe each represents a bold, impactful solution to addressing the climate emergency.

We sought applications from projects addressing the magnitude of climate challenges by increasing the speed, scope or scale of inclusive climate action. The response to our call for submissions was nothing short of inspiring, with 200 applications hailing from 148 cities across 62 countries, including 94 cities new to the Prize. From housing to green power, waste management to transit, the diverse array of projects underscores a remarkable dedication to forging a resilient, sustainable urban future.

But our mission extends beyond just rewarding excellence; it is about catalyzing global change. We hope that these finalists serve not only as a testament to the ingenuity and dedication of those who have already taken action but also as beacons of possibility for others.

Let these stories inspire you to envision what is possible in your community and motivate you to take the bold steps toward that future. Together, we can transform our cities and our world.



Rogier van den Berg Global Director WRI Ross Center for Sustainable Cities

About the Prize

The WRI Ross Center Prize for Cities is awarded to trailblazing projects and initiatives based on their contribution to inclusive urban transformation and relevance to a cycle-specific theme.

WRI seeks to inspire urban changemakers across the globe by amplifying lessons learned and telling impactful stories of inclusive urban transformation. With the generous support of Stephen M. Ross, the Prize was awarded for the first time in 2019.

Submissions are sourced through an open call and from recommendations made by an Advisory Council, a network of leading urban practitioners and thinkers. From this pool, an international and multi-disciplinary evaluation team selects five finalists based on how they exemplify qualities to be emulated: they should apply big ideas to critical urban problems; demonstrate life-changing impact on people's lives and on their communities; and have ripple effects on institutions, the wider city and other cities.

The independent Prize Jury, composed of distinguished leader in urban affairs, selects the grand prize winner from five finalists through deliberation and voting based on their unique and diverse experiences and expertise. A cash prize of \$250,000 is awarded to the grand prize winner and each runner up receives \$25,000.



A Movement of Changemakers

The Prize brings together people who dedicate their lives to creating more inclusive and sustainable cities.

- **Applicants** the pool of exceptional projects identified as finalists and winners expands each cycle, with applicants from the public, private and non-profit sectors submitting their projects and initiatives.
- **Jury** leaders and visionaries from civil society, business, academia and government, who each have an exceptional track record and commitment to sustainable, inclusive cities.
- Advisory Council several hundred urban practitioners and thought leaders from across the globe recommend
 applicants every cycle and help spread the word about exemplary work.

This growing community of urban changemakers is driving a common agenda in pursuit of inclusive and sustainable urban transformation. Together, we are building new knowledge and elevating successful examples of urban transformation on the global stage.



5 Finalists from Around the World



2023-2024 THEME: Accelerating Momentum for Climate-Ready Communities

2023 was the hottest year on record, with 2024 likely to take its spot, underscoring the urgent need for action to limit climate change to 1.5C (2.7F) above pre-industrial averages. With more than half the world's population living in urban areas and many located in vulnerable areas, cities stand at the forefront of the climate crisis, playing a pivotal role in ensuring a safe and resilient future for billions of people and acting as critical levers for national economies and mitigation efforts.

Within this context, the 2023-2024 Prize sought submissions from initiatives and projects under the theme "Accelerating Momentum for Climate-Ready Communities." Specifically, we sought projects demonstrating increased scale, speed or scope of actions toward creating inclusive, climate-ready cities.

There are many pathways to climate-ready cities. As the impacts of warming grow more frequent and severe, the Prize seeks to showcase different kinds of transformation, whether solutions are faster, broader or more profound.

This cycle's 200 submissions from 148 cities spanning 62 countries showcase a myriad of innovative ideas and approaches illustrating how cities worldwide are not merely confronting but embracing opportunities for radical transformation. They show urban changemakers working to foster climate resilience, positively impacting the lives of individuals and communities, and influencing institutions beyond city limits.



2023-2024 Jury



Stephen M. Ross Chairman of the Jury, Chairman and Founder, Related Companies

Stephen M. Ross is the Chairman of the Prize Jury and generously funds the WRI Ross Center Prize for Cities. In addition to his support for WRI Ross Center for Sustainable Cities, he is the Chairman and Founder of Related Companies and a noted philanthropist and business leader.



Tatiana Bilbao Chief Executive Officer, Tatiana Bilbao ESTUDIO



(Mochamad) Ridwan Kamil Architect & Former Governor of West Java, Indonesia



Jennifer Semakula Musisi

City Leader in Residence, Bloomberg Harvard City Leadership Initiative; Former Executive Director, Kampala Capital City Authority



Harini Nagendra Director of Research Centre, Azim Premji University



Sheela Patel Founder & Director, Society for the Promotion of Area Resource Centers



Enrique Peñalosa Former Mayor of Bogotá, Colombia



GRAND PRIZE WINNER

Re-Ciclo

APPLICANT:

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Fortaleza City Hall

OTHER CONTRIBUTORS:

Fortaleza Science, Technology and Innovation Foundation (CITINOVA), in collaboration with the Municipal Department of Conservation and Public Services

> LOCATION: Fortaleza, Brazil POPULATION: 2.7 million

How They Won

Sustainability and resilience encompass a range of ideas. Zero waste cities are for the first time conceivable. But many of the world's fastest growing cities simply need functioning solid waste collection and recycling services first. Meanwhile, waste workers are often among the most marginalized populations and have some of the most dangerous jobs in any municipality.

