

RESILIENCE ACCELERATOR

SANTIAGO DE LOS CABALLEROS

WORKSHOP REPORT
DESIGNING FOR EL YAQUE DEL NORTE

NOVEMBER 2018



COLUMBIA

Center for
Resilient Cities
and Landscapes



PARTNERS

100 RESILIENT CITIES

100 Resilient Cities - Pioneered by The Rockefeller Foundation (100RC) helps cities around the world become more resilient to the social, economic, and physical challenges that are a growing part of the 21st century. 100RC provides this assistance through funding for a Chief Resilience Officer in each of our cities who will lead the resilience efforts; resources for drafting a Resilience Strategy; access to private sector, public sector, academic, and NGO resilience tools; and membership in a global network of peer cities to share best practices and challenges. Learn more at www.100ResilientCities.org.

CENTER FOR RESILIENT CITIES AND LANDSCAPES

The Center for Resilient Cities and Landscapes (CRCL) uses planning and design to help communities and ecosystems adapt to the pressures of urbanization, inequality, and climate uncertainty. CRCL works with public, nonprofit, and academic partners to deliver practical and forward-thinking technical assistance that advances project implementation through interdisciplinary research, visualization of risk, project design scenarios, and facilitated convenings. CRCL integrates resilience thinking into design education and academic programming, bringing real-world challenges into the classroom to train future design leaders.

Founded at the Columbia University Graduate School for Architecture, Planning and Preservation (GSAPP) in 2018 with a grant from The Rockefeller Foundation, CRCL extends Columbia's leadership in climate-related work and supports the interdisciplinary collaborations and external partnerships needed to engage the most serious and challenging issues of our time. CRCL is allied with the Earth Institute's Climate Adaptation Initiative and works across disciplines at Columbia by bridging design with science and policy to improve the adaptive capacity of people and places.

100 RESILIENT CITIES

420 Fifth Ave, 19th Floor
New York, NY 10018
United States
www.100resilientcities.org

CENTER FOR RESILIENT CITIES AND LANDSCAPES

1200 Amsterdam Ave
Columbia University
New York, NY 10027
crcl.columbia.edu

SANTIAGO DE LOS CABALLEROS MUNICIPALITY - DEPARTMENT OF RISK MANAGEMENT AND RESILIENCE

The Department of Risk Management and Resilience seeks to respond to and prepare Santiago for natural risk. The office manages and oversees the implementation of the Santiago de los Caballeros Resilience Strategy and focuses on managing projects on natural resources. The office works to increase public space and implement green infrastructure projects in Santiago de los Caballeros.

INTER-AMERICAN DEVELOPMENT BANK - EMERGING AND SUSTAINABLE CITIES PROGRAM

The Inter-American Development Bank (IDB) works to improve lives in Latin America and the Caribbean through financial and technical support for countries working to reduce poverty and inequality. The IDB provides loans, grants, and technical assistance; conducts extensive research; helps improve health and education; and advances infrastructure with an aim to achieve development in a sustainable, climate-friendly way.

The Emerging and Sustainable Cities Program (ESC) is the IDB's non-reimbursable technical assistance program, which provides direct support to national and subnational governments in the developing and execution of city Action Plans. The ESC employs a multidisciplinary approach to identify, organize, and prioritize urban interventions to tackle the main roadblocks that prevent the sustainable growth of emerging cities in Latin America and the Caribbean. This transversal approach is based on three pillars: (1) environment and climate change sustainability, (2) urban sustainability, and (3) fiscal sustainability and governance.

PARTNERS	3
100 Resilient Cities	2
Center for Resilient Cities and Landscapes	2
Santiago de los Caballeros Municipality - Department of Risk Management and Resilience	3
Inter-American Development Bank - Emerging and Sustainable Cities Program	3
THE RESILIENCE ACCELERATOR PROGRAM	7
EXECUTIVE SUMMARY	9
CITY CONTEXT	11
WORKSHOP AGENDA & EXERCISES	12
PROJECTS	15
Suelo Duro	15
Bella Vista	23
Hospedaje Yaque	31
CONCLUSIONS	39
APPENDIX 1	40
Workshop Participants	40
Subject Matter Experts	41
APPENDIX 2	42
PUCMM Student Engagement	42
APPENDIX 3	44
Case study El Caño Martín Peña	47
Case study Fluvial ecological Park, La Barquita	49
Case study Montevideo Agricultural Market	51
APPENDIX 4	52
Facilitator Guide	52

THE RESILIENCE ACCELERATOR PROGRAM



RESILIENCE ACCELERATOR IN PARTNERSHIP WITH 100RC
 RESILIENT REEFS INITIATIVE IN PARTNERSHIP WITH 100RC + GREAT BARRIER REEF FOUNDATION

The Resilience Accelerator Program (the Accelerator)— a partnership between 100 Resilient Cities – Pioneered by the Rockefeller Foundation (100RC) and the Center for Resilient Cities and Landscapes (CRCL) at Columbia University - connects cities with design expertise and a global network of practitioners and researchers to expand the resilience value of projects, generate investment opportunities, deepen relationships between project teams across sectors, and accelerate implementation strategies. The Accelerator leverages the strengths of 100RC and the CRCL to support city partners most directly responsible for the implementation of priority resilience projects and is enhanced by local academic partners that coordinate local research to advance the analysis, design, and planning explorations.

The Resilience Accelerator aims to match the research, planning, and design expertise at Columbia with local knowledge and relationships of partner cities to advance pre-design work of high priority projects within the 100RC network through:

- Delivering analysis, visualization of issues, and design in support of project development, and leverage Columbia University and other academic partners to advance resilience-based design, research, and decision-making.
- Facilitating immersive workshops that bring together multi-disciplinary teams of actors to advance strategy, project design, and implementation.
- Convening the perspective of hundreds of international and place-based thought leaders, designers, and technical experts chosen for their ability to facilitate and advise on topical subject matter.

Since the launch of the program in the Spring of 2018, the Resilience Accelerator has identified 13 projects across 8 cities in the 100 Resilient Cities network, and developed a partnership with The Great Barrier Reef Foundation to support 5 reef communities.

EXECUTIVE SUMMARY

Santiago de los Caballeros (SDLC) is defined by its relationship with the Yaque del Norte River. The City's position along the Yaque and its natural resources have brought rapid growth to its industrial and agricultural economies. Yet the City's expansion along the Rio del Yaque has outpaced infrastructure investments and affordable housing options for new and existing residents, leaving many along the river vulnerable to flooding. Unexpected and intense tropical storms such as 2007's Noel and Olga, which left 87 dead, are likely to become more frequent and damaging with climate change. Poor and migrant communities, who are separated from many of the City's services and economic opportunities, are often the most impacted by flooding.

These challenges led Santiago de los Caballeros and the IDB to propose a master project, Vive el Yaque, that aims to restore the urban-environmental corridor along the river through multiple site-specific interventions. The project is aligned with the SDLC Resilience Strategy and designed to mitigate flood risk, improve environmental conditions, promote social inclusion, and enhance the City's urban core.

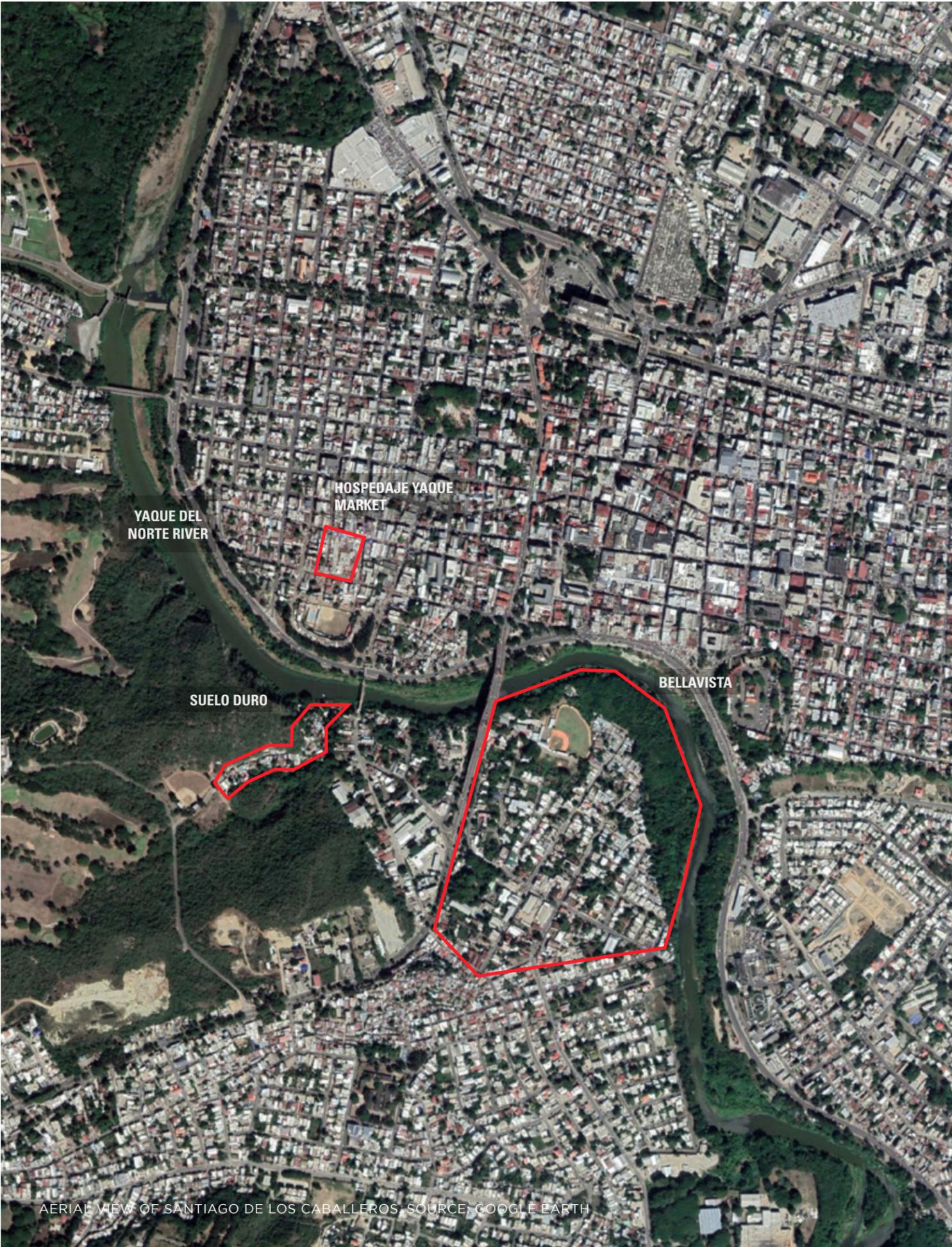
Throughout 2018, the IDB has worked with the City and key local organizations like the Consejo para el Desarrollo de Santiago (CDES), Fondo Agua, and the Corporacion del Aceuducto y Alcantarillado de Santiago (CORAASAN) to promote the components of the Vive el Yaque project and confirm their feasibility for implementation. As part of this process, 100RC and Columbia University's Center for Resilient Cities and Landscapes (CRCL) partnered with the IDB and Santiago de los Caballeros for a Resilience Accelerator. This program connects cities with design expertise and a global network of practitioners and researchers to expand the resilience value of projects, generate investment opportunities, deepen relationships between project teams across sectors, and accelerate implementation strategies. Three sites-specific projects under the Vive el Yaque project were selected for the Resilience Accelerator:

1. Housing Relocation in Suelo Duro: Providing safe housing for vulnerable communities on high ground away from flood risk
2. Green Belt Bella Vista: Protecting residents from flooding through the creation of a natural park, a protective levee, and an urban drainage system
3. Hospedaje Yaque Market: Planning for urban growth and improving physical infrastructure

Over the course of three months, CRCL and 100RC met with community leaders, collected global case studies, and prepared a design and planning workshop. Delivered in November 2018, the Resilience Accelerator workshop aspired to promote a model for inclusive collaboration on design and planning that will serve these projects and future challenges.

The workshop included site visits and meetings with community leaders and two days of hands-on design and implementation exercises. The participants—including international and local subject matter experts, government authorities, policy makers, designers, business associations, and municipal staff—worked to refine the projects by weighing a number of proposed options against the immediate needs and possible futures of the affected neighborhoods.

Workshop participants discussed several challenges related to the project designs and implementation pathways. These include the need to promote affordable housing models, build political will, and recognize cultural values and emotional attachments—especially when designing projects to relocate communities. Santiago de los Caballeros and its development partners must embrace a participatory planning process to move each of these projects forward and build trust among communities. The City will also have to improve existing governance structures and create more platforms for collaboration between government and impacted residents to address these mounting challenges.



AERIAL VIEW OF SANTIAGO DE LOS CABALLEROS. SOURCE: GOOGLE EARTH

CITY CONTEXT

Santiago de los Caballeros is the second largest city in the Dominican Republic. It is often compared to its counterpart Santo Domingo as a more relaxed and reserved city where residents enjoy a slower, more purposeful way of life that values art and culture. Santiago de los Caballeros is an inland city situated in a wide landscape of mountains and a fertile valley near the Atlantic Ocean. The largest river in the Dominican Republic, the Yaque del Norte, with its origins in the mountains, flows north to the Atlantic Ocean and supports more than one million people along its basin. The river cultivates the fertile land of the Cibao region, making it the bread basket of the island of Hispaniola.

The City of Santiago, at the foot of the Cordillera Septentrional on the Yaque, was one of the first colonial settlements in the Americas and this history is visible today in the City's Spanish forts and street names. Once fully dependent on the land and Yaque River for agriculture, the City diversified its economy in the 1970s by introducing a "Zona Franca" or free trade zone. Built along the Yaque River, these free trade zones led to a new economy based on the manufacturing of textiles, apparel, electronic equipment, and tobacco products. Today the Zona Fracas employ over 25,000 people in Santiago and attract migrants from rural areas and Haiti.

