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ROCKEFELLER FOUNDATION

100 RESILIENT CITIES

Urban Resilience Prospectus

LATIN AMERICA AND THE CARIBBEAN

2018

www.100resilientcities.org



Why Cities?

We are living in the century of cities. By 2016, more than 55% of the world's population was living in urban areas, a proportion expected to increase to 70% by 2050.

Cities are not only the environments in which a majority of us live, they are also the foci of the world's economy, generating a full 80% of global GDP.

Centers of innovation and prosperity on the one hand, cities will disproportionately bear the impacts of 21st-century challenges such as climate change, inadequate infrastructure, population growth, and social and economic inequity.

The decisions made by city governments can potentially have a more direct and immediate impact on large numbers of people than policies made on the national or international scale. As cities do not have the luxury to wait for others to bestow on them the solutions to the problems their residents face on a daily basis, they are defining their own development trajectories, and the paths they take will have dramatic consequences. Their decisions on what to prioritize politically, on what to build, and on how to build it, will reverberate globally, with significant implications for millions of people and for the planet as a whole.

Why Urban Resilience?

Three converging trends have come to characterize the 21st century: urbanization, globalization, and climate change. The world today is more densely populated and more interconnected than ever before, a state of play which requires new models of governance to mitigate risk and respond to challenges. From extreme weather to refugee crises, from disease pandemics to cyber-attacks, business-as-usual models of reactive urban planning and siloed decision-making will not engender the fundamental strength and flexibility essential for

Urban resilience requires cities to consider their capacities and risks holistically.

cities to thrive in the face of urban shocks and stresses.

Acute shocks are sudden, sharp events that threaten a city, such as earthquakes, disease outbreaks, or terrorist attacks. Chronic stresses – such as high unemployment, overtaxed or inefficient public transportation systems, or recurrent flooding – weaken the fabric of a city over time and exacerbate shocks when they inevitably occur. Of course, cities rarely have the luxury of tackling just

one discrete shock or a lone stress at a time, but rather are confronted by interdependent combinations of both at once.

Urban resilience, defined as “the capacity of individuals, communities, institutions, businesses, and systems within a city to survive, adapt, and grow no matter what kinds of chronic stresses and acute shocks they experience,” will allow cities to prosper and prepare them for challenges both expected and as-yet unimagined.

Resilience thinking demands that cities look holistically at their capacities and their risks. This isn't easy work. The current approach to urban development is a siloed one, with one team designing disaster recovery plans, another exploring sustainability issues, another focused on livelihoods and wellbeing, and yet another on land-use planning and infrastructure. That may be an efficient way to structure the work of a city, but it is not the most effective way. Cities are systems, not silos; planning a resilient future entails tackling challenges and creating solutions in an integrated, inclusive, risk-aware, and forward-looking manner. Doing so will allow cities to enjoy the multiple benefits, or resilience dividends, that such solutions offer.

About 100 Resilient Cities

100 Resilient Cities – Pioneered by The Rockefeller Foundation (100RC), possesses a unique global vantage point for understanding the changing landscape of cities today. The holistic lens that urban resilience offers decision makers is uniquely suited to meet the needs of the modern city and the regions of which they are critical members.

100 Resilient Cities supports the integration and implementation of resilience into member cities' planning and projects. Leveraging its expertise, network of partners, and suite of tools and services, 100RC works hand-in-hand with member cities to:

- ✓ Embed resilience in cities' processes, policies, and practices
- ✓ Build resilience into and deliver prioritized resilience projects

Cities in the 100RC network are provided with the resources necessary to develop a roadmap to resilience along four main pathways:

- 1 Financial and logistical guidance for establishing an innovative leadership position in city government - a Chief Resilience Officer (CRO) - who will lead the city's resilience efforts and will play a central role in realizing each of the projects explored in this prospectus
- 2 Bespoke expert support for the development of a robust Resilience Strategy
- 3 Access to advisory support, resilience building solutions, and partners from the private, public and NGO sectors who can help the city develop and implement their Resilience Strategy
- 4 Membership in a global network of member cities and partners who can learn from and support each other, and co-develop scalable solutions that create a global movement for urban resilience

Value of Resilience Projects

The resilience dividend is the net social, economic, and physical benefits achieved when designing urban initiatives and projects in a forward-thinking, risk-aware, inclusive, and integrated way.