The independent Prize Jury selected **Re-Ciclo** as the 2023-2024 grand prize winner as a symbol of transformative possibility and for its profound impact on workers' lives and Fortaleza's operations.

The jury highlighted the project's immense value in dignifying waste-pickers, integrating them into the community and ensuring they earn a decent wage. The training, personal connections and work experience gained through organized worker associations are invaluable. Significantly, the project prioritizes local waste workers over external private services, recognizing them as community members and neighbors who are making a positive difference and whose own resilience and prosperity contributes to the city's resilience and prosperity.

In professionalizing recycling, the project has not only improved workers' welfare, increased incomes and fostered a strong sense of belonging, it has also increased recycling rates, expanded waste collection and helped spur an expansion of the city's cycling network. An app-based system allows residents and businesses to schedule recycling pick-ups to their door. The project is now part of a broader package of programs encouraging a circular economy in Fortaleza.

The jury praised the use of electric tricycles. These low-cost vehicles are easier to maneuver and can carry more than hand-drawn carts, have reduced maintenance costs and emit no greenhouse gas emissions. And because they can use cycling lanes, the city's investments into safe bike infrastructure does double duty improving waste management as well.

Finally, the jury emphasized the profound impact for Re-Ciclo employees, who are primarily women. The ripple effects are significant, benefiting children, maternal health, community health and numerous other aspects of community life.

In these powerful ways, Re-Ciclo stands as an exemplary reminder of the essential role that dignified and organized waste management can play in fostering community resilience and sustainability.



JURORS' THOUGHTS:

"Re-Ciclo reflects a whole change in the community. Most cities are grappling with overflowing landfills, disorganized collectors, irresponsible dumping of garbage and other problems. This community has devised a project that is actually addressing a lot of these problems in a unified way."

JENNIFER MUSISI

"What I like about Re-Ciclo is they are starting to use digital technology to collect. Digital disruption is part of our life now. This is very anti-corporation, because you have this alliance of waste people united and creating a new system."

"They have changed the narrative of the value contribution of having organized waste pickers versus waste pickers who work for big waste management companies."

SHEELA PATEL

THE PROBLEM

Effective solid waste management is essential to achieving sustainable cities. In Fortaleza, overflowing landfills, low recycling rates, poor working conditions and stigmatization of informal workers created an unsustainable, polluting and dangerous waste management system that affected the city's most marginalized worst.

THE BIG IDEA

A holistic recycling program that combines door-to-door recycling collection via e-tricycle, with better wages and working conditions for waste pickers.



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Fortaleza, Brazil's fourth largest city and the capital of the state of Ceará, is an important industrial and commercial center and hub for tourism. Like many other Brazilian cities, Fortaleza has a low rate of recycling and did not operate a structured municipal recycling program. This meant that recyclable products were processed alongside all other solid waste and sent to landfills, posing environmental risks.

Before 2021, the efficiency of Fortaleza's informal waste pickers, who filled the gap created by a lack of formal services, was limited by the fact that recyclables were collected on foot using handdrawn carts and had few facilities for sorting and processing materials. Waste pickers faced social stigma, exclusion and occupational hazards while working without proper protective equipment, reliable wages or workplace protections.

Re-Ciclo was developed by the Fortaleza Innovation Laboratory (LABIFOR), part of the city-run Fortaleza Science, Technology and Innovation Foundation (CITINOVA), to increase recycling by empowering the city's waste picker labor force and aligning with the city's investments in sustainable mobility. The program works with associations of waste pickers to establish door-todoor recycling collection via e-tricycle. In addition, Fortaleza has expanded residents' ability to recycle with a network of new dropoff points and a recycling awareness program.

The development of Re-Ciclo began with an "empathy phase" where LABIFOR staff held focus groups with the city's wellorganized waste pickers' associations to understand their working routines and the challenges they face. This resulted in the creation of a network of "Eco-Points" throughout the city that serve as hubs from which to operate door-to-door collection using e-tricycles. Door-to-door collection is currently conducted in four neighborhoods. Residents and business owners can register through an online city platform to receive door-to-door collection of separated recyclables. Re-Ciclo workers collect the recyclables and bring them to Eco-Points for sorting. At each Eco-Point, waste pickers are supported by EcoFor, a professional waste management firm contracted by the city. Waste picker associations manage their Eco-Point hubs, including allocating salaries, providing personal protective equipment, maintaining e-tricycles, collecting data and overseeing other programmatic functions. Residents outside of the door-to-door pick up zone can bring their sorted recyclables to 1 of 90 drop-off points. Incentives to participate in recycling drop off include reductions on household electric bills.

Sorted recyclables are then transported from Eco-Points to larger processing warehouses, which have been renovated by the city and are operated by waste picker associations, for compaction and preparation for sale.