While Santiago has experienced a real estate boom, housing developers did not build along the Yaque River because of pollution and flooding. However, migrant communities seeking close proximity to jobs in the core and the Zona Fracas, have made their homes along the river.

The Yaque provides life to the region, but it also threatens the stability of the communities alongside it. During Tropical Storm Olga in December 2007, excess water forced local authorities to release the Tavera Dam's floodgates. The authorities sought to inform residents downstream of this event but had less than an hour to do so. As a result, at least 20 people lost their lives in Santiago and thousands were left without homes. The people most impacted in this event were those living in the communities living along the riverbanks; they have been largely displaced or rebuilt homes in the flood zones. It was once unusual for storms like Olga, and more recently Hurricane Maria, to occur late in a year, but they are indicators of the increasingly unexpected and strong weather patterns over the Dominican Republic.

In Santiago, the banks of the Yaque del Norte vary from cliff sides to green riparian zones. In some places people ride horses, bird watch, and occasionally swim in the river. However, to many, the Yaque is perceived as forgotten and neglected. Maria Isabel Serrano, the Chief Resilience Officer and Director of Risk explained, "Santiaguinos han dado la espalda al rio," or "Santiaguinos have given their back to the river." Santiaguinos are aware of the trash that mounts at its riverbanks and the sewage that pours into the river from its many streams.

The troubled relationship between citizens and the Yaque invites the questions: are there ways for local authorities to better protect communities and steward ecological resources?

**"I APPROACH YOUR SHORE
AND LISTEN TO YOUR SILENT
LAMENT.
THE STONES REPRODUCE THE
TIMID ECHO OF THE WATER
AND YOUR LACERATED CHANNEL
HAS A MUTED SMILE
STILL, YOU'RE BEAUTIFUL! "**

-DIONICIO HERNÁNDEZ LEONARDO, RECORDANDO
EL YAQUE

WORKSHOP AGENDA & EXERCISES

Day 1 Site Visits and Community Leader Meetings Tuesday, November 6

Day 2 Project Framing and Design Wednesday, November 7

9:30 – 9:45 AM	Welcome remarks Maria Isabel Serrano, Chief Resilience Officer SDLC
9:45 -10:00 AM	Workshop Flow and Introductions Subject Matter Expert Introductions, Participant Introductions, Agenda, Exercise Flow, and Teaming Jessica Hernandez, 100 Resilient Cities
10:00 – 11:15 AM	Exercise 1: Shocks and Stresses Introduction to project Relate the sites current and future shocks and stresses to the project Breakout Groups
11:15– 11:30 AM	Lymaris de Jesus Presentation on Community Led Relocation Caño Martín Peña case study
11:30 – 13:00 AM	Exercise 2: Options Definition Identify and review the possible range of interventions Breakout Groups
13:00 – 14:00 PM	Lunch Yaque short video (Oliver Olivo) Matilde Olivero Presentation on Market Revitalization Daniel Medina Presentation on Green Infrastructure
14:00 – 15:30 PM	Exercise 3: Design Evaluation What are the critical elements of the project design Breakout Groups
15:30 – 16:00 PM	Team Presentations Plenary

Day 3 Implementation Thursday, November 8

9:00 – 9:30 AM	Day 2 Recap Plenary
9:30 -10:30 AM	Exercise 4: Resources and Barriers Who are existing resources available and what are potential barriers? Breakout Groups
10:30 – 11:30 AM	Exercise 5: Cost and Benefits Establish associated project costs and potential financing mechanisms Breakout Groups
11:30 – 11:45 AM	Break
11:45 – 12:45 AM	Exercise 6: Implementation Roadmap Link activities to 3, 6 and 12 month milestones Breakout Groups
2:00 – 3:30 PM	Exercise 7: Benefits and Costs Case study presentation on Benefits and Costs Explore the range of cost elements, benefit typologies and potential funding sources to pursue. Develop a path forward Breakout Groups
3:30 – 4:30 PM	Exercise 8: Implementation and Actions Link activities to 3-, 6-, and 12-month milestones 1. Scoping and budget, 2. Implementation 3. Operations and maintenance Breakout Groups
12:45 –14:00 PM	Lunch
14:00 -15:00 PM	Final Presentations and Closing Remarks Plenary

PROJECTS

SUELO DURO

How can local communities be empowered in a relocations process to provide safe and dignified housing that keeps local networks strong?

OVERVIEW

Suelo Duro is emblematic of many neighborhoods in Santiago. Located on the banks of the Yaque del Norte, the informal settlement is home to both Haitian and rural immigrants. It is a community of about 100 residents stacked on a steep slope above the river. This housing was self-built without sanction from the City, and the neighborhood lacks adequate sewage treatment. Given frequent rain storms and extreme weather, the neighborhood is susceptible to regular flooding which can be catastrophic during tropical storms like Olga and Maria. The residents of Suelo Duro have a strong connection to the neighborhood as described by José Antonio “Checo,” a tailor and Suelo Duro community leader. El Checo shared the stories of residents who left Suelo Duro through buyout programs after Tropical Storm David in 1979 and later returned because of their ties to the neighborhood.

There are 11 other communities along the Yaque del Norte in Santiago, a total of approximately 1,800 homes that share the same risk as Suelo Duro. Santiago Solidario a local non-profit, has worked for over 15 years to advocate for these communities. While its staff are not from these communities, they work closely with the communities to identify needs and potential projects. These types of organizations have been successful in implementing small-scale projects, such as local sewage treatment and street lighting, to improve these neighborhoods. Despite successes, Santiago Solidario has struggled with their core mission of moving residents and providing safe housing,

The City had previously attempted to relocate the community but it lacked the resources needed to remove existing homes, enforce zoning, and conduct a participatory approach. The City and the IDB brought Suelo Duro to the Resilience Accelerator as a pilot project to determine how the City and residents can work together to create a model for providing safe housing on high ground for these 11 communities.



“SU DEBILIDAD ES LA POBREZA, PERO SU FORTALEZA LA RESILIENCIA. THEIR WEAKNESS IS POVERTY, BUT THEIR STRENGTH IS BEING RESILIENT”

PERCY ÁLVAREZ, DIRECTOR OF SANTIAGO SOLIDARIO



AERIAL VIEW OF SUELO DURO NEIGHBORHOOD, SOURCE: GOOGLE EARTH.
RIGHT A: INFORMAL HOUSING AT THE BANKS OF THE YAQUE DEL NORTE, SUELO DURO
RIGHT B: JOSÉ AGUSTÍN CHECO, INTERVIEWED AT FLOR ANTONIO FERNANDEZ NEIGHBORHOOD COUNCIL



SUELO DURO WORKSHOP PARTICIPANTS

RESILIENCE ACCELERATOR OBJECTIVES

- Review options for Suelo Duro
- Establish a participatory approach
- Understand the current household conditions
- Create guidelines for a replicable model

PROJECT STATUS

The City and partnering nonprofits have sought to move settlements along the banks of the Yaque del Norte to higher ground for over 30 years. Relocation processes have been stalled in SDLC because of a lack of resources and narrow approaches. The City brought the site of Suelo Duro to the Resilience Accelerator to act as a pilot relocation process that could be applied to other communities at risk to flooding.

Jessica Hernandez
100 Resilient Cities
Moderator

Linda Schilling
Center for Resilient Cities and Landscapes
Visual Facilitator

Lymarís de Jesús
Coordinator of the Office of Community Social Participation and Citizen Participation at Enlace del Caño Martín Peña
Subject Matter Expert

Public Sector

Walkiria Estévez
Project Director, ONG Fondo Agua Yaque del Norte

Percy Alvarez
Executive Director, Santiago Solidario

Jochy Nuñez
Planning and Land Use, City of SDLC

Hipólito F. Reyes
Stormwater Management, City of SDLC

Adriano Valdez
Architect, City of SDLC

Roberto Abreu
Lawyer, City of SDLC

Ambionix de León
City of SDLC

Biberto Ortiz
Environment Technician, City of SDLC

María Martínez
Architect, Planning City of SDLC

Ingrid Dominguez
Assistant, City of SDLC

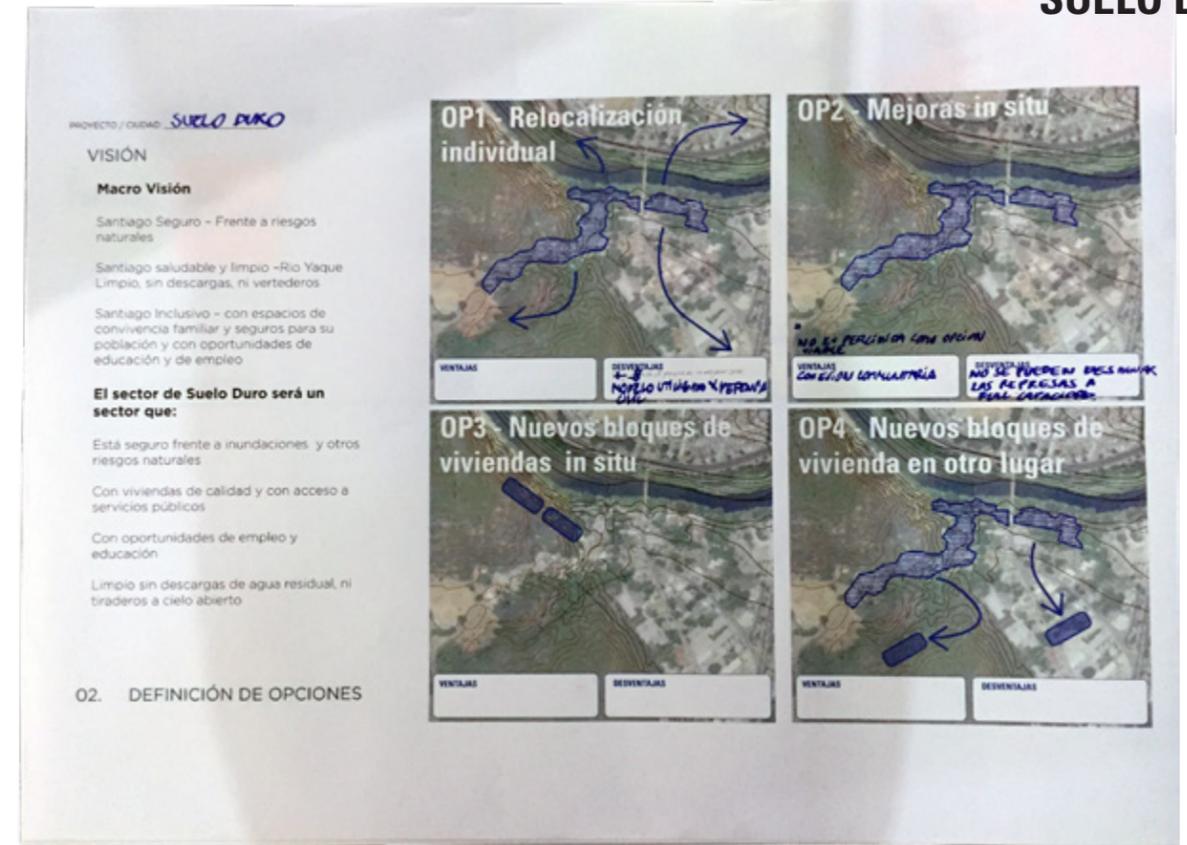
Private Sector

Miguel Ureña
Engineer, CODIS

PARTICIPANTS



SHOCKS AND STRESSES WORKSHEET



INTERVENTION OPTIONS WORKSHEET

FRAMING AND VISIONING

Workshop participants were a group of non-profit advocates and municipal staff who attended with knowing they could advocate for the people of Suelo Duro, but also understanding that residents must be central to future conversations. The team started Day Two by identifying extreme rainfall as the most urgent shock to the site. The team also discussed gradual migration, informality, and the lack of social integration and job opportunities as key stresses for residents.

Next, the team collectively established the following values for the intervention.

Suelo Duro will be a community that:

- Is strong in the face of flooding and other natural hazards
- Has quality housing and access to public services
- Has opportunities for employment and education

- Has clean water and public realm.

The team evaluated two options for intervention: 1) improve conditions on site by either creating new or elevating existing housing or 2) relocate the neighborhood offsite by either moving each household individually to neighborhoods across the city or relocating the community together.

Because the upstream dam needs to release surplus water during heavy storms, the City seeks to keep the riverbanks clear of homes. Percy Álvarez, executive director of Santiago Solidario, and other participants agreed that to ensure safety for residents, the best option would be to relocate the houses together.

To meet the needs of the neighborhood, participants agreed to a number of design principles, including:

- Implementing a community engagement strategy to

promote public participation and full representation of residents.

- Establishing governance for relocation projects that can withstand political transitions.
- Exploring tools to ensure community demands are heard.
- Developing an approach to enforce zoning and prevent people from repopulating evacuated areas. In the past, the City planted trees along the riverbanks to prevent expansion into flood zones.

IMPLEMENTATION PLANNING

On Day Three of the workshop, the team expanded its understanding of how the relocation process could be realized. The team acknowledged that a major barrier to implementation is a lack of prioritization at the national and municipal levels. The team discussed a study completed by Santiago Solidario that found that, in the face of disaster, the City waits for communities to ask

for assistance before actively providing shelters. In the 11 communities, it is typical for residents to rely on their existing social networks for support.

The team discussed three existing resources for the relocation process that could be stepping stones to create changes in housing policies.

- Santiago Solidario identified existing land for the community at La Ciénaga. The land at La Ciénaga is on the periphery of Santiago and has potential access to jobs and education.
- Potential funding from Dirección General de Cooperación Multilateral (DIGECOOM) for construction of housing units.
- An existing citizen survey by Santiago Solidario that mapped existing housing typologies and surveyed community needs and perceptions.



