

# RESILIENT JUAREZ

## RESILIENCE STRATEGY

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PIONEERED BY THE  
ROCKEFELLER FOUNDATION

100 RESILIENT CITIES



**GOBIERNO  
MUNICIPAL  
2016-2018**  
CIUDAD JUÁREZ





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# RESILIENT JUAREZ

## RESILIENCE STRATEGY



# TABLE OF CONTENTS

## Letters

Armando Cabada Alvírez 7  
Mayor of Juarez

Michael Berkowitz 8  
Chair, 100 Resilient Cities

Verónica González Sepúlveda 9  
Chief Resilience Officer

## Executive Summary

<b>01 100RC Initiative in Juarez</b>	<b>14</b>
1.1 100RC Cities that Inspired Juarez	18
1.2 Understanding Urban Resilience	20
1.3 Conceptual Resilience Framework	22

<b>02 An Overview of Juarez</b>	<b>24</b>
2.1 Juarez through History	26
2.2 Juarez in Figures	32
2.3 Resilience Challenges in Ciudad Juarez	34

<b>03 Developing the Strategy</b>	<b>38</b>
3.1 Elements of the Strategy	40
3.2 Juarez Resilience Strategy Milestones	42
3.3 Resilience Diagnostic	44
3.4 Preliminary Resilience Assessment	52

## **04 Strategy Pillars** 64

4.1. Strategy Structure	66
4.2. How to Read Action Cards?	66

**Pillar 1. Inclusive Juarez** 68

**Pillar 2. Prosperous Juarez** 92

**Pillar 3. Integrated Juarez** 112

**Pillar 4. Adapted Juarez** 134

## **05 Next Steps** 154

## **06 Collaborators and Acknowledgments** 156

## **07 Appendix** 160

7.1 Indicators Table	160
7.2 Abbreviations and Acronyms	170
7.3 Glossary	172
7.4 References	176



***“Juarez is already a resilient city, but it is in our nature to want to do more”***

# Letter from the Mayor of Juarez



Juarez is a city that learns from its past and builds on its strengths. Its people are the backbone of the city and have always shown the will to adapt, survive and prosper during its long, rich history, no matter what challenges they face.

The people of Juarez, which is strategically located on the northern border of Mexico, have a proven flexibility and determination, perhaps due to our desert environment. These qualities have enabled us to capitalize on new opportunities for growth.

As Mayor, I am very proud to introduce the first Juarez Resilience Strategy. This document outlines our path to a balanced, more resilient future. It provides a view of Juarez as a city prepared for what lies ahead, a city that lays a foundation for inclusive prosperity; a city that addresses environmental, social and economic challenges through a strategic vision that includes all the inhabitants of this region.

This Resilience Strategy was designed in collaboration with a wide range of stakeholders from various local institutions, the public and private sectors, and civil society. It provides a dynamic roadmap that is complementary to existing strategies and action plans. It includes our efforts today, but it also articulates our city’s future challenges and offers solutions for both future city leaders and citizens. Juarez is already a re-

silient city, but we want to do more. And that is what this strategy is all about — always looking to the future and finding opportunities to improve our city. I want to thank everyone for your contributions to our city, the 100RC Network for all the support provided during this project, and the Resilient Juarez Team who partnered with us on the various projects. But above all, I thank each and every citizen of Juarez who has committed to making Juarez a more resilient city.

Now is the time to maximize our efforts to secure a legacy for future generations. Together, we must set the pace for continued progress in our city.

**Armando Cabada Alvidrez**  
City Mayor

## Letter from Michael Berkowitz

On behalf of 100 Resilient Cities staff I want to congratulate Mayor Armando Cabada Alvidrez, the Chief Resilience Officer Veronica Gonzalez and Juarez for the launching of Resilient Juarez. This is an important milestone for the city and our collaboration with it.

As the largest city on the border with the United States, Juarez has played a fundamental role in Mexico's growth and development. The county's first customs office was established in Juarez, and it is now home to the Museum of the Revolution. The city is also known for its diversity, its large population of young people, and a growing entrepreneurial spirit. For all these reasons, the city is positioned to set the direction of Mexico's future. Despite its reputation for drug-related violence and tragic femicides, Juarez is today a safer, more vibrant city that is full of civic pride. City leaders have made great strides in bringing abandoned public places, including the city's Historic District, back to life and creating safe spaces for women.

Although the city has moved forward, it still faces challenges that could impact and inhibit its resilience. The desert impacts, the extreme weather variations as well as floods, droughts and heat waves are frequent and destructive shocks. At the same time, chronic stresses such as unemployment, crime, and poverty continue to erode the urban fabric and makes Juarez even more vulnerable when shocks occur. Other conditions that pose a threat to the city's resilience if left unaddressed include the city's rapid growth and the resulting urban sprawl, and its excessive dependency on the export industry (maquiladoras).