In addition to improving the facilities and methods of transportation available to waste pickers, Re-Ciclo facilitates formal integration of the waste picker associations into the municipal administration through the E-Catador program. This has contributed to improvements in earnings of up to 500%.

The Re-Ciclo project has scaled up rapidly from an innovative pilot project of the city government to being managed by the city's municipal agencies and a component in a citywide circular economy effort, Mais Fortaleza. Waste picker cycling routes and Eco-Point locations have influenced the expansion of the city's robust cycling network, better connecting residents to recycling centers but also many other opportunities and services.







LIFE-CHANGING IMPACT

Increased recycling rates and growth of the city's cycling infrastructure have improved resilience and sustainability across the city while dramatically improving the livelihoods, working conditions, and sense of dignity and pride among waste pickers.

- Waste pickers in the program now receive a fixed income in addition to any proceeds from the sale of recyclables, increasing incomes by up to 500%.
- 85% of the waste workers in the program are women, meaning wage increases have gender-sensitive implications for equal pay and economic opportunity.
- 950 tons of recycling have been processed by participating waste pickers since the program's inauguration.
- Fortaleza's cycling network has grown 541% since 2013.
- The city has established 90 drop-off points for residents outside of the door-to-door collection zone to bring recyclables and bulky waste.



RIPPLE EFFECTS

Re-Ciclo continues to expand door-to-door and drop-off recycling collection across the city. Integrating electric mobility, labor improvements, and recycling has become a model for waste collection efforts in other cities and states in Brazil.

- Re-Ciclo continues to expand, adding additional neighborhoods for door-to-door collection, more drop-off points and procuring more e-tricycles for waste pickers in 2024.
- Waste picker cycling routes and Eco-Point locations have influenced the expansion of the city's robust cycling network, better connecting residents to recycling centers but also other opportunities and services.
- Re-Ciclo has inspired similar programs in the state of Ceará and attracted attention from the cities of Teresina, Piauí, and Camaçari, as well as international groups, for its replicability.

Fortaleza wins grant from the Transformative Urban Mobility Initiative (TUMI) Global Urban Mobility Challenge with a proposal for a mobility project for informal waste pickers. LABIFOR conducts fact-finding workshops with waste picker associations to understand their routines, challenges and needs. A pilot batch of electric tricycles is delivered to waste picker associations.

2019

DECEMBER 2019

Fortaleza launches the E-Catador program, formalizing waste picker associations as municipal workers and allowing them to receive city benefits and personal protective equipment. 2020

Start of expansion of collection to new neighborhoods. The program is handed to municipal management for permanent operation.

2022

2023

2022

Pilot project launched for door-to-door e-tricycle recycling collection in four neighborhoods. Launch of the Mais Fortaleza program, which contains support for a range of projects to promote a circular economy citywide, including Re-Ciclo.





Rodrigo Bueno: Climate-Resilient Housing

APPLICANTS:

Housing Institute of the City of Buenos Aires

OTHER CONTRIBUTORS:

Co-financed by national and local governments and a loan by the Development Bank of Latin America and Caribbean-CAF

LOCATION:

Buenos Aires, Argentina

POPULATION: 15.5 million



"I applaud the changing of the mindsets of the key players that created this story. This is a story of people agreeing and trusting the government. It is a story of inspiration."

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TATIANA BILBAO

THE PROBLEM

The global urban population is expected to reach 7 billion in the next 25 years, with a quarter expected to live in slums. Residents of the Rodrigo Bueno informal settlement, like many slum dwellers, were physically and socially disconnected from adjacent neighborhoods and the urban economy and experienced housing insecurity, flood risks, multi-dimensional poverty and lack of access to basic services.

THE BIG IDEA

A participatory process between residents and the city to integrate Rodrigo Bueno socially, economically and physically with the wider city was achieved through secure and improved housing, neighborhood planning upgrades, integrated economic opportunity and ecological preservation.









Buenos Aires, the capital and most populous city of Argentina, has a metro area population of about 15.5 million. The city faces significant inequalities in access to decent housing, with informal settlements, known as *villas*, emerging since the 1930s. These villas have grown into vibrant, self-organizing communities but often lack access to basic services and struggle with high poverty, crime and drug issues.

Rodrigo Bueno, an informal settlement in southeast Buenos Aires formed in the 1990s, exemplifies these challenges. Residents lacked access to public services and utilities such as clean water, waste disposal and electricity. There were flood risks from the nearby Costanera Sur ecological reserve, a 350-hectare wetland, and pollution runoff threatened biodiversity.

Between 2005 and 2015, Rodrigo Bueno faced multiple eviction attempts by the city for real estate development. In 2016, a new government changed tacts and initiated the integration of four large villas, including Rodrigo Bueno, into the city using a three-part approach focused on housing, urban integration and socioeconomic opportunities.

Integration began with intensive public consultations by the city's Housing Institute to gain residents' trust and inform project goals, like voluntary relocation to new homes, building new streets and removing vulnerable homes from the canal edge.

The result is a new development of eight energy-efficient, multifamily buildings with 611 units, featuring solar water heating. Families purchased homes with subsidized mortgages based on a sliding scale incorporating the value of their old homes. A 2017 law for urbanization and integration ensured residents formally owned their homes, facilitating revitalization while protecting them as land values rise.