TEAM SKETCH FOR CURRENT CONDITIONS AT SUELO DURO SITE

The following list is a set of actions established by Santiago Solidario and City representatives to be taken in the near and long-term:

Near-Term (Six Months)

- The City, including Maria Isabel Serrano, will map key actors to influence decision making.
- Santiago Solidario and the City will establish a multidisciplinary team to move the process forward.
- Santiago Solidario will help the 11 communities create manifestos outlining their demands.
- Catastro Ayuntamiento, POT, will create a survey of available public land that can be used for future sites.
- Santiago Solidario will review the existing parcels of land they own to meet the needs of the Suelo Duro community, including a re-evaluation of the designs for La Ciénaga.
- Santiago Solidario will develop a comprehensive

socio and economic study for the Suelo Duro community to better understand who lives there, where they work, household age composition, etc.

Long-Term (One year)

- Santiago Solidario will continue engagement with the other 11 communities that are along the banks of the Yaque del Norte.
- Coordinate with MINPRE to identify potential funding sources with the national government.

Given the political barriers, the team discussed implementing a relocation process that is run and driven by the 11 communities and Santiago Solidario. As a next step, the City, non-profits, and local communities will advocate and work with the national government to prioritize resources and create legislative change.



TEAM SKETCH FOR RELOCATION OPTIONS NEAR SUELO DURO SITE



ADRIANO VALDÉZ, WALKIRIA ESTÉVEZ AND JOCHY NUÑEZ PRESENTING DAY TWO DISCUSSION FINDINGS

BELLA VISTA

How can investments in flood protection infrastructure create a public space that supports the community and promotes environmental stewardship?

OVERVIEW

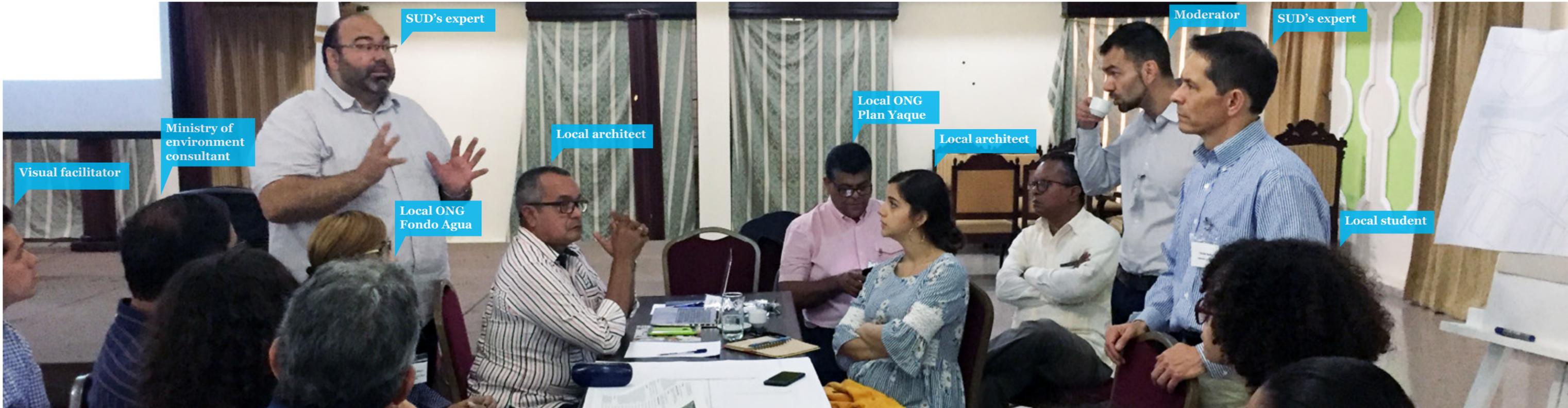
Bella Vista is a large mixed-income neighborhood of about 30,000 people just south of the Yaque del Norte River. At the bottom of a gradual slope and adjacent to the river, Bella Vista is the front line of the intersection of urban growth and natural disasters. After the devastation that resulted from Tropical Storm Olga, where over 100 people lost their lives, Bella Vista has drawn international and local attention. The IDB and the City of Santiago de Los Caballeros want to look at an integrated approach to manage flood risk, but also create a public amenity that improves environmental conditions and strengthens the City's relationship to the Yaque.

The City and IDB are proposing a levee to protect the existing neighborhood, a pedestrian bridge to improve neighborhood connectivity, and an improved drainage system. The City is also proposing that Bella Vista be the site of a pilot municipal park that will eventually run along the Yaque del Norte in Santiago.

The IDB and the City brought the Bella Vista interventions to the Resilience Accelerator to build local momentum for project designs and implementation.



AERIAL VIEW OF BELLA VISTA NEIGHBORHOOD. SOURCE: GOOGLE EARTH
RIGHT A: BELLA VISTA FORESTED NATURAL AREAS
RIGHT B: STREETSCAPE OF A BELLA VISTA NEIGHBORHOOD STREET WITH DRAINAGE PROBLEMS



BELLA VISTA WORKSHOP PARTICIPANTS

RESILIENCE ACCELERATOR OBJECTIVES

- Identify opportunities to make flooding infrastructure a public amenity and help shape the public realm
- Evaluate stewardship programs to accelerate restoration efforts along the riverbanks
- Get local input on proposed infrastructure elements: the levee, the pedestrian bridge, the park, and the urban drainage system

PROJECT STATUS

IDOM, the IDB’s consultant, is performing initiation draft project designs. The City is seeking stakeholder input, funding, and financing options.

Hector Cordero
100 Resilient Cities
Moderator

Fernando Granados
IDOM
Visual Facilitator

Shaney Peña Gomez
Urban Planner and Architect, CEBQ
Subject Matter Expert

Jorge Rojo
Environmental Engineer IH Cantabria
Subject Matter Expert

Daniel Medina
Civil Engineer, Limno Tech
Subject Matter Expert

Public Sector

Walkiria Estévez
Project Director, ONG Fondo Agua Yaque del Norte

Laura Partal
Project Director, Gerencia Communications, CDES

Roque Rodríguez
Architect

Humberto Checo
Agriculture Engineer, ONG Plan Yaque

Raymundo Garrido
Consultant, MIMARENA

Eduardo Sánchez
Architect, City of SDLC

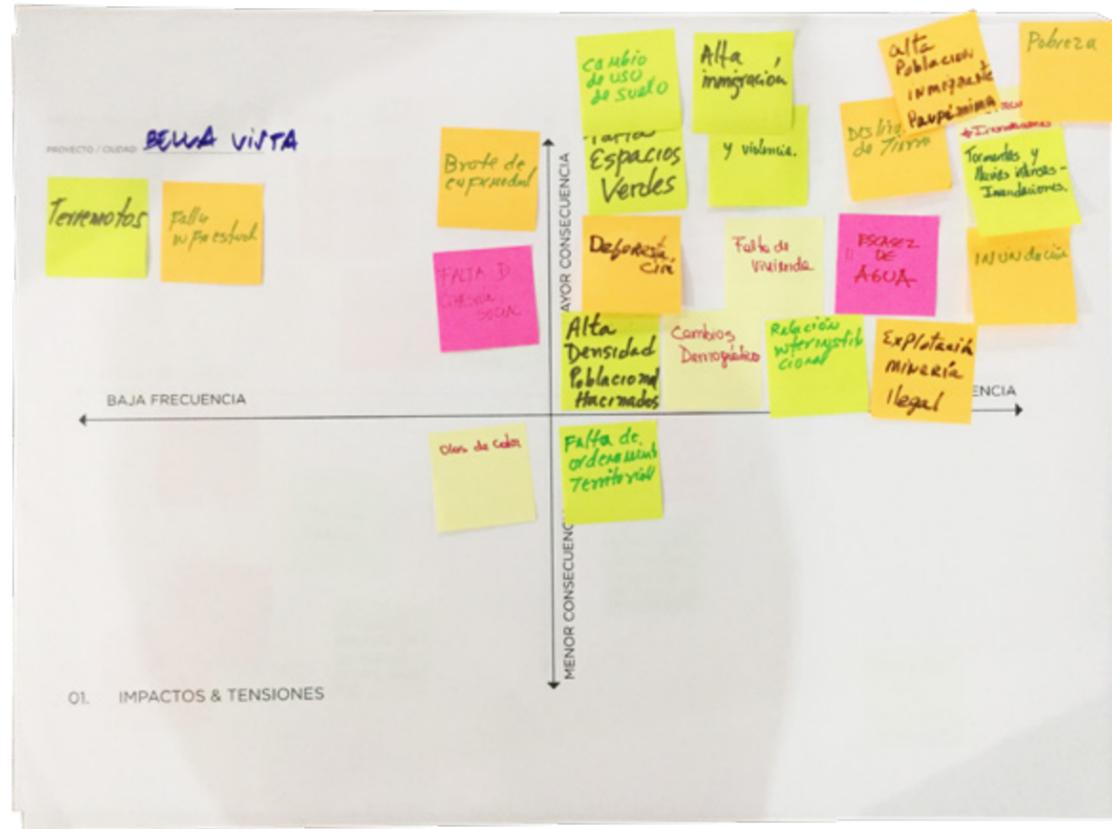
Joanny Lopez
Architect, INDRHI

Rosanna Vásquez
Civil Engineer, INDRHI

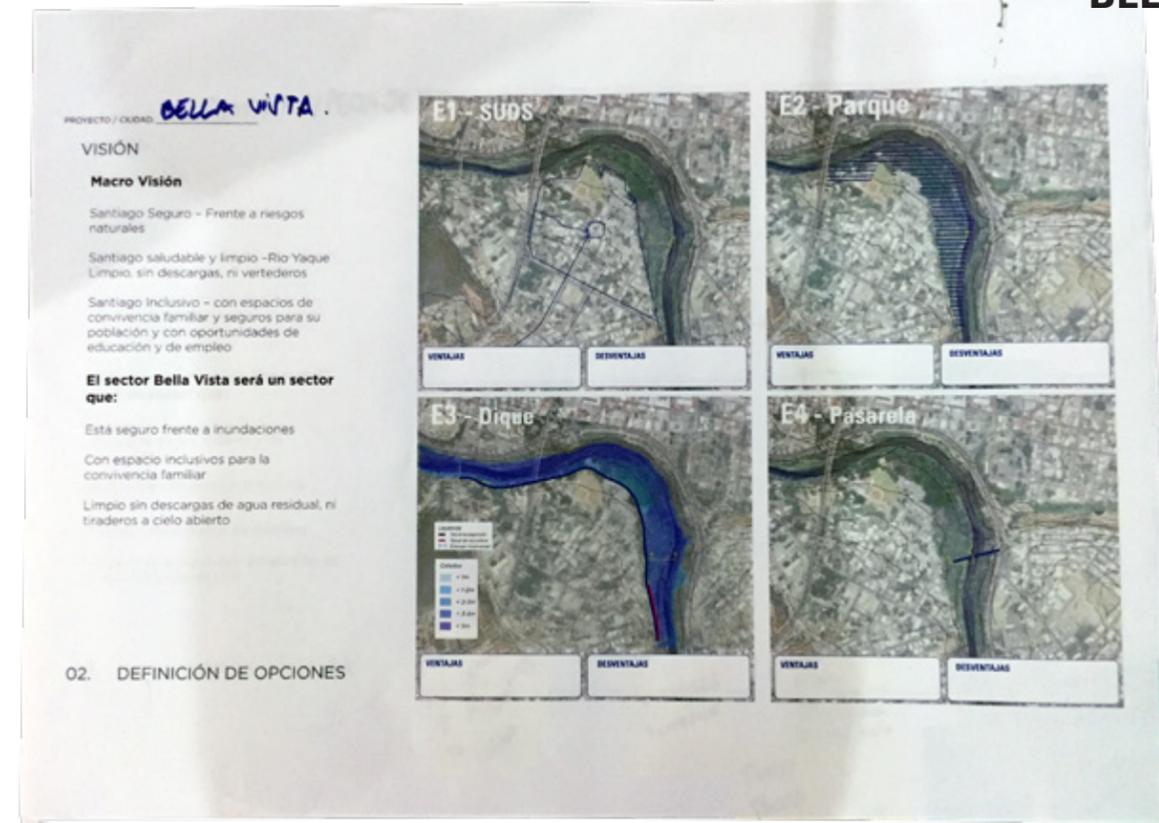
Zahira Mancebo
Architect student, BID Cities Lab

Yolenny Reyes
Architect student, BID Cities Lab

PARTICIPANTS



SHOCKS AND STRESSES WORKSHEET



INTERVENTION OPTIONS WORKSHEET

FRAMING AND VISIONING

The Bella Vista team—academics, representatives from the private sector, natural resource managers, the Plan Yaque, and students—started the workshop by outlining the main shocks and stresses affecting Bella Vista. Hurricanes and flooding were among the top shocks identified for residents and the impetus for change. The team also discussed infrequent shocks like infrastructure failure and earthquakes that also have high consequences for residents. Workshop participants felt the unmanaged forested area along the riverbank contributes to a sense of insecurity and that this neglected space has invited drug activities, migrants, and illegal dumping along the riverbanks.

The team collectively established the following values for the intervention.

- Bella Vista will be a community that:
- Is safe from flood risk
 - Has an inviting public realm

- Has clean water and natural environment

The project team evaluated the proposed project elements and discussed associated positive and negative impacts. A summary of the discussion for each project element follows.

Sustainable Urban Drainage System: Workshop participants expressed concern that a pilot sustainable urban drainage system would not be enough to absorb all the storm run-off and encouraged the City to consider a more comprehensive approach. Participants also agreed that a waste disposal education campaign is essential to the implementation of the pilot in the neighborhood.

Pedestrian Bridge: The proposed pedestrian bridge could create unintended consequences by inviting visitors to Bella Vista, potentially bringing in real-estate investors and tourism. Participants also agreed that the bridge would not solve existing congestion challenges.

Natural Park: Participants showed enthusiasm for a park to help reduce insecurity, promote collaboration

among multiple levels of governance, and create a public asset that serves the entire city. Participants discussed the importance of programming that better integrates Haitian residents and infrastructure that is flexible in the event of floods.

Levee: The proposed levee can act as a barrier between the park and the neighborhood; the design could either enforce safety or act as a physical and mental barrier to the park. Participants expressed concern that a levee could create a “bathtub” when water flows downhill on the residential side of the levee. Most urgently, participants agreed that the levee could protect Bella Vista, but that neighborhoods downstream would still be left exposed to flooding.