Building urban resilience requires looking at a city holistically – understanding its systems and their interdependencies, as well as the various shocks and stresses it may face. Similarly, resilience projects are designed holistically to ensure that multiple benefits are obtained from any single intervention.

There are two distinct advantages of urban resilience:

1. Better Outcomes

Investing in resilience will reduce and even help prevent the impact of shocks and stresses to the city's people, physical environment, and economy, will accelerate disaster recovery, and will improve the quality of life for the city's residents.

2. Co-Benefits

Addressing urban challenges in an integrated and holistic way will help the city realize multiple benefits across sectors and stakeholders, in particular for the poorest and most vulnerable members of society.

Cities that build resilience into their projects do five things:

1. Incorporate systems thinking into their decision-making, taking into account shocks and stresses, and maximizing co-benefits.
2. Engage with diverse stakeholder communities in the planning process.
3. Integrate projects within a broader city vision that includes vulnerable populations.
4. Assess and build projects based on the long-term environmental, social and economic benefits they'll bring, as well as their ability to withstand short-term disruptions.
5. Recognize that their infrastructure needs to adapt to new and unforeseen challenges in the future.

An investment in resilience-based planning, projects, and practices will return cost-savings, cost-avoidance, and multiple benefits across city systems. Every dollar spent by a city is precious, and likely entails a trade-off for a dollar not spent on something else. Decision makers and investors need to be explicit about maximizing the co-benefits of their money, and should strive to deploy projects which will serve communities in both the good times and the bad.

100RC Cities Latin America & the Caribbean

Latin America is the most urbanized region of the world today, with over 80% of the population concentrated in cities. Many of these cities are characterized by contrasts, with the wealthy living in modern comfort, fully plugged-in to the global formal economy, while the poor still struggle to access basic services, including security, public transport, water, and sanitation.

80% of Latin America's population is concentrated in cities

While member cities of the 100RC network share common challenges across the globe, this is especially true of 100RC cities in Latin America - their collaboration with one another

and their respective impact on the ground represent a gateway for coalescence around an integrated and effective agenda for the region as a whole. With over 43.4 million people living within their borders, and tens of millions more residing in their greater metropolitan regions, the 16 member cities of the 100RC network in Latin America represent an unparalleled opportunity for investing in resilience to make an impact on economies, ecologies, and human lives for generations to come.

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Selected Resilience Initiative Opportunities



This prospectus summarizes seven resilience-building initiatives being developed in six diverse member cities across Latin America.

Seismic Resilience Recovery Plan

MEXICO CITY, MEXICO

Sweeping review of lessons from recent earthquakes, with recommendations to improve the resilience and preparedness of major city systems

Master Plan for Pantanos Stream Basin

MONTEVIDEO, URUGUAY

Holistic socio-economic regeneration of a degraded stream basin via sustainable environmental management and community-focused investments

Fourth District

PORTO ALEGRE, BRAZIL

Harnessing the power of small business, education and ICT to foster economic growth and revitalize a historic neighborhood

Special Economic Development Zone

QUITO, ECUADOR

Creating a space for investment opportunities, innovative production chains, better export processes, and employment for a young population

Estación Belgrano

SANTA FE, ARGENTINA

Urban renewal surrounding an iconic railway station to support regional logistics and trade while bolstering local economic development

Parque del Norte

SANTA FE, ARGENTINA

Comprehensive redevelopment of a burgeoning former periphery, anchored by a new, world-class city park

Río Yaque

SANTIAGO DE LOS CABALLEROS, DOMINICAN REPUBLIC

Restoration of a river and its surroundings via flood prevention, public space improvements, and revitalization of a historic center

Shared Strengths

Though tailored to the shocks and stresses of their respective cities, these projects have many similarities in the resilience thinking that undergirds them and the triple-bottom-line benefits that they will achieve:

- ✓ All of them will continually integrate extensive and meaningful engagement with impacted local residents into their planning and scoping, with a particular focus on the needs and concerns of poor and vulnerable segments of society.
- ✓ They are all concerned with balancing economic growth and new construction against environmental sustainability and the maintenance of healthy ecosystem services.
- ✓ All seven of these projects are key priorities of the leadership of their cities, with substantial political will and commitment behind them.
- ✓ They all evolved out of their cities' Resilience Strategy Development processes, and seek resilient co-benefits far beyond the business-as-usual for such planning and redevelopment efforts.