The neighborhood today consists of two parts: newly developed, multi-family buildings and a "historic neighborhood" of the original self-built dwellings, occupied by families who have chosen not to buy units in the new development. Multiple measures are being taken to improve conditions for residents who elect to stay in their homes, including structural, service and aesthetic upgrades. Neighborhood-wide improvements include newly paved streets, integration of municipal bus lines and installation of a stormwater drainage system to mitigate flooding.

The new streets are also a conduit for formal city services and for each resident to have a registered house number and address. Furthermore, a canal running along the edge of the old neighborhood, previously heavily polluted by dumped waste, is being restored and fortified with an integrated stormwater and retaining wall system. This "coastal edge" allows the installation of formal public services in the historic neighborhood and will be a future coastal promenade.

Through mixed-use development, 57 new retail spaces have been created as well. The neighborhood now houses a plant nursery run by 14 women residents and a "gastronomic patio," an outdoor food hall where visitors to the ecological reserve can stop for drinks and food from a variety of stands.







LIFE-CHANGING IMPACT

A holistic integration strategy allows residents to maintain autonomy while creating hundreds of new energy efficient homes, greater protection from climate risks, and economic opportunities through housing subsidies and economic programs.

- Over 2,665 people live in the neighborhood and benefit from new or improved housing and amenities.
- 611 new energy-efficient homes have been built on the site, featuring solar-powered water heaters and energy-efficient construction.
- 8 new streets have been constructed between the new and old parts of the neighborhood.
- New neighborhood amenities include a plant nursery, children's playgrounds, a soccer field, 2 public squares, 57 ground-floor commercial spaces, an outdoor gastronomic patio, a residentrun organic plant nursery and a culinary career training space.
- The neighborhood is connected to public transportation services through an adjacent bus stop and a bike-sharing station.



RIPPLE EFFECTS

The participatory, resilience-focused development process demonstrates successful institutional methods that can break through historic urban challenges. It is a key part of the city's broader transformative housing program.

- The integration of Rodrigo Bueno is a part of a portfolio of slum integration projects across Buenos Aires, impacting over 73,000 people across four neighborhoods. The concurrent projects share the same integration methodology. Territorial and design teams working in the neighborhoods frequently share learnings and operate as a unified city department serving informal communities.
- The Rodrigo Bueno project hosts international study groups from across the world, including a group of global mayors during the C40 World Mayors Summit in Buenos Aires.

First attempt by city authorities to evict the Rodrigo Bueno villa. Residents collectively file a legal complaint opposing the eviction and a judge rules that the neighborhood has a right to integration; the ruling is later repealed.

A new government leads to a new strategy for upgrading the villa based on principles of equality, spatial justice, integration, social inclusion and non-discrimination.

2005

2005-2015

2016

2016-2017

Legal battles over the status of the villa continue. City and neighborhood leaders begin conversations about the integration of the neighborhood and a new city law on the redevelopment, zoning and socio-urban integration of Rodrigo Bueno is passed unanimously. Eight blocks of multifamily dwellings are constructed along with three public green spaces, supported by the Housing Institute. The remediation of the canal that borders the old neighborhood and construction of a flood retaining wall and coastal promenade begins.

2017-2021

2021

2022

2022-2024

The "Patio Gastronómico" (Gastronomic Patio), an outdoor food market and public space, is opened to serve Rodrigo Bueno and visitors to the adjacent ecological reserve. Upgrading work moves onto the oldest part of the neighborhood, composed of self-built dwellings. Work focuses on improving drainage, opening new streets and upgrading existing houses.

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FINALIST

Kham River Restoration Initiative

APPLICANT:

EcoSattva

OTHER CONTRIBUTORS:

Chhatrapati Sambhajinagar Municipal Corporation, Varroc Foundation, Chhatrapati Sambhajinagar Cantonment Board LOCATION:

Chhatrapati Sambhajinagar, India

POPULATION:

1.7 million



"Cities were built traditionally around water sources. And we do not nurture these water sources. I don't think there is enough attention on that. What we've seen in this initiative is new."

SHEELA PATEL

THE PROBLEM

Many seasonal urban rivers have undergone severe environmental stress, including hydrological changes and pollution, creating health and disaster risks. In Chhatrapati Sambhajinagar, sewage leakage and dumping of solid waste turned the historic Kham river into a shadow of its former self. Neglect and depletion of riparian green cover worsened the situation, contributing to a loss of cultural identity around the river and exacerbating monsoon flooding.

THE BIG IDEA

A three-pronged approach to river restoration combines deep ecological restoration of the riparian zone, upstream waste management and pollution prevention, and thoughtful community stewardship.







Chhatrapati Sambhajinagar, formerly known as Aurangabad, is a city in Maharashtra, India, with 1.7 million residents facing river degradation challenges. The 65-kilometer Kham river, flowing for 10 kilometers through the city's western edge, had become highly polluted, reducing it to a sewage-filled drain. Solid waste dumping caused blockages and long-lasting waste, leading to a complete loss of the river's function, cultural identity and historical importance. This further resulted in reduced flood mitigation, biodiversity loss and hygiene issues, as well as downstream agricultural and fishing impacts.