Workshop participants agreed to a number of design principles, including a park that:

Serves the entire community, including migrant populations, elderly populations, and children.

- Transportation routes are connected to the park
- Design elements for children
- Infrastructure like hiking and biking trails

Is safe for all

- Technology to enforce security, for example lighting and cameras that monitor who enters and who leaves the park
- Security services and personnel
- Campaigns to share safety elements of the park.

Promotes social cohesion

- Integrated cultural and recreational programming, including the iconic carnival celebrations held in Bella Vista

Is stewarded by the community

- Educational programming to socialize the value of the river as a natural asset and the risk of living



TEAM SKETCH FOR INTEGRATION BETWEEN LEVEE AND PARK EDGE

alongside the Yaque.

- Sites to collect trash

IMPLEMENTATION PLANNING

On Day Three of the workshop, the Bella Vista team dove into the “La Barquita” case study. At La Barquita in Santo Domingo, the private sector had a large stake in the creation of a pluvial park, making the project possible throughout political transitions. The park at La Barquita was also part of a larger series of parks along the entire waterfront. The case study helped confirm for participants that the park at Bella Vista needs to be part of a larger project to restore the Yaque del Norte.

The team established the following steps to further advance the Bella Vista Park project in the near- and long-term:

Near-Term (2019)

- The Catastro Ayuntamiento, Santiago Solidario, and the Planning Department will identify and work with the informal settlements inside the proposed Park area and implement a relocation process.
- Maria Isabel Serrano and the City will map key actors within the community who can advocate for the Park.
- CDES will create a group to advocate for the Park and the surrounding neighborhood of Bella Vista. This group could be an organization that advocates for the proposed vision and stretch of park that runs along the Yaque basin. Responsibilities include creating opportunities for public participation, fundraising, and advocacy.
- The City and IDOM will develop designs for the Bella Vista Park elements.
- The City and Direccion de Aseo Ornato y Parque will evaluate maintenance and operational costs and their financing sources through ticketing and cultural

programming.

- The City will identify potential financial resources available through the Comisión Presidencial para el Ordenamiento y Manejo de la Cuenca del Río Yaque del Norte (CRYN).
- The City will change the zoning of the site of intervention to fit the Natural Park designation.
- The City will get project approval from the Secretaría de Obras Públicas and INDHRI.

Long-Term (2020)

- The new advocacy group will develop a branding strategy for the Park and consider renaming the park to “Parque Encantado.”
- The City will secure funding and begin construction of pedestrian paths and Bella Vista Park elements.

A next step is for the City and residents to garner support for the project at the community, city, and state levels.



SHANEY PEÑA GÓMEZ ACOMPANING WORKSHOP PARTICIPANTS AT THE BELLAVISTA TABLE PRESENT THEIR FINDINGS

HOSPEDAJE YAQUE

How can the market dynamics and the surrounding neighborhood be improved to protect workers, improve the urban environment, promote local economy and generate a sense of belonging?



“THE HOSPEDAJE IS THE MAIN PLACE FOR THE FOOD SUPPLY CONSUMED BY THE WORKING CLASS OF SANTIAGO. IT IS AN EMBLEMATIC SITE BECAUSE IT HAS MORE THAN A CENTURY FUNCTIONING AS A NODE OF AN EXTENSIVE NETWORK COMPOSED OF DIVERSE COMMERCIAL, DEMOGRAPHIC AND SERVICE FLOWS THAT INTERCONNECT IT WITH A SERIES OF ESTABLISHMENTS THAT OCCUPY SEVERAL BLOCKS AROUND.”

RAFAEL EMILIO YUNÉN ZOUAIN,
CONSULTANT, CAP

OVERVIEW

Like the City itself, the Hospedaje Yaque Market (HYM) has grown rapidly and its infrastructure has not kept up. The market has expanded from its original degraded structure into the adjacent residential streets. Authorities, residents, and market users complain of air pollution, congestion, and other public health concerns related to poor sanitation.

During peak activity, the market takes over the neighborhood with its more than 5,000 vendors and 200 wholesalers. It is critical to Santiago's economy and brings in over \$500 million Dominican pesos daily. The market is located next to a historic bridge that links Santiago with the pueblos of the sierra and serves the entire region. People come from all over to shop at the market, and include adjacent residents, farmers, and Haitians.

Authorities have felt pressure for years to act to improve the market, and doing so is a priority for the current mayor. The Resilience Accelerator sought to bring together stakeholders to evaluate options with resilience principles and reach consensus on the best way to reimagine the market.



AERIAL VIEW OF HOSPEDAJE YAQUE MARKET IMMEDIATE AREA OF INFLUENCE, SOURCE: GOOGLE EARTH
RIGHT A: HOSPEDAJE YAQUE MARKET WASTE DUMPED AT THE INTERSECTIONS OF BOY SCOUTS AND CAPOTILLO STREET



MATILDE OLIVERO (CENTER) LEADING A DISCUSSION WITH THE HOSPEDAJE YAQUE MARKET ADMINISTRATORS.

RESILIENCE ACCELERATOR OBJECTIVES

- Evaluate options to reach consensus on a set of principles based on the City’s context and feedback from stakeholders and subject matter experts to begin to develop an approach.
- Surface root causes and need for intervention

PROJECT STATUS

The Mayor has prioritized the redesign of the Market to improve public health, congestion and economic opportunities for the central core. Stakeholders have disagreed on approaches to the upgrading process because of costs and impacts on consumers, retailers, and workers. The City brought the project to the Resilience Accelerator to bring together different perspectives and discuss and align on an approach.

Martín Quiroga
IADB
Moderator

Michelle Mueller
100 Resilient Cities
Visual Facilitator

Matilde Olivero
Consultant, O&L Consultores Asociados
Subject Matter Expert

Public Sector

William Ramirez
Planning, City of SDLC

Manuel Padilla
Director of Municipal Markets, City of SDLC

Eddy Gil
Administrator, HYM

José Mercader
Director of Creativity, Ministry of Culture

Laura Peña
Ministry of Tourism

Jose Martin Rodríguez
Former HYM administrator

Private Sector

Cristian Capellán
Small Business Owner, Victorias

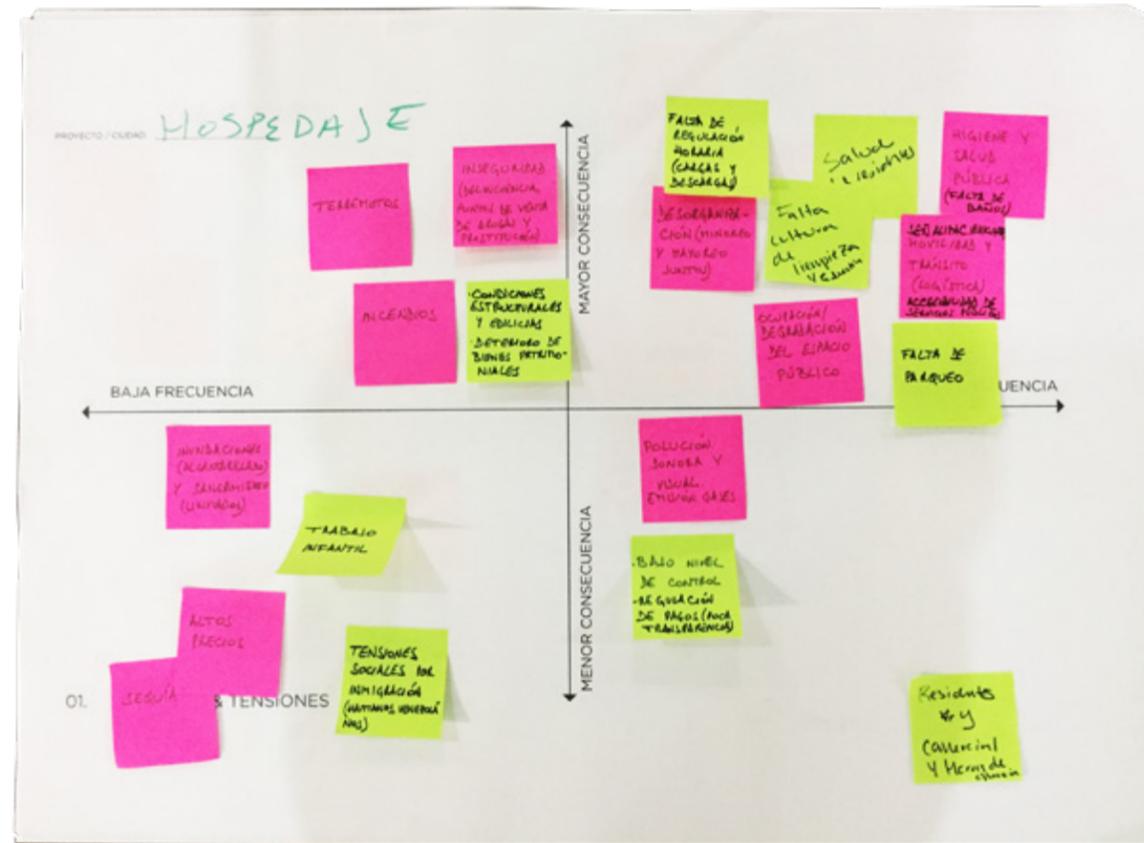
Dagoberto Torres
Telemático, SST

Mirtha Saleta
Manager, CDES

Rafael Yunén
Consultant, CAP

Roberto Guzaman
Manager, La 37 por las Tablas

PARTICIPANTS



SHOCKS AND STRESSES WORKSHEET

FRAMING AND VISIONING

A group of market administrators, representatives from the private sector, and municipal actors from planning, culture, and tourism met on Day One of the workshop to discuss the market and the neighborhood’s shocks and stresses. Workshop participants discussed stresses including poor public health conditions, lack of public space, high congestion, and a deteriorating structure. Participants shared that residents have expressed concern about the existing structure’s risk of fire and that the daily influx of market visitors could potentially lead to violent or civil unrest.

The workshop team saw an opportunity to reimagine the market to better serve the neighborhood and collectively established the following values for the intervention.

The Hospedaje Yaque Market will be a commercial center that:

- Protects and values the needs of the market workers
- Is clean and sanitary

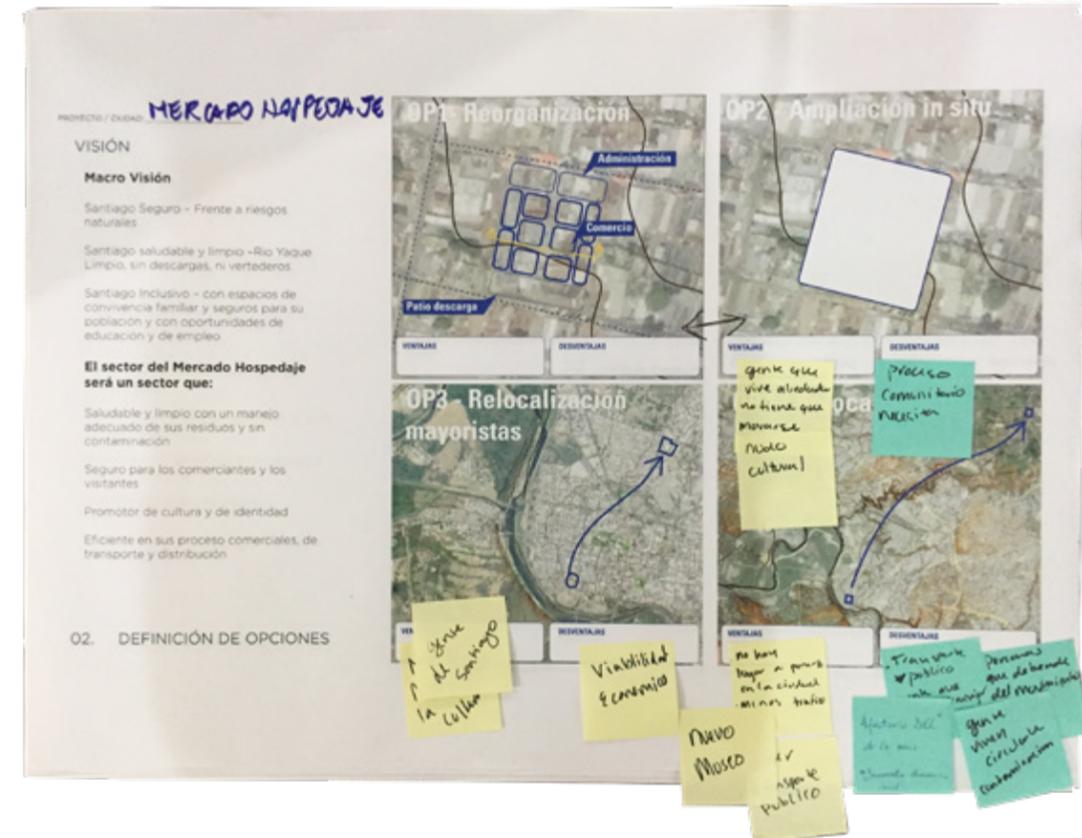
- Is safe for all vendors and visitors, including migrants and women
- Promotes the culture and identity of SDLC
- Is efficient in its trade, transportation and distribution

Workshop participants evaluated four options for intervention;

1. Reorganizing the existing market
2. Rebuilding the existing market in site
3. Relocating the bulk products away from existing site and
4. Relocating the entire market away from the existing site.

The team listed potential positive impacts and negative impacts for each option.

Given the mounting challenges, workshop participants felt that simply reorganizing the market would not meet the needs of residents. Participants felt that rebuilding



INTERVENTION OPTIONS WORKSHEET

the existing structure could maintain the existing social fabric and could continue to provide access to workers but wouldn’t ultimately meet the growing market demand. The third option—to relocate bulk goods away from the site—appealed to participants because of the potential to preserve the existing site as a market for residents and provide an improved market for the region. The last option to completely remove the market wasn’t taken into consideration because residents need a place to access consumer goods.