The investment opportunity is rich for both traditional developers as well as mission-driven capital, development banks, and providers of technical assistance. The market differentiation of these projects lies in the both the commitments they have garnered from wide-reaching stakeholders and the co-benefits they actively seek in their deployment.

Shared Opportunities

For all of these projects, the cities are seeking assistance with planning and scoping, followed by investment in and other implementation support for the development and revitalization opportunities themselves.

In particular, the cities are seeking expertise and offering investment opportunities in sectors such as:



Basic water, lighting, and sewage installation and retrofitting



Flood water management



High tech and IT opportunities



Biodiversity protection



Housing, especially affordable housing and solutions for informal settlements



Blue-green infrastructure



Circular economies and waste management



Mobility infrastructure and connectivity



Community engagement and public outreach



Parks and public spaces



Disaster response and recovery



Social equity



Economic development



Youth employment



Ecosystems management





Mexico City MEXICO

Seismic Resilience Recovery Plan

Comprehensive review of lessons from recent earthquakes, with recommendations to improve the resilience and preparedness of major city systems

For decades ranked among the largest urban areas in the world, Mexico City is a vibrant metropolis and the oldest capital city in the Americas. Its land was originally settled over 700 years ago by indigenous peoples who built their city of 300,000 on an island in the middle of a large series of lakes. As the city grew through the colonial era and into modern times to reach 21 million inhabitants, it developed and expanded directly atop those lakes in a zone of high seismic activity - a geographic legacy that creates unique, compound challenges to the city's massive infrastructure and its residents.

Project Background

On September 19th, 2017, Mexico City was struck by an earthquake which caused the death of 228 people and damaged over 73,000 buildings in the city, including 5,765 homes and 973 schools. The economic impact of that event is estimated to be between 0.1% and 0.3% of 2018 GDP, while the funds needed for reconstruction are likely to exceed US\$3.4 billion.

Though significant, the damage in 2017 was much less than that suffered in the similarly powerful earthquake of 1985, when tens of thousands of lives were lost, thanks to the city's investments in improved preventive protocols, early alarm systems, and emergency response capabilities. However, shortcomings surfaced in nearly every city system during the 2017 earthquake: transportation, governance, energy, communications, water, sanitation, and health infrastructure all failed to some degree.

As the threat of earthquakes is ever-present for Mexico City, city leadership is leveraging their resilience building work to further prepare for future seismic events. They have tasked the Resilience Office to conduct a comprehensive review of the lessons learned during the September 2017 earthquakes, examining how the different city systems and key assets responded, and making specific preparedness recommendations for better protecting fragile infrastructure and saving lives.

The city anticipates spending US\$550,000 to develop the Plan, with final delivery slated for the end of 2018. City leadership has moreover committed to implementing the findings of the plan. The resulting activities will be carried out with participation from state and national government entities in 1-, 5-, and 10-year phases.

Project Resilience Value and Impact

The Seismic Resilience Recovery Plan will deliver a comprehensive blueprint for Mexico City to address its earthquake risk in a resilient manner. It will assess not only emergency response capabilities for the immediate aftermath of a disaster but will also look further at what new plans and protocols the city could adopt for continued governance and the functionality of critical city systems in their wake. Moreover, it will strengthen the city's resilience capabilities, by empowering the Mexico City Resilience Agency as one of key entities responsible for assessing the city's preparedness.

Project Status and Opportunity

This wide-reaching planning activity will surface projects and investment opportunities around:

- Identifying non-compliant structures and gaps in required retrofits following 1985, with a focus on residential gas connections, and the replacement or retrofitting of buildings as required
- Revising and strengthening the enforcement of building codes
- Improving insurance and risk management related to major shocks and stresses
- Implementing a Water Resilience Plan for the Xochimilco Tláhuac-Milpa-Alta Patrimonial Zone
- Conducting a socioenvironmental analysis for the reconstruction, recovery, and transformation of conservation lands in peri-urban areas
- Analyzing the vulnerability of strategic water infrastructure
- Planning for a resilient mobility system
- Strengthening the multi-actor coordination capacity of the CDMX Resilience Agency

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Montevideo URUGUAY

Pantanoso Stream Basin

Holistic socio-economic regeneration of a degraded stream basin via sustainable environmental management and community-focused investments

The southernmost capital city in the Americas, Montevideo is situated on the north-eastern bank of the Río de la Plata. The over 1.3M inhabitants of the city enjoy what has been rated the highest quality of life in South America, with nearly double the per capita GDP of the country overall. About 60% of the city's territory is rural, and while tourism has more recently become a major economic driver, the most important sources of income in Montevideo remain agriculture and livestock.