In 2020, following an extensive baseline scoping and research phase, EcoSattva, an environmental services company, with support from Varroc Foundation, approached the Chhatrapati Sambhajinagar Municipal Corporation and Chhatrapati Sambhajinagar Cantonment board to codify a public-private partnership to restore the river. A Memorandum of Understanding was formalized, outlining the corporation's responsibilities, including providing administrative and policy leadership; a Special Task Force to oversee construction crews and heavy machinery for bank stabilization was launched; and a team of gardeners who maintain public riverside amenities was created. Numerous experts and community stakeholders were engaged with the project, including ecological and waste management consultants and local community groups like schools and arts organizations.

Priority areas for climate adaptation and resilience in the Kham River Restoration Initiative include bank stabilization and physical restoration through pitching, dredging, desilting and native species planting along the riparian edge. Ongoing monitoring and data collection inform the restoration efforts. The initiative has also revived historic landmarks like stepwells, water mills, check dams and *neher* aqueducts. A key feature is a 5-kilometer "EcoPark" with three rejuvenated freshwater ponds and wetlands, a safe walking path, and an amphitheater for educational and community events. To date, 11 kilometers of the river have been dredged and cleaned, 7 kilometers of riverbanks have been stabilized and managed for invasive flora, 5 kilometers of pervious paving have been installed for pedestrian access, and over 90,000 native trees have been planted.

Comprehensive data collection and mapping have identified so-called Garbage Vulnerable Points (GVPs) as key intervention locations to improve river health. Strategies to eliminate GVPs include sewage outflow diversion, physical barricades, traps and converting GVPs into pocket parks with native plants and community artwork. To date, 110 GVPs have been eliminated or transformed into community spaces.

To enhance solid waste management, EcoSattva developed Unnati Waste Management Services, a women-driven commercial waste management service that employs and empowers informal waste pickers, or *Safai Saathis*. Targeting neighborhoods connected to the Kham river, the Unnati program trains and builds capacity for sanitation staff in 42 wards. Safai Saathis, mostly women supporting their families, gain dignified workplaces, professional growth opportunities, and training in driving, computer skills, and material recovery.

An ongoing education and engagement campaign aims to dispel misinformation about the importance of seasonal rivers and restore a cultural ethos around the Kham. Public awareness is integrated into all aspects of the project, including school programs, cultural events and locally commissioned art. This new ethic around the Kham has had local and regional impacts. And as a result of its Urban River Management Plan, the Kham is the first seasonal river included in the River Cities Alliance with the National Institute of Urban Affairs.







LIFE-CHANGING IMPACT

A safer, cleaner river provides waterfront access for residents, flood-mitigation, ecological benefits and inclusive jobs for waste workers.

- 1.3 million residents now have access to a safer, more biodiverse riverfront.
- 1 million residents participated in 200+ waterfront events.
- 54 acres of riparian zone cleaned and restored.
- 4 freshwater ponds on former legacy waste sites restored.
- 7 km (4.3 miles) of riverbank stabilized; 94,000 saplings planted.
- 16 freshwater springs restored; 25,000 households benefit from waste collection integration.
- 600 sanitation staff integrated into municipal waste efforts.
- 17 artists commissioned to support the Kham with cultural artwork.
- 110 Garbage Vulnerable Points (GVPs) eliminated. 6 garbage traps installed, 6 pocket parks established on former GVPs.
- 25 bridges barricaded to prevent solid waste dumping.
- No monsoon flooding in the last 2 years.



RIPPLE EFFECTS

Serves as an example for holistic seasonal river management across India. The project has grown to encompass both up and downstream management and is influencing similar plans regionally.

- Chhatrapati Sambhajinagar is the first non-Ganga Indian city to have an Urban River Management Plan, setting a new precedent to include smaller scale waterbodies.
- Has triggered expanded river cleanup work along other water bodies, including at the regional basin level. Kamatha Lau, a lake that sits within city boundaries, is now incorporated into the Urban River Management Plan.
- Chhatrapati Sambhajinagar is informing how Urban River Management Plans should integrate river management both upand downstream with support from the District Collectors Office.
- Has transitioned from a city-level endeavor to a district-level project, marking a significant expansion in scope and impact. The District Administration has scaled elements of the project to the length of the Kham and to the Sukhna and Shivna rivers.
- Chhatrapati Sambhajinagar has joined the River Cities Alliance, a network of 30 river cities within India.

Varroc Foundation and the Confederation of Indian Industry initiate a project to restore the Kham river but achieve limited success. EcoSattva initiates research phase to collect data and understand the full scope of challenges and identifies the baseline scope for the project. Implementation of the Kham River Restoration Initiative commences with the Chhatrapati Sambhajinagar Municipal Corporation; work on legacy waste removal and bank stabilization begins.

2016

2019

2020

Varroc Foundation approaches EcoSattva to commence restoration work. EcoSattva onboards the Chhatrapati Sambhajinagar Municipal Corporation as a public partner and a Memorandum of Understanding between EcoSattva and the Chhatrapati Sambhajinagar Municipal Corporation is signed. Chhatrapati Sambhajinagar included in River City Alliance under the Namami Gange Program.