Workshop participants agreed that a preferred option may be to relocate the bulk goods from the market from the downtown city center to a location that is well connected to transportation routes while maintaining retail uses on the existing site. In order to serve the entire Cibao region, and ensure that the market acts as a node for macro to be traded in the Dominican Republic, participants agreed to a number of design principles, including:

- Implement a participatory planning process that integrates the Hospedaje Yaque Market surrounding

- neighborhood, merchants, employees, and consumers including immigrant needs
- Identify a location where bulk goods have proximity to the city and connectivity to major transportation routes
- Guarantee access for existing market workers
- Enforce safety, security, and sanitation of the market
- Preserve and redesign the existing market building
- Integrate multiple uses in the new market , such as a local market for the community with fair pricing, an arts and culture center, and a tourist attraction to celebrate traditional crafts and foods of Santiago



PARTICIPANT SKETCHING OUT A NEW MARKET LAYOUT AND HOW IT WOULD MEET PEDESTRIANS

IMPLEMENTATION PLANNING

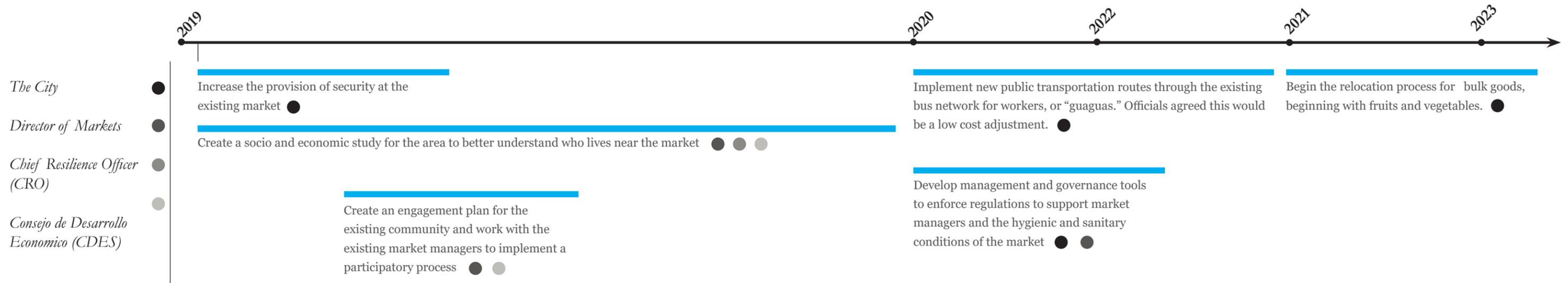
On Day Three participants discussed existing resources, barriers, associated costs, and plans for implementation. Subject Matter Expert Matilde Olivero shared her experience leading efforts to revitalize markets across Latin America and encouraged participants to work with the national government and vendors. As a result, the team outlined the following list of actions to be taken in the near- and long-term to realize change and ensure that the proposed project serves the needs of the community in Santiago, including workers, vendors, tourists, regional farmers, and regional / global consumers:

Subject Matter Expert Matilde Olivero provided the team with her experience leading efforts to revitalize markets across Latin America and encouraged participants to work with the National Government and vendors. As a result, the team outlined the following list of actions to be taken in the near- and long-term to realize this change

and ensure that the proposed project serve the needs of the community in Santiago, including workers, vendors, tourist, regional farmers, and regional / global consumers:

Day Tree ended with Manuel Padilla, Director of Municipal Markets, presenting the agreed vision and pathway to implementation. Manuel and the workshop team showed enthusiasm for meeting with national actors and running a process with existing market users to accelerate project design. As an immediate next step, the team agreed to meet with Santiago’s mayor and present this approach.

Development Timeline



CONCLUSIONS

The municipality of Santiago de los Caballeros and its partners at the IDB, local non-profits, and advocates have a strong vision for the Yaque del Norte River as a force for transformation. They believe that investing in the river and the neighborhoods and infrastructure along its banks will ensure Santiago is better prepared for economic development pressures, flooding, and urban growth.

The fall 2018 Resilience Accelerator tested that vision by bringing it to ground level with the consideration of these three proposed projects. The Accelerator encouraged local ownership of the projects and offered critical perspectives from external Subject Matter Experts. The workshop helped build support for more community-based planning processes that would make each of these interventions better serve Santiago. Integrated and inclusive processes will also strengthen each project's path through implementation.

During the workshop, participants found the space to question basic assumptions. For instance, they asked: Are we seeking to solve these issues at the right scale? As a

result, the Suelo Duro project moved from design options for one community to a framework for community planning across 11 flood-vulnerable communities. Resilience compels the consideration of multiple, interconnected risks in every project design. For instance, the workshop helped to show how flood protection cannot be separated from sanitation or economic development from neighborhood preservation.

At the core of the Resilience Accelerator Program is a continuous process of growing and strengthening the global network of resilience practitioners. These are people dedicated to helping communities adapt and thrive in the face of the stresses and shocks of the 21st century including global warming, globalization, and rapid urbanization. This workshop created the opportunity for local leaders from SDLC, staff from 100 RC, the IDB, and scholars from Columbia University to work together on the future of Yaque River. The spirit of open and honest collaboration evidenced during the workshop should build unified support and accelerate SDLC's vision for the Yaque River.

APPENDIX 1

WORKSHOP PARTICIPANTS

SUELO DURO

Jessica Hernandez

100 Resilient Cities
Moderator

Linda Schilling

Center for Resilient Cities and Landscapes
Visual Facilitator

Lymaris de Jesús

Coordinator of the Office of Community Social Participation and Citizen Participation at Enlace del Caño Martín Peña
Subject Matter Expert

Public Sector

Walkiria Estévez

Project Director, ONG Fondo Agua Yaque del Norte

Percy Alvarez

Executive Director, Santiago Solidario

Jochy Nuñez

Planning and Land Use, City of SDLC

Hipólito F. Reyes

Stormwater Management, City of SDLC

Adriano Valdez

Architect, City of SDLC

Roberto Abreu

Lawyer, City of SDLC

Ambionix de León

City of SDLC

Biberto Ortiz

Environment Technician, City of SDLC

María Martínez

Architect, Planning City of SDLC

Ingrid Dominguez

Assistant, City of SDLC

Private Sector

Miguel Ureña

Engineer, CODIS

BELLA VISTA

Hector Cordero

100 Resilient Cities
Moderator

Fernando Granados

IDOM

Visual Facilitator

Shaney Peña Gomez

Urban Planner and Architect, CEBQ
Subject Matter Expert

Jorge Rojo

Environmental Engineer IH Cantabria
Subject Matter Expert

Daniel Medina

Civil Engineer, Limno Tech
Subject Matter Expert

Public Sector

Walkiria Estévez

Project Director, ONG Fondo Agua Yaque del Norte

Laura Partal

Project Director, Gerencia Communications, CDES

Roque Rodríguez

Architect

Humberto Checo

Agriculture Engineer, ONG Plan Yaque

Raymundo Garrido

Consultant, MIMARENA

Eduardo Sánchez

Architect, City of SDLC

Joanny Lopez

Architect, INDRHI

Rosanna Vásquez

Civil Engineer, INDRHI

Zahira Mancebo

Architect student, BID Cities Lab

Yolenny Reyes

Architect student, BID Cities Lab

HOSPEDAJE YAQUE

Martín Quiroga

IADB

Moderator

Michelle Mueller

100 Resilient Cities

Visual Facilitator

Matilde Olivero

Consultant, O&L Consultores Asociados
Subject Matter Expert

Public Sector

William Ramirez

Planning, City of SDLC

Manuel Padilla

Director of Municipal Markets, City of SDLC

Eddy Gil

Administrator, HYM

José Mercader

Director of Creativity, Ministry of Culture

Laura Peña

Ministry of Tourism

Jose Martin Rodríguez

Former HYM administrator

Private Sector

Cristian Capellán

Small Business Owner, Victorias

Dagoberto Torres

Telemático, SST

Mirtha Saleta

Manager, CDES

Rafael Yunén

Consultant, CAP

Roberto Guzaman

Manager, La 37 por las Tablas

SUBJECT MATTER EXPERTS

MATILDE OLIVERO

Founder, O&L Consultores Asociados

Matilde Olivero is the founder of the consulting firm O&L Consultores Asociados. She has 10 years of experience in the design, implementation, and leadership of market renovations in Chile, Uruguay, Peru, and Argentina. She is currently leading renovations for the Carruajes Market in Buenos Aires.

LYMARIS DE JESÚS

Coordinator, Office of Community Participation at ENLACE, Caño Martín Peña.

Lymaris de Jesus is a coordinator at the Office of Community Participation at ENLACE, Caño Martín Peña. She is a social worker with experience supporting communities through transformational processes and promotes citizen participation. At ENLACE, Lymaris is in charge of providing organizational support to the communities in the northern section of Caño Martín Peña in San Juan, Puerto Rico. She has experience in participatory planning and is an advocate of inclusive decision making.

SHANEY PEÑA GÓMEZ

Regional Planning Coordinator for the Quisqueya Binational Economic Council
Shaney Peña Gómez is a 2018 Harvard Loeb Fellow and currently coordinates large-scale urban and economic development on the border between Haiti and the Dominican Republic. She manages the Quisqueya Binational Economic Council’s planning unit. Peña-Gómez is interested in projects where she partners with the public and private sectors and academic institutions. She developed the Green Santo Domingo Plan, sustainability ordinances for the capital city, and the National Network of Ecological Parks, promoting land use conservation and parks creation. As part of this network, she designed a bi-national park between Haiti and the Dominican Republic and coedited a book tackling the issue of green infrastructure development.

DANIEL MEDINA

PhD, engineer, Limnotech

Dan Medina is an engineer who specializes in water resources. He has a degree from the Universidad de los Andes in Bogotá Colombia and a Ph.D. from the Cornell University School of Civil and Environmental Engineering. His expertise is focused on urban water issues and flood risk management, water supply, watershed restoration, climate change impacts, and green infrastructure.

MARCUS BARINAS URIBE

Architect, Urban Designer and Planner

Marcus Barinas Uribe has over 20 years of experience in urban planning design and architecture internationally and in the Dominican Republic. He is based in Santo Domingo and is a consultant for the Ministry of the President on urbanism and for National Public Works. He has experience working with the Dominican Republic Ministry of Natural Resources and the National Housing Institution.

APPENDIX 2

PUCMM STUDENT ENGAGEMENT

Professor Marcela Tovar-Restrepo led the course, “Testing Urban Opportunities,” in fall 2018 for the Columbia University GSAPP Urban Planning Program. This course partnered students from Columbia with students from the Pontificia Universidad Catolica Madre y Maestra (PUCMM) to run a rapid ethnographic assessment of specific sites in Santiago’s 2016 Plan de Accion, specifically of a pilot project to pedestrianize the street Benito Moncion in the city center.

The Rapid Ethnographic Assessment methodology includes:

- Photographic surveys
- Field notes
- Quick video surveys
- Shadowing

As a part of the GSAPP course, CRCL, 100RC, and Tamara Egger from IDB Cities Lab partnered with three students from PUCMM to use the same ethnographic assessment methodology on two of the workshop sites. Students Zahira Mancebo, Yolenny Reyey, and Danilson de la Cruz visited Bella Vista and Hospedaje Yaque Market to understand who lives in the neighborhood, who visits these sites, and to record the concerns of residents. The students presented their findings to workshop participants on the first day of the workshop.

The following are high level notes developed by the students and shared with workshop participants:

Bella Vista

In Bella Vista, the three students interviewed residents

and asked them about their relationship to the Yaque River. Residents expressed grief over the loss of their personal belongings, homes, and relatives during the flood. Interviewees expressed concerns about safety and called attention to the lack of public lighting. Residents also expressed being fearful of the increasing presence of Haitian immigrants, articulating the existing racial and social tensions.

The students documented the following conditions:

- Poor, deteriorated, or unusable infrastructure like broken light poles
- Presence of garbage in green and urban areas
- Overcrowded housing, especially among the Haitian immigrant population in the low Bosque Encantado Zone
- Illicit activity and perception of insecurity
- Presence of narcotics sales in key areas

Hospedaje Yaque Market (HYM)

The students focused on the type of users, mobility, and waste management at the market.

Through their study, the students identified several types of users who regularly visit and depend on the market. Market users include local produce vendors, merchants, “bunhoneros” or peddlers, consumers, and employees. Market workers are both contracted by the municipality and by private distributors. Consumers vary but include women, the elderly, and adjacent residents.

Students highlighted Boy Scout Street as a point of conflict where vendors dump produce scraps. Organic waste is collected daily, but it still has the potential to spread disease.



PARTICIPANTS AT WORKSHOP

APPENDIX 3

CASE STUDIES

Case Study El Caño Martin Peña Channel,
San Juan, Puerto Rico

Case Study Fluvial Ecological Park La Barquita,
Santo Domingo, Dominican Republic

Case Study Montevideo ´s Agricultural Market
Renewal (MAM), Uruguay



EL CAÑO MARTÍN PEÑA. SOURCE: ELNUEVODIA.COM



CAÑO MARTÍN PEÑA

CAÑO MARTÍN PEÑA 3.75 MILES LENGTH. 1:100,000



Population to be relocated

FLOODZONE 1:10,000

EL CAÑO MARTÍN PEÑA

SAN JUAN, PUERTO RICO

BACKGROUND

Puerto Rico's Caño Martín Peña Channel connects the San Juan Lagoon to the San Juan Bay. Since the 1950s, the banks of the channel have been filling with debris set up as foundation for cardboard, wood, and tin houses. This buildup interrupts regular water flow between the two bodies of water, causing flooding along the channel. The Puerto Rican government and the U.S. Environmental Protection Agency (EPA) recognized the need to restore the natural water flow, but residents were concerned this attention and restoration would increase the property values of the adjacent neighborhoods and potentially lead to gentrification.