Project Background

The Pantanoso Stream Basin covers approximately 77 km² in the center-west of Montevideo before emptying into the bay, and is a major hub of food production for the country. The stream crosses through diverse zones, from agriculturally productive rural areas to more consolidated residential zones and a number of irregular settlements.

The Pantanoso Stream Basin faces interrelated socio-economic and environmental challenges. Claiming around 195,000 people - 15% of the city's total population - nearly a third of Pantanoso households fall below the poverty line, making certain neighborhoods within the Basin among the neediest of the city.

The zone is characterized by a lack of investment, a shortage of employment opportunities, high rates of human capital flight, poor education, low housing standards, low social and community capital, and a lack of public infrastructure, connectivity, and green space. Environmental problems include poor air and water quality, inadequate solid waste management, degraded landscapes, and high flood risk. These challenges are interrelated, as the informal settlements of the area contribute to the water and air pollution, while the flood risk and perception of the area as generally degraded discourages needed new investment.

In 2007, the municipality of Montevideo began to work in Pantanosos to address these problems, launching preliminary studies and making investments to improve living standards. However, a Master Plan has never been developed for the area that addresses all identified problems in an integrated manner; the resilience strategy of Montevideo is therefore prioritizing the creation and implementation of an overarching plan for Pantanosos.

Project Resilience Value and Impact

Comprehensively ameliorating the interdependent stresses of the Pantanosos Basin will require resilience thinking. Successful intervention in Pantanosos will have a direct impact on the lives of residents, and will improve the natural environment, water quality, and economy of the entire city of Montevideo.

The city's vision is for the Pantanosos River Basin to become an attractive place for new investment while enhancing social cohesion in the existing community. The planning process must therefore include substantive consultations with relevant stakeholders, especially the poor and vulnerable, and global best practices for further resettlement of irregular settlements as required due to flood risk.

Project Status and Opportunity

Montevideo has conducted some initial assessments that articulate five symbiotic pathways for the investment of an estimated US\$500 million in the Pantanosos Basin:

1. **Environment** – Montevideo will pursue improved air and water quality, landscape restoration, biodiversity protection, maintenance of wetland environmental services, and flood risk reduction. Specific infrastructure needs include: channel management, tie conditioning of bridges and culverts, reversion of critical fillings, forecast of laminations, and expansions of the sanitation and drainage system.
2. **Economic competitiveness** – the city hopes to attract investment into private industry, education, and tourism. The principles of a circular economy offer a particular opportunity for achieving sustainable economic growth in this region, and the city seeks partners and funding to pursue relevant technologies and business models.
3. **Social equity** – Pantanosos has significant needs for investment in new housing and in improvements to existing housing stock, for construction of new public recreational spaces, and for partnerships that will strengthen community and foster a local identity.
4. **Connectivity** – Montevideo has an extensive bus network that serves the Basin, and so is seeking mobility investments in new pedestrian and cycling infrastructure, as well as new bridges over the watercourses in Pantanosos.
5. **Communication and engagement** – the city seeks support for designing and implementing the process of consultation and citizen participation for the creation of the Pantanosos Plan, and in preparing a communication plan for the process that aligns with the agenda of the mayor and other key stakeholders and institutions.

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Porto Alegre BRAZIL

Fourth District

Harnessing the power of small business, education, and ICT to foster economic growth and revitalize a historic neighborhood

The capital of the state of Rio Grande do Sul and the country's fourth largest metropolitan region, Porto Alegre is one of the great political, economic, and cultural centers of Brazil. Founded in 1772, the city's indigenous population expanded through the centuries by welcoming immigrants from all over the world, making it a beacon of diversity within Latin America. Today, around 4.27M people make the metro region of Porto Alegre their home, but their experience within the city varies starkly, with luxury communities abutting others lacking basic sanitation. Resilient Porto Alegre is committed to ensuring that a city with so many contrasts is also a unified city, shared and enjoyed by all.

Project Background

Porto Alegre's booming industrial sector first emerged in the 19th century, with new migrants flocking to the harborside zone of the city's 892-hectare, centrally-located 4th District. But by the middle of the 20th century economic activity had shifted to new locations, and today the historic buildings and warehouses constructed during the district's heyday have fallen largely into disrepair.