This Resilience Strategy provides not just a perspective on these shocks and stresses, but concrete actions to address them, including some initiatives specifically devoted to the safety of

One of these initiatives will reuse 20% of the land in the city that is regarded as unsafe and violence-prone wasteland. Owners of these plots of land would receive incentives to turn them into temporary public spaces. If the land is in an area without green spaces, the owner would be offered a



**Michael Berkowitz**  
Chair, 100 Resilient Cities

special incentive to turn the land into a green space. This type of initiative addresses environmental concerns as well safety and social cohesion goals. Other initiatives would bring community leaders into the planning process, thus guaranteeing that their needs and voices are reflected in any actions that might affect them. And importantly, this strategy includes actions that will empower citizens and transform the city's image in order to attract tourism and investment.

Through the commitment and hard work of Chief Resilience Officer Gonzalez and her team, as well as the support of Mayor Alvidrez, this Resilience Strategy reflects the city's diverse voices and all the communities that were involved in its development. While the launching of this Strategy is a very important achievement, the work of resilience-building is far from completed. It will no doubt require persistence and unwavering commitment to make the vision described in these pages a reality. We look forward to continued collaboration with the city.

## Letter from Veronica Gonzalez

When we discuss resilience in Juarez, we recall the catastrophic events that have marked the city, its inhabitants, and the deep wounds that have not yet healed. While these wounds are still open, we can become a unified society and creating the conditions in which we can coexist and live in harmony.

Juarez, one of the most extensive semi-desert zones in Mexico (with an extreme climate), and positioned geographically on the border, has faced many challenges over the years, reinventing itself on a daily basis. Urban resilience, as a concept, has been and will continue to be an overarching, inclusive and resourceful approach to addressing our challenges.

This document, **Juarez Resilience Strategy**, is the result of the combined efforts of stakeholders from various sectors of society, both from Juarez and El Paso, our sister city on the US side of the border. The strategy includes a series of actions, collaboratively developed, to strengthen the city and foster its longevity. These actions demonstrate the aspirations of the citizens of Juarez. The four pillars of the Resilience Strategy – Inclusivity, Integration, Adaptability and Prosperity – will serve as a model for other cities in the region, securing Juarez's place as a pioneer of the resilience movement.

Every word, every line, every action is devoted to improving the lives and the well-being of Juarez citizens. It has been written for every girl, boy, young person, woman, man, senior citizen – every human being living in this beloved place that is Juarez .



**Verónica González Sepúlveda**  
Directora de Resiliencia

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*"We have to assimilate the enormous weight of our past, so we will not forget what gives us life. If you forget your past, you die<sup>1</sup>."*

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**Verónica González Sepúlveda**  
Directora de Resiliencia

1. Paris Review, Winter issue, 1981.

# Executive Summary

Throughout its history, Juarez has evolved its capacity through economic and social strategies. Yet, urban planning critical to the future development of the city has been relegated. Today, the maquiladora industry, while being one of the city's strengths and major assets, causes excessive dependency on global markets. Juarez must transition to another economic model in the near future and, at the same time, address the critical issues of urban development.

The city limits of Juarez have expanded over the years due to unplanned urban sprawl. Thus, The city must improve its approach to planning, take into account the needs of its citizens, and enable their involvement at the municipal and state levels. Juarez is a city that has been shaped by people from many different places and in times of crisis, that diversity creates conflict.

The population includes a significant number of young people. If the energy and talents of these young people were to be appropriately harnessed, the city can become a thriving metropolis by 2030.

The geographic location and climate of Juarez is both a weakness and an opportunity. The city's desert surroundings and extreme temperatures create health issues among both permanent and

temporary citizens, affecting the quality of its services, and their safety. Given these factors, environmental resilience is critical.

In December 2014, Juarez was selected to be part of 100 Resilient Cities, an initiative pioneered and funded by The Rockefeller Foundation. In 2015 the process of diagnosing the city's resilience began. About 600 people participated in identifying the city's key challenges and potential ways in which they could be addressed. A wide range of strategic actors collaborated on the development of the Juarez Resilience Strategy, offering their ideas and experience in meetings and workshops.

The Resilience Strategy consists of 4 pillars, 11 goals, and 33 actions. The pillars (Inclusive Juarez, Prosperous Juarez, Integrated Juarez, and Adapted Juarez) are the backbone of the strategy and serve as a guide to achieving a resilient city. The 11 long-term goals will be accomplished through 33 concrete actions—specific projects and tactical activities implemented to meet the Strategy's objectives. To strengthen the collaboration among the various actors, three cross-cutting axes (best practices in community development) are included: human rights, citizen involvement, and good governance.

## Inclusive Juarez



### Safe and Empowered Community

This pillar is about improving urban life and the urban environment in a way that aligns with what people want and need. Under this pillar, the city encourages substantial citizen involvement, as it is through this type of engagement that positive change will occur. Actions related to the use of public space are a good starting point for citizen involvement because the city and its citizens have a clear stake in city spaces that are more inclusive, green and safe.