While the government was committed to clearing debris, improving water quality, and deepening the channel, it also sought to create a process for working with communities and establishing a land trust for residents to address potential gentrification. In 2013, the U.S. federal government created the Urban Waters Federal Partnership between the EPA, the Enlace Corporation del Caño Martín Peña,

and the San Juan Bay Estuary Program (SJBEP) to restore the natural flow and ecology of the channel.

This restoration project finds a precedent in 2001 when the Puerto Rican government implemented the Península de Cantera Project, a pilot project that brought together the private sector, government, and community to work towards a common goal of rehousing. The project was influential in the creation of Act 1 of 2001, which outlined plans for 686 communities (El Caño Martín Peña being one of them) throughout Puerto Rico and led to the creation of community land trusts. These land trusts were required to work with a corporation to run a community-driven process to establish the needs of communities through written manifestos. By establishing a corporation, lawyers, architects, designers, and other community actors were able to contribute pro bono services to the projects

PROCESS

To prevent land speculation, supply affordable housing as well as achieving social integration and empowerment through community participation while focusing on ecological restoration, the Puerto Rican government established three separate entities:

- The Group of Eight Communities (G8) to represent the eight communities adjacent to El Caño and facilitate communication
- A Community Land Trust (CLT) designed to establish private ownership of housing structures and creating a collective ownership of the land
- And the Enlace Corporation to oversee management of the CLT.

There is also a Board of Trustees consisting of residents, advisors, and government representatives that enables decisions to be made through consensus. In addition, the project site land is registered as a private entity with judicial independence to protect against government policy changes.

OUTCOMES

This project provides a new model for improving informal settlements through institutional change. Caño Martín Peña demonstrates a way to take a traditional engineering project and create a resilience project by empowering multiple age groups in the community, restructuring the relationship between the City and marginalized communities, redefining the relationship between society and the environment, and creating institutional mechanisms for greater local control over decision making and management of resources.

WHO The Puerto Rican government and U.S. Environmental Protection Agency (EPA)

WHAT A Community Land Trust

WHERE San Juan, Puerto Rico

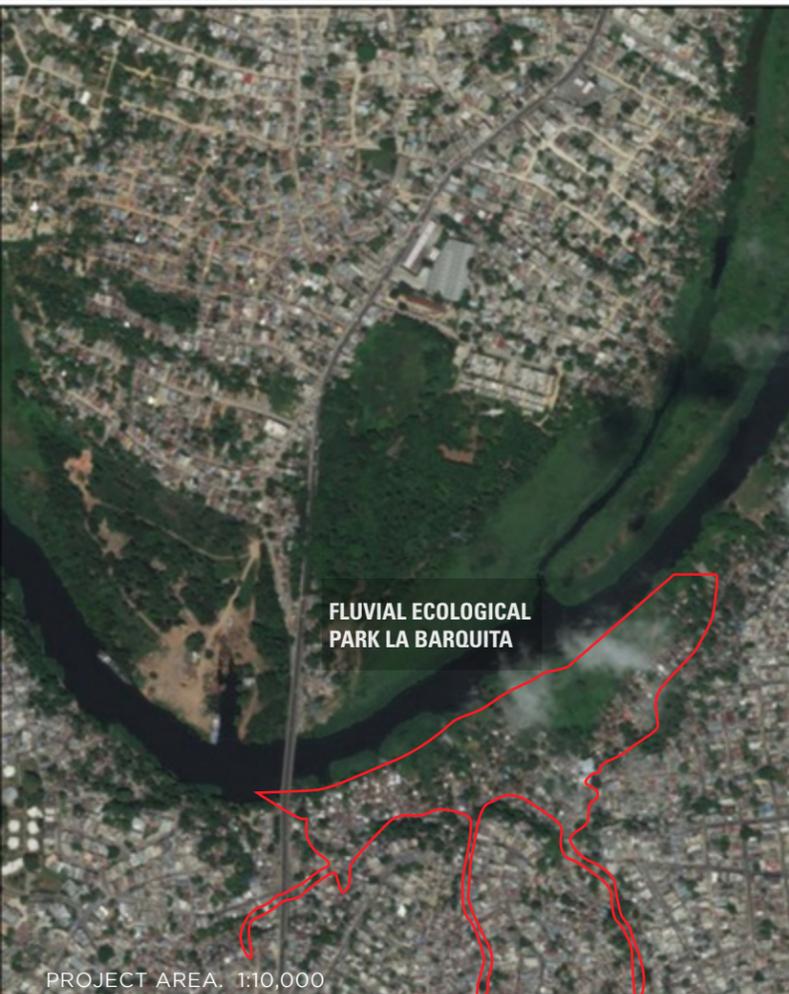
WHEN 2001 - 2025

HOW \$150 million from federal government through the Water Resources Development Act (WRDA)

WHY To prevent land speculation that comes when developing an ecological restoration project that would increase land value



RECREATIONAL AREA AT FLUVIAL ECOLOGICAL PARK LA BARQUITA. SOURCE: URBE.GOV.DO



FLUVIAL ECOLOGICAL
PARK LA BARQUITA

PROJECT AREA. 1:10,000



Area cleared for
Park construction

CLEARED FLOODZONE. 1:2,500

FLUVIAL ECOLOGICAL PARK, LA BARQUITA SANTO DOMINGO, DOMINICAN REPUBLIC

BACKGROUND

More than 4,000 people are exposed to regular flooding along the Ozama River in Santo Domingo. The national government sought to build new housing for these residents and construct an ecological park at an extremely flood prone neighborhood, La Barquita. After relocating the community to the New Barquita, the Fluvial Ecological Park is now under construction and will reintroduce natural habitat to Santo Domingo. The project includes an improved sewage system, the creation of recreational spaces, and an environmental awareness campaign. The project is designed to protect adjacent neighborhoods from Ozama River flooding and has already improved biodiversity through the planting over 50,000 trees including mangroves, cedar, oak, and mahogany.

PROCESS

The Executing Unit for the Re-adaptation of La Barquita and Environments (URBE), Ministry of Environment, Ministry of Public Health, National Botanical Garden,

Santo Domingo Municipality, Ozama basin, Clean Dominica worked together to enforce zoning. The national government partnered with the French Development Agency (AFD) for a loan to relocate the communities.

Total cost: \$1.5 million USD, loan from the French Development Agency (AFD)

- \$1.1 million included relocation of households, demolition of informal housing, and park construction
- \$3.7 million for improved wastewater system
- \$700,000 for design and park programming
- \$159,000 for tree planting

OUTCOMES

The project presented an opportunity to create a natural area to prevent urban expansion into a flood zone, provide a flood buffer, increase public space, promote social cohesion, and improve environmental awareness. The creation of the park expands the existing Green Belt of Greater Santo Domingo and improves the

resident's relationships with the riverfront. La Barquita was successful due to the commitments from the national government, city government, and local stakeholders. When designing and implementing pluvial parks it is critical that the process be part of a larger vision to transform riverbanks.

WHO National and local government

WHAT A Fluvial Park

WHERE Santo Domingo, República Dominicana

WHEN Jan 2013 - 2019

HOW \$1.5 million USD, loan from the French Development Agency (AFD) to the Dominican government

WHY To provide safe housing in the areas of La Barquita that regularly flood and reintroduce natural habitat

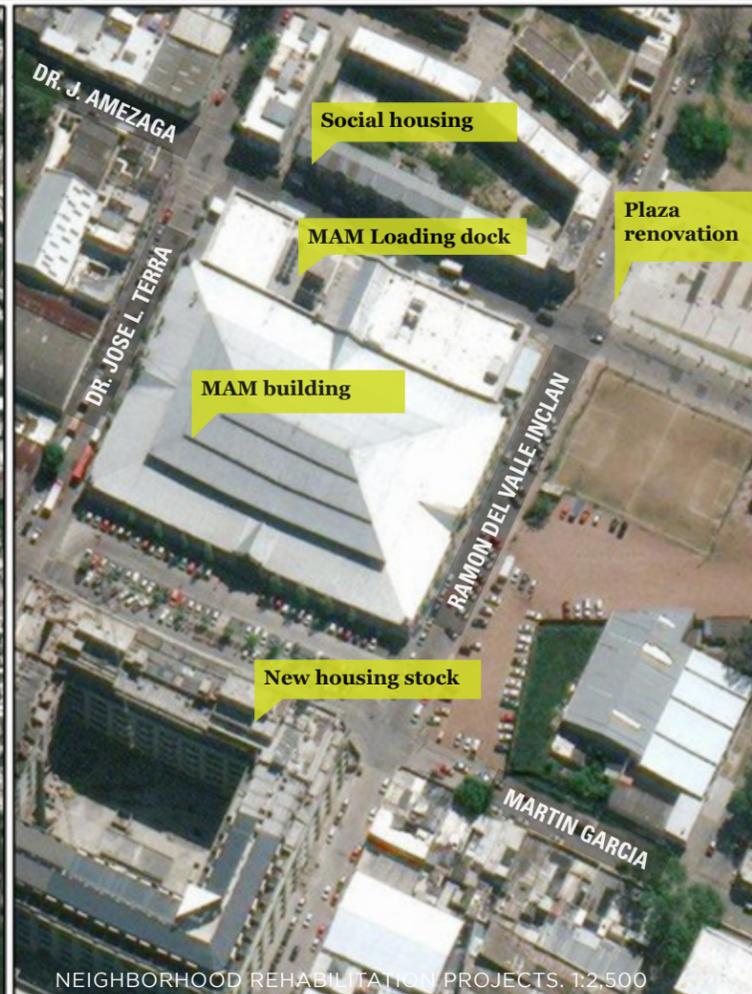


MERCADO AGRICOLA. SOURCE: WWW.MONTEVIDEO.GUB.UY



Market rehabilitation area

GOES NEIGHBORHOOD. 1:10,000



Social housing

MAM Loading dock

Plaza renovation

MAM building

New housing stock

NEIGHBORHOOD REHABILITATION PROJECTS. 1:2,500

MONTEVIDEO AGRICULTURAL MARKET

MONTEVIDEO, URUGUAY

BACKGROUND

Montevideo’s agricultural market is located in the Goes neighborhood and is governed by Municipality C. Between 2008 and 2013 the historic market building and the adjacent neighborhood underwent renovations to revitalize social and economic conditions. The neighborhood had experienced disinvestments and increasing vacancy since the 1974 dictatorship in Uruguay. The neglect was exacerbated in the 1990s by the presence of gangs and in the early 2000s by an economic crisis when the Uruguayan market was damaged by the Argentinian economic recession.

The intervention resulted in a thriving commercial market venue with 107 commercial spaces selling fresh produce and meat, as well as pharmacies, restaurants, and other services that assist the surrounding community and attract tourists.

PROCESS

The project was initiated under the program “Programa Viví Goes,” developed by the Desarrollo Económico e Integración Regional department of the City of Montevideo. The objective was to revitalize the neighborhood and improve housing in a way that would allow the strengthening of existing elements of the neighborhood. The City government’s decision, led by Ricardo Ehrlich, to back and finance the project was key to securing other financing sources; the project was also a partnership with the IDB.

The “Programa Viví Goes” project considered not just the market restoration but also the surrounding neighborhood and created 100 new housing units around the market. The program included loans to residents to upgrade their houses, introduction of new public spaces throughout the neighborhood, and creation of housing cooperatives for middle to low income families.

The total funds raised were \$14,000,000 USD. These Sources include:

- IDB and FOMIN (multilateral investment fund of the IDB) \$1,213,000. For Renewal strategy, traders training, communication and initial marketing, definition of legal structure
- Spanish Agency for International Cooperation for Development \$623,000. For the restoration of the historic facade
- Intendencia de Montevideo \$10,000,000. For construction
- Vendors \$4,000,000. Each vendor financed their own stand

OUTCOMES

Montevideo’s Agriculture Market revitalization demonstrates that a resilient market restoration project must consider the needs of the adjacent neighborhood and the possible impacts of restoration, including the potential to increase the cost of housing. A comprehensive plan for the neighborhood ensures that resident’s needs are addressed and that the market has support. Surveys to define the vision and programming were helpful in implementation.

WHO City of Montevideo

WHAT A market renewal project

WHERE Montevideo, Uruguay

WHEN 2008 - Jun 2013

HOW \$14 million from national government, IDB, Spanish Agency for International Cooperation for Development and local vendors

WHY Socioeconomic reactivation of the GOES neighborhood

APPENDIX 4

FACILITATOR GUIDE



Lugar de Encuentro

Ayuntamiento Municipio de Santiago

Donde:

Salón Juan Pablo Duarte

Av Juan Pablo Duarte, Santiago De Los Caballeros 51000,
Dominican Republic

Estacionamiento:

Hay estacionamiento disponible en el Ayuntamiento

Índice

Logística

- Lugar
- Ejercicios y Retroalimentación
- Sala y materiales

Resumen del Taller

- Roles y Responsabilidades

Resumen de proyectos

- Declaración del proyecto
- Foto de proyecto

Agenda

Ejercicios

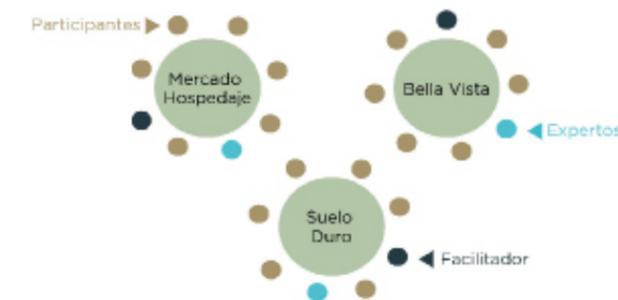
Lecturas

Mesas

Diseño de mesas

Distribución

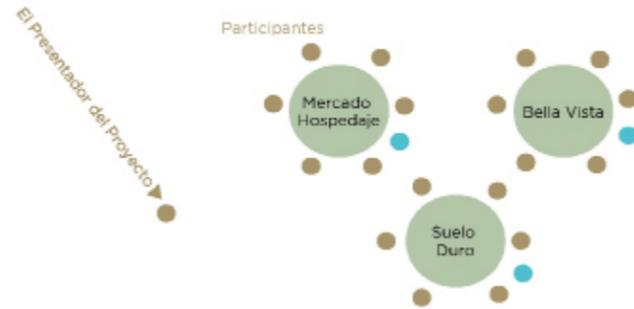
Participantes están ubicados en mesas redondas. Cada equipo tiene una "mesa de casa" para todos los ejercicios. Para las sesiones de retroalimentación el equipo va a presentar y recibir retroalimentación de los expertos.