Though the district boasts a strong cultural identity and valuable location, residents suffer from urban blight, frequent flooding, crime, poverty, and limited economic opportunities in the formal economy.

But while these shocks and stresses may be felt acutely in the 4th District, they are not unique to it. The city has therefore identified the revitalization of the area as a top resilience priority, and a pilot project for future resilience building across Porto Alegre as a whole. The city envisions transforming the 4th District into an innovative ecosystem of private companies, educational institutions, public entities, and the local community, grounded in advanced ICT-capacities.

Project Resilience Value and Impact

The project will benefit the entire city, attracting new investment streams and developing new industries, diversifying the city's economy and expanding its global connectivity, and creating new centers of coexistence for different groups.

The city is placing particular emphasis on ensuring that any economic development is inclusive of the district's current residents, and that gentrification stresses are monitored and proactively addressed. Porto Alegre is also committed to leveraging the new development to the benefit of the city's poor and vulnerable, particularly its disenfranchised youth, incorporating them into both the formal economy and the overall fabric of the community.

The city will measure the success of this project according to the number and diversity of new enterprises operating in the district, its demographic density, total tax collection rates, and whether other degraded areas of the city are able to successfully adopt the methods applied in the 4th District in turn. Finally, a key consideration will be the drainage needs of the area, given its high flood risk and currently inadequate sewage infrastructure. The city is committed to implementing blue-green infrastructure and other sustainable techniques to live with water.

Project Status and Opportunity

The first phase of this project, the Master Plan for the district's architecture, has already been developed in partnership with the City Hall of Porto Alegre and the Federal University of Rio Grande do Sul (UFRGS). The World Bank worked closely with the city to determine how to ameliorate flood risks in the poorest parts of the district. They are now supporting the city in assessing economic potential and developing the district's Economic Plan.

Porto Alegre has already identified required upgrades to critical infrastructure and estimated their cost to be up to US\$80 million. The city is working with the national Treasury Secretary to open the door for funding opportunities from the World Bank. The World Bank is already working with the city on preliminary studies, and have contracted Deloitte for support.

This comprehensive urban redevelopment project will offer opportunities for investments in housing, mobility, commercial facilities, and parks and public spaces. The city will be revising building and zoning codes, and scoping additional incentives and regulations required to create an enabling environment for growth and revitalization. They are currently identifying a pilot project site with land value capture potential, and anticipate an eventual acceleration of the real estate market as well as opportunities for innovative public-private partnerships.

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Quito ECUADOR

Special Economic Development Zone

Creating a space for investment opportunities, innovative production chains, better export processes, and employment for a young population

Perched high in the Andes, the Metropolitan District of Quito is the capital of Ecuador and home to over 2.6 million residents. At 2,800 meters above sea level, the city sits amid volcanoes and deep valleys, with records of human settlements dating back over 10,000 years. The city of today was founded in 1541, and the exceedingly well-preserved colonial city center was one of the first World Cultural Heritage Sites ever declared by UNESCO in 1978, not only for its architecture but also because of its dramatic landscape and biological diversity. Modern Quito is a socially collaborative and demographically young city driven to become a prosperous urban center while addressing structural inequalities.

Project Background

A priority of Quito's resilience agenda is to further encourage economic diversification, while enhancing an overall focus on sustainability and innovation. With one out of every two Quiteños younger than 29-years-old, and an economy highly dependent on external factors like oil prices and commodity export markets, the city wants to attract investment, generate demand for skilled employees, and incentivize value-added production.

This project therefore aims to establish a Special Economic Development Zone (Zede Quito) on 207 hectares of land near the new Quito International Airport – connectivity to be complimented by investments in high quality road infrastructure leading throughout the country.

In establishing the zone, the city will create new tax, tariff, and customs incentives to attract investments and increase the competitiveness of targeted economic sectors. The zone will in turn create new supply chains and increase exports and opportunities for skilled employment in the city by centralizing logistical services and other benefits such as cost reduction, international competitiveness, and tax benefits to a single location.

In addition to being an important regional financial center, the metropolitan zone of Quito achieves high marks for education, human talent, infrastructure, and access to credit, all of which are significantly better than elsewhere in Ecuador. Moreover, the Special Economic Development Zone is an attractive opportunity in this moment as its development coincides not only with the opening of the new airport but also with the construction of the city's first metro line, whose integration with existing mobility systems represents a historic opportunity to rethink urban development and its dynamics.