2021

Unnati Waste Management program is initiated to integrate informal women waste pickers in unserviced rural areas. 1-year anniversary of the Kham River Restoration Initiative with the national Ministry of Environment, Forest and Climate Change and government of Maharashtra; 20,000 trees planted.

Additional 50,000 trees planted; 2-year anniversary and citywide celebration of Kham River Restoration Day.

2021



2023

Solid waste management work in 47 administrative wards (40% of the city) completed. Launch of the Chhatrapati Sambhajinagar Urban River Management Plan.

2023

A Memorandum of Understanding is signed by the District Government of Maharashtra to extend work downstream of the Kham river.





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Green Community Schoolyards

APPLICANT:

Trust for Public Land

OTHER CONTRIBUTORS:

Schoolchildren and the surrounding community, landscape architects, New York City Department of Environmental Protection and School Construction Authority

LOCATION:

New York City, USA

POPULATION:

8.3 million



"These kinds of small parks are critical. They improve lives. They reduce crime. They construct community. People meet each other there. They are places to go."

ENRIQUE PEÑALOSA

THE PROBLEM

In coastal cities around the world, millions of people are being affected by storm surge and flooding linked to climate change. In New York City, the twin problems of flood risk and lack of access to critical green space affect all residents, particularly those who live in underserved neighborhoods.

THE BIG IDEA

Transform hundreds of asphalt schoolyards across the city into green, flood-mitigating public spaces.





New York City, with its 8.3 million residents, is a global hub of finance, commerce, culture and arts. But, known as the "Concrete Jungle," the city has long faced challenges providing equitable access to adequate green space and, now, rising temperatures and intense storm events.

The Trust for Public Land (TPL) developed a program to transform New York City's asphalt schoolyards into green, floodmitigating public spaces. Through a participatory design process, schoolchildren and residents redesign these spaces into multi-use assets for the whole community. Funds are allocated to school custodial staff to keep the schoolyards open after hours, and small grants ensure ongoing maintenance.

A data-driven approach is used to select sites for green community schoolyards, focusing on maximizing social and climate resilience benefits. High-priority sites are chosen based on climate and flood risk, heat susceptibility, social vulnerability, income levels, educational attainment and other factors (lowerincome neighborhoods in New York have only 2.3 playgrounds per 10,000 residents).

TPL has leveraged public-private partnerships to align these projects with municipal stormwater mandates and resilience objectives. The program has secured support from the New York City Department of Environmental Protection and the Mayor's Office, integrating green infrastructure and flood mitigation into schoolyard improvements. The Mayor's Office has pledged to fund schoolyards in high-heat risk neighborhoods in Brooklyn. Schoolchildren incorporate stormwater management elements like rain gardens, bioswales and permeable paving into their designs, directly benefiting communities. The program supports the city's Extreme Weather Taskforce plan, promoting its expansion and sustainability.

Community participation and civic engagement are central to the Green Community Schoolyards program. By involving communities and schoolchildren in designing and advocating for green spaces, the program fosters stewardship and community ownership. Schools become community hubs, hosting events like cultural festivals, movie nights and live performances, strengthening neighborhood bonds.

The program's simplicity has allowed it to expand to 15 other U.S. cities. TPL has also implemented the program in 23 states, adapting it to various climate threats, including desert ecosystems. Its success has attracted international attention, with cities like Paris and Copenhagen developing similar programs. Paris, for instance, is planning to apply the model to 70 schoolyards.







LIFE-CHANGING IMPACT

Schoolchildren and community members design and steward their own multi-use, community spaces. More than half of New Yorkers now live within walking distance of public green spaces that serve as community hubs throughout the city.

- 226 (and counting) green community schoolyards have been installed in New York City.
- 700,000 acres of impervious asphalt replaced with pervious surfaces.
- 220,000 children and community members directly benefit from having a green community schoolyard.
- 5,600+ students have participated in designing their own schoolyards and in stewardship activities.
- 5 million New Yorkers now live within a 10-minute walk to a green space.
- 1+ million gallons of stormwater are diverted from each schoolyard site every year.



RIPPLE EFFECTS

The project is featured in New York City's heat remediation and extreme flooding response plans, and Trust for Public Land has brought the approach to other cities and states nationwide.

- The Trust for Public Land is considering public housing sites for additional urban green spaces.
- Inspired the Community Schoolyards national program in 15 U.S. cities, including Philadelphia, Oakland and Atlanta, and nonurban areas and diverse climates across 23 states, including New Mexico, Idaho and Tennessee.
- The Trust for Public Land is working on federal legislation to set aside \$150 million per year for nationwide schoolyard renovations based on the Green Community Schoolyards model that includes participatory design, schoolyard construction and stewardship.
- Paris is developing a similar program for application across 70 schoolyards.

The Trust for Public Land (TPL) signs a Memorandum of Understanding with the New York City Department of Education and New York City School Construction Authority to renovate vacant schoolyards.