Colocación de Retroalimentación

Colocación

El presentador del proyecto va a presentar el diseño del proyecto. Los expertos va a ofrecer su retroalimentación. Los participantes va a sentarse a sus mesas o a llevar sillas a sentarse cerca de los presentadores de proyectos.



5

Resumen de Equipos

Roles de las mesas

Cada equipo tiene una mezcla de representantes de la municipalidad, el sector académico, sector privado y expertos que tiene una habilidad específica. Cada participante se espera que contribuya con una perspectiva única

FACILITADOR:
Guía la discusión y guía los ejercicios con los equipos.

GRABADOR VISUAL:
Ayuda con la visualización de la conversación de la mesa.



The Rockefeller Foundation Internal Resilience Academy, New York City

Cada equipo va a tener acceso a un caja con material que incluye post it notes, broche aprietapapel, marcadores, papel de calco, cinta adhesiva, puntos pegajosos y una regla. En adición, cada mesa va a tener un caballete con un tablero del Proyecto, hojas grandes de los ejercicios y mapas de los proyectos.

FACILITADORES

Roles y Responsabilidad

Antes del Taller

- Entender el proyecto y contexto
- Visita al sitio
- Entender los ejercicios

Durante el Taller

- Dirige a los equipos de los proyectos a ser mas reflexivos y mas considerados de una gama más amplia de valores de resiliencia
- Guía al equipo de las mesa en los ejercicios
- Crear espacio para un debate productivo e interrogar situaciones de conflicto

Después del Taller

- Hacer una reflexión con Martin, Jessica, Linda y Michelle
- Escribir un resumen breve de tu mesa

GRABADOR VISUAL:

Roles and Responsibilities

Antes del taller

- Visita a los sitios y tomar fotos
- Entender los ejercicios

Durante el taller

- Tomar notas
- Durante el taller dibujar y visualizar los conceptos de diseño en escala de plan, sección y perspectiva
- Tomar fotos

Después de Taller

- Colectar fotos y todos los materiales incluyendo dibujos y materiales de ejercicios

EXPERTOS:
Expertos locales, regionales y internacionales que contribuye su experiencia técnica, de diseño y de implementación.

EQUIPO DE LA MUNICIPALIDAD:
Representantes de la municipalidad (3-4)

Representantes de Sociedad civil (1)
Proporciona experiencia específica en participación comunitaria y diseño de programas dentro de la ciudad, incluida la divulgación de partes interesada a las poblaciones vulnerables

Bella Vista

Parque Natural Bella Vista, Diseño de Pasarela, Dique de Protección en Bella Vista y Sistema de Drenaje Urbano

¿Cómo pueden las inversiones en infraestructura de protección contra inundaciones crear un espacio público que apoye a la comunidad y promueva la administración del medio ambiente natural?



Suelo Duro

Provisión de Vivienda Integrada para la población en Suelo Duro

¿Cómo podemos empoderar a las comunidades locales a ser parte de un proceso de reubicación que sea inclusivo y genera viviendas seguras y dignas que mantengan un sentido de lugar?



Mercado Hospedaje

¿Cómo puede ser mejorada la dinámica del mercado y del barrio circundante para proteger a los locatarios, mejorar el entorno urbano, mejorar la economía local y generar sentido de pertenencia?



01. Cualidades de Resiliencia, Impactos y Tensiones

Tiempo: 55 min

Objetivo : Los equipos identifican los riesgos (impactos y tensiones) que afectan actualmente al sitio y a su entorno inmediato; Cómo se proyecta que estos riesgos cambien en el futuro y analicen la probabilidad del proyecto de exacerbar o mitigar esos riesgos.

Instrucciones:

Definir el sitio del proyecto

- o Utilice el mapa regional, de vecindario o del sitio para describir el sitio del proyecto

- o Puede ser útil preguntar cuál es el área de control versus impacto versus influencia

Revisión de impactos y tensiones (15 min) que se aplican al sitio (área de impacto)

- o Entregue las tarjetas al equipo del proyecto con los impactos y las tensiones pre-identificados del estrategia de resiliencia.

- o Las tarjetas en blanco se pueden utilizar para escribir-ins y los participantes pueden editar las tarjetas impresas

Mapa impactos y tensiones (15 min)

- o Si es necesario, revise con el grupo la diferencia entre las tensiones crónicas y los impactos agudos

- o Localizar su prevalencia y consecuencia relativa en los ejes

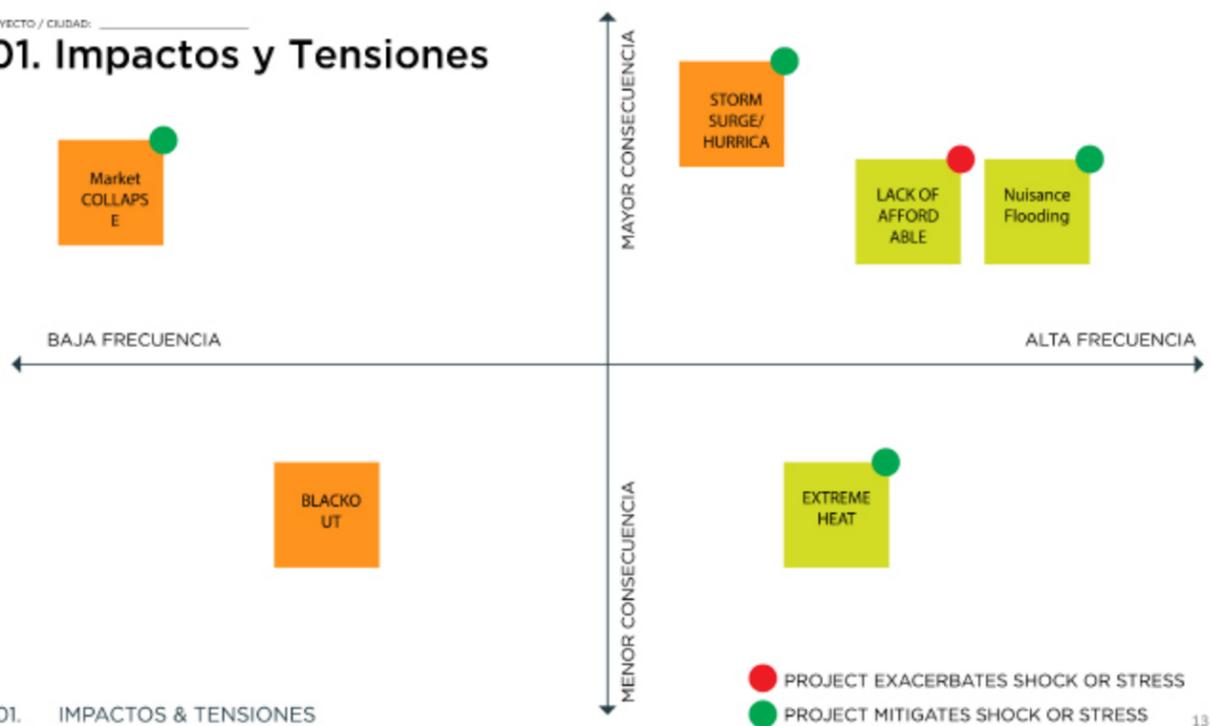
- o Para cada impacto o estrés, considere cómo el proyecto impactará el área circundante.

Proyectar si los riesgos serían mitigados (punto verde) o exacerbados con un (punto rojo) por el proyecto. (20 Min)

- o Para cada impacto o tensión, considere cómo el proyecto impactará el área circundante.

PROYECTO / CIUDAD: _____

01. Impactos y Tensiones

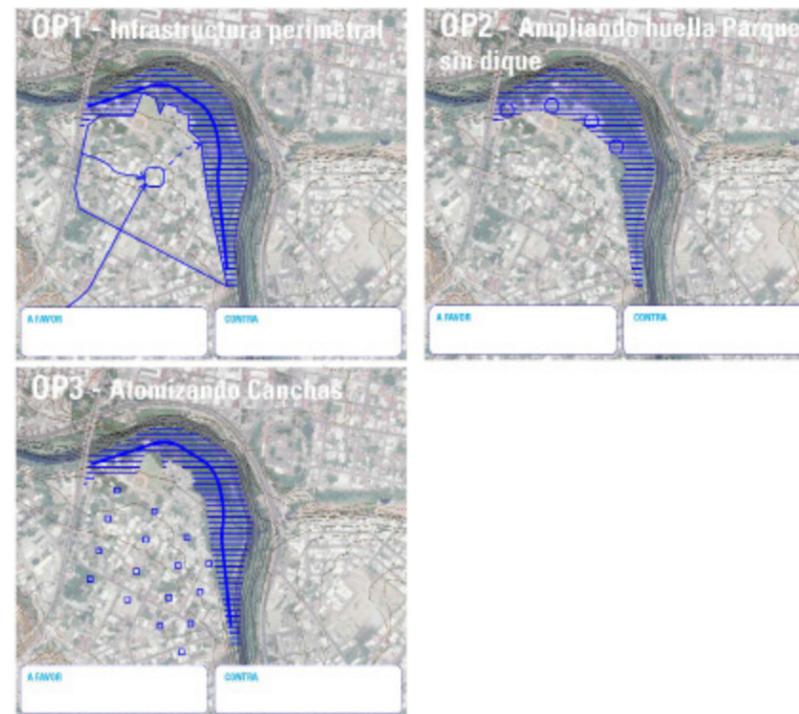


01. IMPACTOS & TENSIONES

VISIÓN

El sector Bella Vista será un sector que:
 Este segura frente de inundaciones
 Asegure que las aguas residuales sean tratadas
 Reduzca sus propios residuos
 Este segura, especialmente para las mujeres del sector
 Tenga una conexión fuerte a la naturaleza y al Río Yaque
 Tenga espacios públicos que sirvan a la comunidad
 Este conectado con la ciudad

MESA 1 BELLA VISTA



02. Opciones de Definición/Crítica

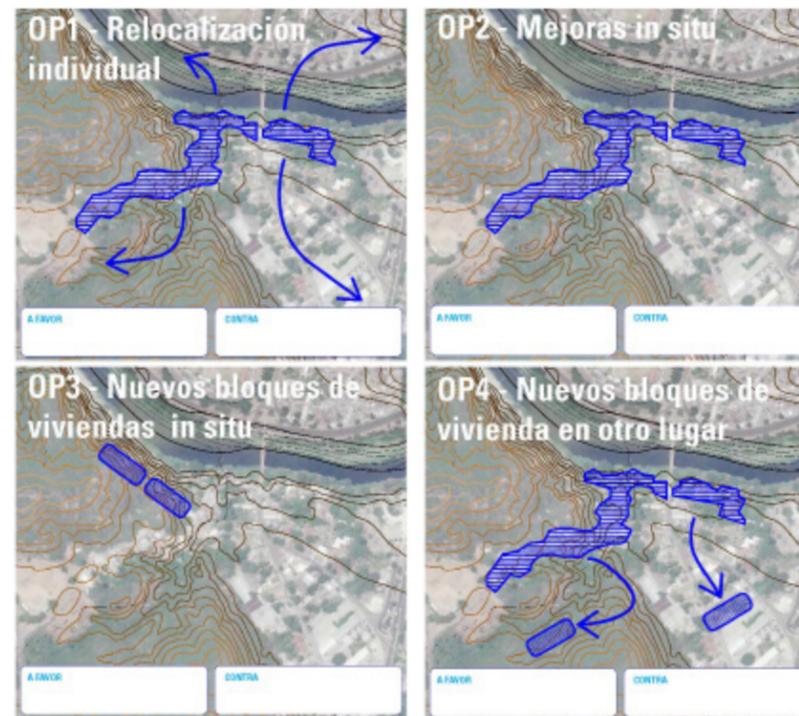
Objetivo : Comenzar el proceso de diseño identificando el rango de intervenciones físicas que conducirán a los resultados de resiliencia deseados. Para el final de esta sesión de la mañana, cada equipo debe tener consenso sobre la mejor opción. La hoja de trabajo tiene opciones que pueden evaluar.

- Instrucciones:**
1. Empezar con la visión o los principios. Verifica con el equipo de trabajo. Pregunta el equipo a escribir los principios por el proyecto en Sticky Note y modifica que hay en el hoja de trabajo. La meta es tener consenso en la visión.
 2. Introducir las 4 or 3 opciones por tu proyecto. Pregunta el equipo si hay una opción que no esta en el Hoja de Trabajo.
 3. Revisar cada opción. Pregunta el equipo de trabajo a escribir los "Pros" y "Cons" en sticky notes por cada opción. Tener una conversación de cada opción.
 4. Obtener consenso en cual será la mejor opción.