Project Resilience Value and Impact

The city's social capital is characterized by a long tradition of solidarity, ingenuity, collaboration, and participation in decision-making processes for its diverse communities. But the city's current age distribution, combined with shifting macro-economic trends, mean that Quito today has an urgent need to overcome a lack of job opportunities and a mis-match between job-training programs and job-market demands.

The Special Economic Development Zone is recognized as an opportunity to counter these trends within a concerted hub of innovation that will be the leading edge of city-wide efforts. City leadership is committed to incentivizing the production of higher value goods and leveraging the productivity of their young population.

Project Status and Opportunity

Prefeasibility studies for the Special Economic Development Zone have already been developed. Work on infrastructure development will start in 2018 and will require investors, developers, and infrastructure managers.

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Santa Fe ARGENTINA

Master Plan for Estación Belgrano (Belgrano Station)

Urban renewal surrounding an iconic railway station to support regional logistics and trade while bolstering local economic development

Provincial capital of a key industrial, economic and agricultural area, Santa Fe is a metropolitan region of over 650,000 residents. As a strategically located port city it links modern trade across the Pacific and Atlantic oceans, while its nearly 450-year history gives it significant cultural heritage. Boasting 3 universities and another 14 scientific and technical institutes, Santa Fe is a center of politics, innovation, and entrepreneurship in Argentina today.

Project Background

In 2008, after 20 years of neglect, the city of Santa Fe began the renovation of its iconic Belgrano Railway Station through private and public investment, successfully transforming it into an important site for exhibitions, fairs, and conventions.

The Argentinian government recently made a commitment to recovering derelict public lands nationwide; given that 22 hectares of underutilized and flood-prone public land surround the now thriving station, the city is seizing on the opportunity to further bolster the value of the wider Belgrano area. The revitalization project will integrate this zone into the urban grid by developing housing, green space, bicycle lanes, and new commercial activities.

The central location of the iconic Belgrano Station, combined with the high buildability allowed by current regulations, give this project its great potential. The site is envisioned to be used for mixed-use development including hotels, shops, restaurants, office space, and housing, with integrated green infrastructure to mitigate the city's rainfall flooding challenges.

The development will attract not only locals but also visitors to the city pursuing tourism, congressional activities, and business travel, including for frequent conferences hosted at the convention center. In particular, the opportunity for new hotels and business-travel services is quite high, as the city suffers from a shortage of modern hotel rooms and is currently enlarging the capacity of the Convention Center itself. Finally, a consortium of universities and technology companies are investigating the establishment of modern technology and research park on the site.

Project Resilience Value and Impact

The project will address some of the key stresses faced by Santa Fe, such as rainfall flooding, urban blight, a lack of investment and economic diversification, and high unemployment among the city's youth.

Along with the 28,628 residents in surrounding neighborhoods, direct beneficiaries of the Belgrano redevelopment will include the young people gaining formal employment, the local industries of construction and tourism, the ~2,500 families from around the city that will obtain housing within the new development, and the ~60 families currently in informal settlements on the site that will improve their living conditions.

The city intends to develop the site using blue-green infrastructure to reduce flooding while increasing publicly-accessible green space and ensuring a sustainable environmental footprint for the site. Moreover, the new development must not detract from the cultural and patrimonial value of the Belgrano Station building itself. Finally, the Master Plan must be developed in a participatory manner with the handful of families living in the zone presently, including those living in informal settlements.

Project Status and Opportunity

The World Bank, in collaboration with 100RC, is providing support for the needed pre-feasibility studies. As of mid-2018, the project is in the conception/initiation phase, with the city focused on creating a Master Plan for the redevelopment of the 22 hectares of public land surrounding Belgrano Station. They are coordinating with the relevant state agencies to identify the required technical studies, with the aim of finalizing the Master Plan by 2019. The overall Belgrano development is anticipated to require around US\$100 million.

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Santa Fe ARGENTINA

Parque del Norte (North Park)

Comprehensive redevelopment of a burgeoning former periphery, anchored by a new, world-class city park

Provincial capital of a key industrial, economic and agricultural area, Santa Fe is a metropolitan region of over 650,000 residents. As a strategically located port city it links modern trade across the Pacific and Atlantic oceans, while its nearly 450-year history gives it significant cultural heritage. Boasting 3 universities and another 14 scientific and technical institutes, Santa Fe is a center of politics, innovation, and entrepreneurship in Argentina today.