TPL expands its approach beyond New York, beginning groundwork on schoolyards in Philadelphia.

2012

Governor Andrew Cuomo unveils the Vital Brooklyn community development program that commits over \$10 million for 8 TPL schoolyard projects.

2004



2017

Mayor Michael Bloomberg unveils PlaNYC 2030, opening 69 schoolyards for public use and providing funds for Green Community Schoolyards. In the wake of flooding from Hurricane Sandy, the New York City Department of Environmental Protection joins TPL as a program partner and public funder to ensure all future schoolyards are built with green infrastructure. Community Schoolyards officially becomes a national TPL initiative, based on the success of the New York City program.

2019

Upon entering office, Mayor Eric Adams commits \$8 million to Green Community Schoolyards.

2022

2018

TPL opens its 200th Green Community Schoolyard. Following Hurricane Ida, Mayor Bill DeBlasio releases *The New Normal*, a report that includes developing a Extreme Weather Task Force and additional schoolyard projects with TPL.

2021

57



FINALIST

The Climate Budget

APPLICANT:

City of Oslo Climate Agency

OTHER CONTRIBUTORS:

City Administration of Oslo, notably the Department of Finance and the Department of Environment and Transport

LOCATION:

Oslo, Norway

POPULATION:

710,000



"The thing that most differentiates an 'advanced city' is not metros, but sidewalks and bikeways. You see that Oslo takes space away from cars and gives it to exclusive lanes for trams and bikeways. These are very difficult political battles that are relevant to any city in the world."

ENRIQUE PEÑALOSA

THE PROBLEM

Cities contribute up to 80% of global greenhouse gas emissions across a complex array of sectors, industries and sources. Oslo faces rapid growth and increased climate threats, including heavy rainfall, flooding, drought and heat waves.

THE BIG IDEA

Pioneer a first-of-its-kind climate budgeting process that integrates greenhouse gas emissions tracking and reduction into the yearly municipal budget cycle.







Oslo, the capital of Norway, is the nation's most populous city, its economic, political and cultural center, and one of the fastestgrowing cities in Europe. Historically a key hub for trade and shipping, Oslo is now a center for knowledge-based industries. But Oslo faces environmental challenges such as increased rainfall, snowfall, rising temperatures, heatwaves and droughts, leading to flooding, pollution, and biodiversity and health risks.

To address these challenges, Oslo developed The Climate Budget, a pioneering governance tool that tracks progress towards climate targets by identifying and tracking measures across sectors to reduce emissions. Initiated in 2016, the project aims for a 95% reduction in greenhouse gas emissions by 2030 compared to 2009 levels. It assigns responsibility for emissions reductions across city government agencies and integrates these measures into the annual fiscal budget cycle to ensure accountability and support. Since 2009, emissions have decreased by 28%, with a 13% reduction since 2016.

Measures supported by The Climate Budget have so far focused on transportation, construction and waste incineration, which account for 90% of Oslo's emissions.

Transportation emissions have been targeted through converting a flat-rate toll ring road to a variable congestion charging system targeting diesel cars during peak hours. Public transportation now operates almost entirely on electric power, and the city has built 100 km (62 miles) of new bicycle lanes, contributing to a 51% increase in cycling since 2016. Streetscape enhancements have improved pedestrian and cyclist safety, with Oslo recording an astounding zero pedestrian deaths since 2019. In the building sector, Oslo aims for fossil-free and zero-emission construction sites. In 2019, the city strengthened its criteria for municipal projects to require zero-emission construction by 2025. As a result, all municipal construction projects are now fossil-free or zero-emission, and most vehicles owned by or delivering goods to the city meet these standards.

District heating from waste incineration serves as an important source of energy in the city but is also one of the largest sources of greenhouse gas emissions, accounting for 17% of the city's total emissions. Oslo has been working to implement carbon capture technology at the Klemetsrud waste-to-energy plant, which is being converted to full carbon capture and storage, a world first. The plant aims to capture and store 400,000 tonnes of CO2 annually when fully operational (estimated 2027), including the capture of both fossil-source CO2 and biogenic CO2 from organic waste. Capture of biogenic CO2 will allow the plant to become carbon negative.

Oslo plays a pivotal role in promoting The Climate Budget concept and encouraging its adoption both elsewhere in Norway and globally. This includes providing financial support and capacitybuilding for a climate budget project run by C40 Cities, of which Oslo is a member. Oslo is also active in promoting tested climate mitigation strategies among cities in the European Union, particularly within the construction sector and using the power of public procurement.







LIFE-CHANGING IMPACT

Enabled cross-sectoral actions to achieve reductions in emissions even during a period of rapid growth, with cascading benefits for quality of life, climate resilience and people's wellbeing.

- 28% reduction in citywide greenhouse gas emissions since 2009; 13% since 2016. Emissions are projected to be reduced by 63% by 2030 with currently adopted measures.
- Close to 100% of Oslo's public transportation fleet, including buses, trams and ferries, runs on electric power with reduced fares for youth, students and the elderly. Asylum seekers may use public transit free of charge.
- 100 km (62 miles) of new bicycle lanes installed since 2016, contributing to a 51% increase in cycling since 2014.
- A formerly industrialized and polluted shoreline has been transformed into a lively communal area with parks and beaches.