VISIÓN

El sector Suelo Duro será un sector que:
 Este seguro frente a inundaciones
 Las comunidades toman decisiones de manera informadas y son parte del proceso de relocalización
 Este limpio de residuos sólidos en sus espacio públicos
 Haga a sus habitantes sentirse seguros frente a la delincuencia
 Tenga viviendas de calidad, agua limpia y servicios básicos
 Tenga un sentido de pertenencia y fuerte sentido de identidad
 Tenga oportunidades a educación de calidad
 Tenga alta tasa de empleabilidad

MESA 2 SUELO DURO



VISIÓN

El Mercado Hospedaje será un centro de comercio que:

Protege a los trabajadores del mercado

Invite turismo y celebre su historia

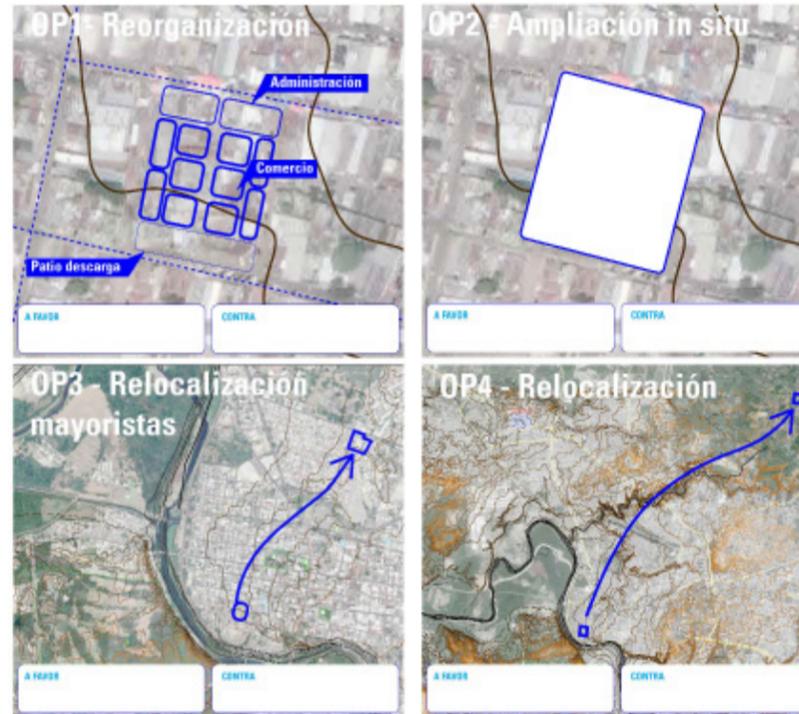
Mejore el manejo de tráfico vehicular y entrega de productos

Este limpio de residuos sólidos en sus espacio públicos

Reduzca los desechos orgánicos y crea un económica nueva con la reutilización de estos mismos

Este seguro frente a inundaciones

MESA 3 MERCADO



17

DISEÑO

Public Realm

What are the boundaries of the park?
What happens right next to the park?
How do people interact with the new park?
How does the design promote safety?

Connectivity

How do people get to the new park?
For example, are there bike lanes, bike racks, parking spots, or larger sidewalks?

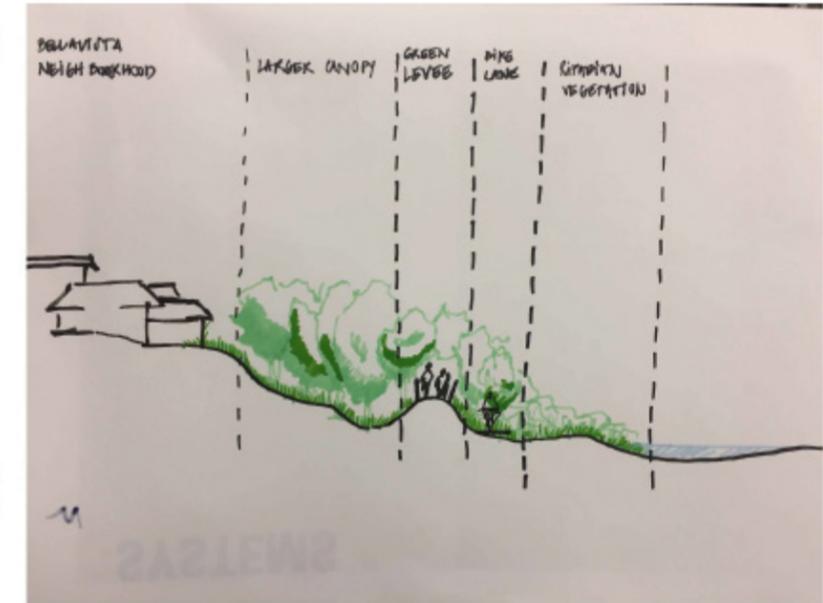
Drainage

How does water get collected?
Where does the water go?

Programming

How does the new park serve the community and promote social cohesion?
Is there an environmental education component? How does programming support stewardship?
How does the neighborhood manage waste?

MESA 1 BELLA VISTA



19

03. EVALUACIÓN DE DISEÑO: Filtros de Resiliencia / Críticas

Objetivo : Continuar el proceso de diseño mediante la elaboración de elementos del proyecto a través de la lente de los valores regionales de resiliencia.

- Instrucciones:**
1. Hay preguntas en el hoja de trabajo que puedan solicitar la conversación y los dibujos de diseño. Hay un línea en la hoja de papel, un transecto, a donde el equipo pueda dibujar los elementos.
 2. Reino público: ilustre cómo los componentes del proyecto se verán y sentirán a un peatón. Dibuje un corte transversal con figuras humanas escaladas sobre una foto del sitio.
 3. Acceso: desarrollar diagramas de acceso explicando cómo las personas y los vehículos acceden al sitio, o los elementos de acceso en el sitio.
 4. Contexto futuro: Utilice las antenas oblicuas para demostrar el proyecto en el contexto del futuro (2050 o 2080) usos circundantes/masa.
 5. Desarrollar visualizaciones que expliquen cómo el proyecto logra mejores resultados con respecto a la ecología, a toda la economía, y a los más vulnerables o en riesgo en la sociedad.

DISEÑO

Drainage

How does water get collected?
Where does the water go?

Public Realm

Are there open spaces? What elements are included?

Housing

What does the new housing look like? A single building, multiple buildings, individual homes, etc?
How does the new neighborhood have access to basic services like clean water and electricity?

Connectivity

How are people going to get to their jobs, churches, schools, etc?

Programming

Are there programs to help people get jobs?
Is there a community center?

MESA 2 SUELO DURO



20

DISEÑO

Connectivity

How do goods get delivered?
How do consumers access the market?

Public Realm

What does the new market look like from the street as a pedestrian? What does it look like from the inside?

Waste

How does the new market manage organic waste?

Programming

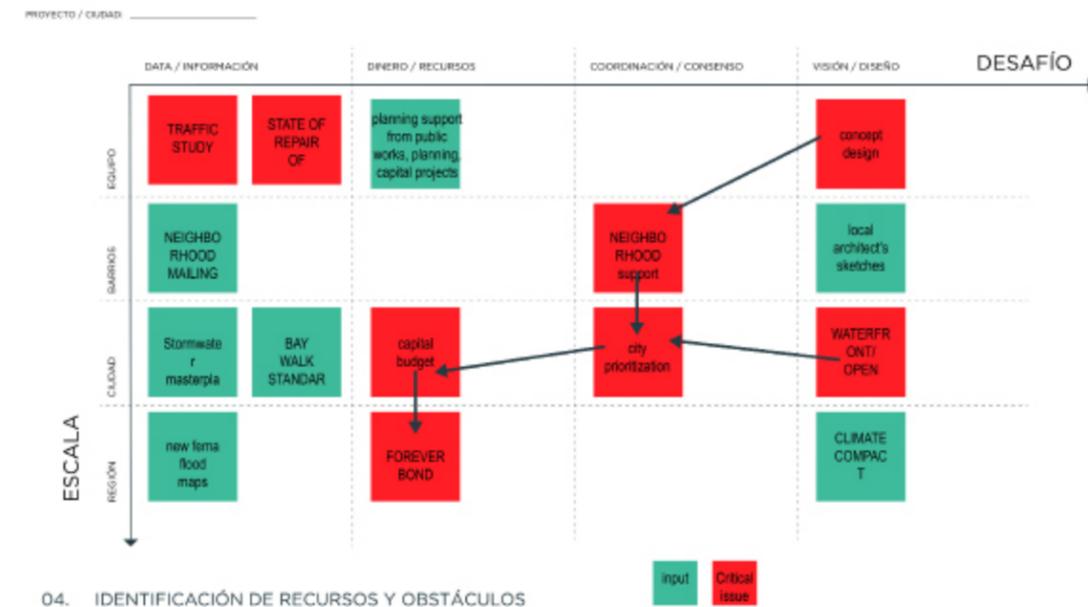
How does the new market communicate with vendors? How does it communicate with consumers? Is there cultural programming? Are there new signs?



MESA 3 MERCADO

04. Identificación de Recursos y Obstáculos

Hoja de Trabajo



04. Identificación de Recursos y Barreras

Tiempo: 55 min

Propósito: **Comprender los retos a los que se enfrenta actualmente el proyecto y anticipar los retos futuros**

- Instrucciones :
- En primer lugar, asegúrese de que las escalas (eje y) y las áreas funcionales (eje x) son pertinentes para el proyecto
 - Identifique los recursos disponibles para el proyecto
 - Pídale al equipo del proyecto que anote todos los recursos disponibles para el proyecto en una nota adhesiva **verde**.
 - Pídale al equipo del proyecto que anote todos los recursos para el proyecto que el equipo cree que necesita en una nota adhesiva **roja**.
 - For each resource, note owner or provider.
 - Categorizar recursos por escala y función
 - Por ejemplo si grupo de vecinos está proporcionando un documento de visión, ¿que iría en la segunda fila última columna?
 - Identificar y categorizar problemas críticos o brechas en recursos
 - Por ejemplo si el proyecto carece de apoyo de la vecindad, tenga en cuenta esto en la segunda fila tercera columna
 - Prioritize most critical with a red dot.
 - Enumere el propietario donde sea aplicable
 - Identificar conexiones/patronos entre los desafíos
 - ¿Qué desafíos futuros adicionales se pueden identificar mediante la comprensión de la conexión entre los problemas?

05. Beneficios y Costos - 1/2

Tiempo: 60 min

Objetivo: Explore the range of cost elements and potential funding sources to pursue

- Instrucciones :
- Elementos de Costo
 - ¿Cuáles son los elementos del proyecto? Identificar los elementos de coste del proyecto.
 - ¿Qué recursos se necesitan para diseñar, implementar y mantener el proyecto a largo plazo?
 - Estimar el costo total de cada etapa del proyecto y calcular un costo total.
 - Recursos existentes
 - Cuánto está disponible actualmente de los diferentes recursos existentes?
 - Identificación del Gap
 - Sustraer recursos existentes del costo

05. Beneficios y Costos - 1/2

Hoja de Trabajo

PROGRAMAS	COSTO	FUENTES DE RECURSOS	MONTO	MECANISMO
Feasibility	\$2M	City	\$1M	RFP
Park landscaping and way finding	\$3M Capital \$1M-\$2M O/M	Existing Park budget capital Direct revenue from events /	\$1M (TBD)	Park conservancy manages O/M and administration of
PRESUPUESTO TOTAL \$		MONTO ASEGURADO \$		
		MONTO REQUERIDO \$		

05. BENEFICIOS Y COSTOS - 1/2

06. RUTA DE IMPLEMENTACIÓN

Tiempo : 60 min

Objetivo : Vincular actividades y entregables a hitos de 3, 6 y 12 meses. Establecer la rendición de cuentas, y las partes interesadas clave de superficie y las cuestiones potenciales que deben abordarse para maximizar los valores de resiliencia. Considere los elementos de cada etapa del ciclo de trabajo de la actividad, incluyendo: 1) la implementación de alcance y presupuesto, 2) y 3) operaciones y mantenimiento.

- Instrucciones :**
- Asignar fechas a la línea de tiempo del proyecto**
 - Identificar las acciones de principio y sus propietarios**
 - Identificar quién desempeñaría un papel clave en la entrega de cada etapa de la vida útil del proyecto e indicar la cronología estimada de cada etapa. Se pueden utilizar notas adhesivas de diferentes colores para indicar distintos actores.
 - ¿Cómo puede 100RC ser de apoyo?
 - Problemas de rutas críticas**
 - Identificar posibles problemas, riesgos o dependencias que puedan impactar al proyecto a través de su vida útil. Estos pueden incluir reveses financieros, políticos, reglamentarios o barricadas; cuestiones de procedimiento y/o de diseño.

05. Beneficios y Costos - 2/2

Tiempo : 60 min

Objetivo : Explore las tipologías de beneficios y los posibles mecanismos de financiación

- Instrucciones :**
- Beneficios**
 - Define benefits associated with identified project elements; use colored sticky notes to differentiate between various benefit types:



- Fuentes de financiación**
 - Identifique fuentes de fondos que se relacionen con los beneficios, considere si son fondos privados, públicos o filantrópicos.
 - Considere las formas en que los elementos adicionales del proyecto pueden crear mayores beneficios para cubrir las brechas de costos.

06. RUTA DE IMPLEMENTACION

Hoja de trabajo

PROGRAMAS	COSTO	FUENTES DE RECURSOS	MONTO	MECANISMO
Feasibility	\$2M	City	\$1M	RFP
Park landscaping and way finding	\$3M Capital \$1M-\$2M O/M	Existing Park budget capital Direct revenue from events /	\$1M (TBD)	Park conservancy manages O/M and administration of
PRESUPUESTO TOTAL \$		MONTO ASEGURADO \$		
		MONTO REQUERIDO \$		

05. BENEFICIOS Y COSTOS - 1/2

03. OPCIONAL: ESCENARIOS / REFINAMINETO DEL PROYECTO

Objetivo: Considerar el proyecto bajo tensión y durante los impactos como se describe en el primer día. Decidir colectivamente sobre un escenario extremo y utilizar este escenario para articular mejor cómo el proyecto hace que el sistema en el que opera más resistente. Los facilitadores querrán considerar si este trabajo debe ser realizado por todo el equipo o si es mejor dividir el grupo, y hacer que la grabadora y otros continúen centrándose en la elaboración del diseño.

Instrucciones:

1. Desarrolle un desastre narrativo en el peor de los casos colectivamente para su sitio.
 - o ¿Cómo se realiza el proyecto y sus componentes?
 - o How do the neighbors and neighboring infrastructure perform?
 - o Does the performance of this project impact the neighbors?
 - o Should project elements be reconsidered for the extreme scenario?
 - o Does the benefits/avoided losses of these alterations clearly exceed the cost?
2. Utilice el escenario de desastre como la base para un mejor escenario de caso, explicando cómo el proyecto ayuda al vecindario a ser más resiliente
 - o Visualice esta resiliencia dibujando sobre las fotografías existentes del sitio