Project Background

A priority of Santa Fe is the revitalization of 80 hectares of land currently occupied by the city's former landfill, a botanical garden, and other damaged green spaces, with the resulting "Parque del Norte" to be an exemplar of public space management and environmental and socio-economic sustainability. The park will be the anchor for the wider development of the Northern region of the city, once a peripheral area now poised for substantial population growth. Santa Fe is seeking to attract large-scale public-private real estate investments to build houses and new neighborhoods, complimented by updated regulations on urban growth and substantial new public works.

Project Resilience Value and Impact

The Parque del Norte developments will be a substantial asset for the approximately 100,000 people living in the northern region of the city, as well as the over one million people across the metro region. It will construct needed new housing, and result in the urban renewal of a substantial region of the city.

The park itself will include new recreational spaces, cultural and sports facilities, an upgraded botanical garden, a School of Labor and a District Governance Center, pedestrian corridors and extensive blue-green infrastructure. It will also serve as a reservoir during rainy season, making it an important flood mitigation asset. Integrated into the design of the park will be systems for zero waste and circular resource use, clean and independent energy production, in situ water collection and potabilization, ecosystem

management for wildlife and biodiversity, and opportunities for climate mitigation and urban agriculture systems.

Successful experimentation and implementation around all of these topics will allow Santa Fe to be a pioneer for the

design of resilient 21st century green space around the world. The various owners and operators of the land in the Northern zone will also require Santa Fe to innovate new institutional management models, which may hold lessons for global cities.

Project Status and Opportunity

As of mid-2018, the city is in the early days of design and scoping for the project. They are seeking funding and technical assistance from the Argentinian national government and the World Bank to conduct the required regulatory studies, environmental, service, and impact assessments, and economic development scenario modelling, as well as for determining the best management models for the site.

Once the planning is completed, the city will seek financing via public-private partnership models to undertake the construction of the park's basic infrastructure, including electricity, gas, and street lighting, pavement, walkways, and parking, drinking water, sewers and storm drains, and the blue-green infrastructure required for flood management and the recuperation of degraded green spaces. Santa Fe will then seek additional pathways for the construction of the planned social infrastructure facilities of the park.

The wider investment opportunity if found in the burgeoning neighborhoods surrounding the park will foster, with the city considering a variety of potential avenues for funding, including: a land value capture opportunity from the improved real estate values, funding some of the upgrades from property or utility user fees, creating a bid for the overall development by an external actor, adapting regulations (building code, business enablement, etc.) or creating other incentives for the needed construction and economic activities. Santa Fe is also planning to offer certain parcels of land for free to developers in exchange for their making the investment in constructing the needed new real estate.

The planning and construction of the full developments surrounding the Parque del Norte, including housing and infrastructure, is anticipated to cost over US\$125 million, with around US\$7M for planning and US\$118M for execution.

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Santiago de los Caballeros

DOMINICAN REPUBLIC

Río Yaque

Restoration of a river and its surroundings via flood prevention, public space improvements, and revitalization of a historic center

Founded as a fort by Christopher Columbus in 1495, today the metro region of the city of Santiago de los Caballeros is home to over 850,000 people, making it the second-largest city in the Dominican Republic. Well-connected to both a major port just to the north and to the surrounding agricultural lands, the growing city is a key location for the nation's largest export industries and the processing of key commodities.

Project Background

The Yaque River crosses the length of Santiago de los Caballeros, and, at 308km, is the longest river in the country. It provides the main source of water for the city and the surrounding Cibao Valley agricultural region, as well as for an important hydro-dam complex. The river is essential to the city, dictating its physical and social space and serving as its most emblematic natural asset. However, for years the environmental management of this watershed has been poor, and the river and its banks are quite polluted.

In recognition of the potential for the Yaque to be a strategic ecologic corridor for Santiago, a major priority of the city's resilience agenda is to undertake a series of transformative actions to recover the river and its banks and improve the quality of life of Santiago's residents. The projects envisioned for the redevelopment of the Yaque River include storm water drainage and flood risk mitigation, reforestation and recovery of environmental assets, and the revitalization of the infrastructure and urban habitat of the river basin, including through the city's downtown historic center.