RIPPLE EFFECTS

The project and its innovations in decarbonization are being replicated by hundreds of cities in Norway and around the world.

- The C40 Cities Climate Leadership Group, which Oslo is a member of, works with 12+ global cities to develop similar climate budget pilots. London and New York City, also members of the group, adopted their first climate budgets in 2023 and 2024.
- Through the European Union, Oslo is promoting solutions developed through The Climate Budget process using venues like EU Net Zero Cities and the EU Big Buyers Initiative to share lessons learned.
- Nationally, Oslo has developed a guidebook on how to develop a climate budget for other Norwegian cities. About 200 municipalities are adapting the concept to their local contexts, including Asker and Bodø, which are using similar procurement regulations to incentivize net zero construction.

City Council of Oslo adopts an ambitious goal to cut greenhouse gas emissions by 95% by 2030, compared to 2009 levels.

Oslo Climate Agency is established under the Department of Environment and Transport. Oslo is named European Green Capitol by the European Commission in part due to the ambition of The Climate Budget.

2015

2016

2019

2020

City Council of Oslo adopts the city's first ever Climate Budget. City Council of Oslo adopts the *Climate Strategy for Oslo Towards 2030.* The strategy has broad support from both local political parties. Oslo, in collaboration with others, develops a guidebook for Norwegian cities on how to design a climate budget, which is widely used by other municipalities.

Oslo completes close to full electrification of its public transportation fleet with the replacement of nearly all dieselpowered buses with electric buses.

2021

2022

C40 Cities, in collaboration with Oslo, launches a 2-year climate budget pilot program. Oslo reaches a financial agreement on the Klemetsrud waste-toenergy carbon capture and storage project. 1

2023

EB 27511

Sharing Lessons on Transformational Change



The WRI Ross Center for Sustainable Cities works to share the unique insights gained from Prize finalists and winners, as well as the hundreds of project submissions received from around the globe each cycle, through a variety of channels.

Learnings from these extraordinary examples of transformational change have informed WRI's research agenda as well as our on-the-ground activities in hundreds of cities; technical and capacity building efforts; data and tools; and more.

This cycle, we are excited to announce a partnership with the **Yale University Hixon Center for Urban Sustainability** to drive continued innovation and excellence in urban sustainability. This dynamic collaboration merges Yale's academic rigor with WRI's extensive local and global network to explore further insights on what drives urban transformation.

As part of this partnership, Prize finalist teams will participate in a Practitioner Workshop at Yale focused on distilling key principles from their experiences and lessons for others. The workshop will emphasize the activation and scaling of their trailblazing work. By adopting transferable methodologies and sharing our learnings through this partnership, we aim to further catalyze meaningful urban change in cities worldwide.
The Award: Symbolizing the Relationship Between Cities and Nature

The physical WRI Ross Center Prize for Cities was created by award-winning designer Lucio Traficante, a native of Rosario, Argentina.

The Municipality of Rosario was awarded the 2020-2021 grand prize for Sustainable Food Production for a Resilient Rosario, an urban agriculture project that has helped the city tackle climate change in a more inclusive way as well as fostered the city's social, economic and environmental resilience. Traficante drew on his experiences in Rosario and love of nature and natural forms to design this award, which he says symbolizes the complex relationship between cities and nature.

"Healthy relationships between cities, nature and their people should be maintained forever," says Traficante.

With sustainability in mind, we elected to 3D-print the awards using sand. The manufacturing uses binderjetting technology, a no-waste process that involves layering to print an object into shape. Layers of quartz sand are glued together by binder agents made from renewable resources including sugar cane, corn husks or rice hulls.

Traficante is a multidisciplinary design studio established in Barcelona.





OUR VISION

We focus on integrated solutions to long-standing and new urban challenges. Through innovative research, deep engagement with urban leaders, and global partnerships, our network of local and international experts puts cities on a trajectory of more sustainable and equitable development. We catalyze and accelerate transformative urban initiatives that turn cities into resilient, inclusive, low-carbon places that are good for people and the planet.

ABOUT WRI ROSS CENTER FOR SUSTAINABLE CITIES

WRI Ross Center for Sustainable Cities is World Resources Institute's program dedicated to shaping a future where cities work better for everyone. Together with partners around the world, we help create resilient, inclusive, low-carbon places that are better for people and the planet. Our network of more than 500 experts working from Brazil, China, Colombia, Ethiopia, India, Indonesia, Kenya, the Netherlands, Mexico, Turkey and the United States combine research excellence with on-the-ground impact to make cities around the world better places to live.



WRI is a trusted partner for change. Using research-based approaches, we work globally and in focus countries to meet people's essential needs; to protect and restore nature; and to stabilize the climate and build resilient communities. We aim to fundamentally transform the way the world produces and uses food and energy and designs its cities to create a better future for all. Founded in 1982, WRI has nearly 2,000 staff around the world, with country offices in Brazil, China, Colombia, India, Indonesia, Mexico and the United States and regional offices in Africa and Europe.





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