Project Resilience Value and Impact

The Yaque River project crosses the city, encompassing an area of 11km/930 Ha, and will directly impact the 25,000 residents along the river bank, particularly the eleven communities (7,000 people) living in high-risk flood zones, some of which will need to be resettled.

Resilience is built into this project from the outset, with explicit resilience-related requirements added to all bids and RFPs. The city's vision for the upgraded corridor will benefit all residents, offering cleaner water, new green and leisure areas, a rehabilitated downtown, improved social cohesion, and increased economic opportunity.

The ultimate goal of Resilient Santiago is for the revitalization of the Yaque River to mark a new path of development and create a more resilient, safe, and inclusive city.

Project Status and Opportunity

The Inter-American Development Bank (IADB) has funded preliminary project design needs and impact assessments. The overall revitalization of the Yaque River has an estimated cost of US\$80 million, and includes coordinated interventions in three distinct areas along the river:

- 1) **North Park and Nicolás Vargas Reserve** – efforts will include: retaining dike and sustainable urban drainage systems for flood risk management; reforestation of native species to enhance the river ecosystem; creation of a gateway that connects with the Gurabo tributary, thereby consolidating the green belt.
- 2) **Yaque Ecological Corridor** – efforts will include: delineation of green paths; areas for leisure use and athletic facilities; bicycle lanes and mobility features; reclassification of land for multi-family and social housing; construction of an emblematic 4,500m² building.
- 3) **Mirador Yaque** – efforts will include: construction of a multi-function plaza; market and culinary venues; undergrounding; pedestrianization of streets and street furniture; provision of urban services (public lighting, public safety, and containerization of waste); restoration of historic facades.

For more information or to get involved:

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OUR VALUE

We are a **trusted urban resilience advisor**, with 95 employees (in-house) developing urban resilience projects with member cities across the world.

We are a **leading incubator of resilience solutions and resources** for urban resilience knowledge and project implementation, with extensive support from and collaboration with our global partner network.

Our broad network gives us the **ability to identify trends, and develop and scale solutions**.

Through our intensive stakeholder engagement and strategy process that sources, evaluates and develops solutions that address city resilience challenges, **we cultivate the enabling environment that supports project delivery**.

There is a **high degree of overlap in the resilience initiatives** being conceived across the 100 cities. For example, among the infrastructure projects found in published resilience strategies, 34% are concerned with improving the management, maintenance, or governance of the asset, 23% aim to incorporate principles of blue-green infrastructure, 22% are related to potable water, sewage, or sanitation needs, and 20% strive to address flooding and storm-water - with some projects touching on two, three, or even four of these areas.

OUR IMPACT

US\$170M mobilized from **The Rockefeller Foundation** to pioneer 100 Resilient Cities

Over 1,000 applications from prospective cities reviewed; **100 Member Cities selected** through three rounds of challenges

95 employees globally supporting the development and execution of urban resilience projects in member cities

Over 230 dedicated subject matter advisors

40 city-wide Resilience Strategies, featuring over 2,000 initiatives, have been published across the network

More than 13,000 community practitioners are actively engaged in the resilience-building process in our cities

86 Chief Resilience Officers across 47 countries are currently collaborating with their city leaders, city departments, and each other, with over 10,000 hours of resilience-building capacity delivered to them

More than US\$230 million has been pledged by 100RC partners in the form of pro-bono services and expertise

138 engagements have already formed between our cities and 100RC partners to execute projects and initiatives

More than US\$525 million has been leveraged from national, philanthropic and private sources **to implement resilience initiatives** in 100RC network member cities

GET INVOLVED

The Rockefeller Foundation and 100RC are now developing **The Urban Resilience Fund (TURF)** to facilitate large-scale private sector investment into urban resilience projects in select global cities.

The goals of TURF are three-fold:

1. Establish a market standard for resilient infrastructure and demonstrate the value of the resilience dividend
2. Mobilize private sector funding to support cities' efforts in achieving resilience
3. Provide support to implement the initiatives and projects in member cities' Resilience Strategies

As part of this effort, 100RC is developing a Resilience Screen to identify and evaluate the resilience value of infrastructure projects. The Resilience Screen is a tool that 100RC will leverage to support the identification and qualification of projects for TURF, while deploying resilience building solutions to ensure that key resilience features are built into projects.

For more information or to get involved with the work of our resilient cities, please contact:



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