## Prosperous Juarez



### Strong, Diverse and Competitive Economy

This pillar is designed to respond to the need to diversify the current economic model through innovation, competitiveness and a focus on sustainability. This requires the growth of high-quality, well-paid green jobs; the creation of programs that foster scientific development; and the forging of new relationships among the academic and industrial sectors and the community. Prosperous Juarez seeks to lead these efforts and increase investments that will ensure the economic growth and well-being of Juarez families.

## Integrated Juarez



### A City that is a Model of Resilient Planning

This pillar focuses on creating a resilient, innovative, long-term urban planning approach that guarantees full access to the city to all its inhabitants. It seeks to implement strategies that bring together the previously segregated sections of the city. Most of the jobs in Juarez are clustered in its existing industrial parks and along the city's northern border, while workers' homes are on the periphery of the city. Therefore, this pillar focuses on transportation-oriented development and prioritizes alternative and sustainable mobility as well as the creation of safe corridors for pedestrians and cyclists.

## Adapted Juarez



### A Society that Protects the Environment and Is Prepared to Face Disasters

This pillar aims to make the most of the advantages and opportunities presented by the city's desert environment and ensure the sustainable use of its resources by creating management models for non-renewable resources. This pillar focuses on the need to create awareness about the risks posed by climate change, such as water supply shortages, heat waves and floods, and uses the concept of resilience as a lens for adaptation and transformation.



**Inclusive Juarez**

**GOALS**

To Recover Urban Public and Vacant Spaces to Foster Social Exchange

To Improve Safety Conditions for Women

**ACTIONS**

- 1.1.1 Promote and Drive the Creation of Resilient Parks
- 1.1.2 Organize the Annual Contest Let's Enhance a Public Space Adoption of Public Spaces Program Design and Implementation
- 1.1.3 Adoption of Public Spaces Program Design and Implementation
- 1.1.4 Art Programs and Cultural Workshops for Children and Young People in Public Spaces
- 1.1.5 Vacant Plots Recovery Program
- 1.2.1 Technology Apps for Citizen Safety and Security
- 1.2.2 CCommunity Leadership Program
- 1.2.3 "Safe Corridor for Women"
- 1.2.4 International Safety and Social Inclusion Network (ISSIN)



**Prosperous Juarez**

Juarez as a Model of Innovation and Competitiveness

Circular Economy to Foster New Business Models

Juarez Image and Appeal for Tourists

- 2.1.1 Economic Competitiveness Indicators System
- 2.1.2 Develop Innovation and Technology Workshops for Children and Young People
- 2.1.3 Women Economic and Social Empowerment Workshops in Ciudad Juarez
- 2.2.1 Municipal Sustainability and Circular Economy Program
- 2.2.2 Strategy "+A-D: más alimento, menos desperdicio" (More food, less waste)
- 2.3.1 Transform the Public Image of Juarez
- 2.3.2 Promote Tourism and Culture in Juarez
- 2.3.3 Promote Ecotourism in Desert Settings

Support Fund for Innovative and Creative Talents (FATIC)



**Integrated Juarez**

The Right to the City

Resilient Planning

Alternate Connectivity and Mobility Plan

- 3.1.1 Prepare and Publish the Juarez Charter for the Right to the City
- 3.1.2 Revitalize the Historic District as a Place of Social Exchange, Recreation and Identity
- 3.1.3 Historic District Regulation
- 3.2.1 Institutionalize the Juarez Resilience Office
- 3.2.2 Resilience Culture and Communications Strategy
- 3.2.3 Binational Agenda on Urban Resilience at the Northern Border
- 3.3.1 Transportation-Oriented Development Plan
- 3.3.2 Bicycle Lanes and Pedestrian Corridors Project
- 3.3.3 Interactive Map of Alternate Travel Routes
- 3.3.4 Road Safety Handbook



**Adapted Juarez**

Juarez as a Model of Climate Adaptation

Environmental Education and Culture for Citizens and Private Sector

Comprehensive Water Management

- 4.1.1 Ciudad Juarez Environmental Agenda
- 4.1.2 Municipal Climate Adaptation Strategy
- 4.2.1 Municipal Strategy for Environmental Education
- 4.2.2 "Urban Orchards" Project
- 4.3.1 Innovative Project Portfolios to Assist in Floods
- 4.3.2 Green infrastructure in Public Spaces

To drive and foster the "Annual Program 10 days, 10 actions"



# 01

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| RESILIENT JUAREZ

# 100 RC Initiative in Juarez

***Urban resilience** is the capacity of individuals, communities, institutions, businesses and systems within a city to survive, adapt and grow, no matter what kind of acute shocks and chronic stresses they experience.*

Photo credit: Luis Pegut

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In **December 2014**, Juarez was chosen to be part of the **100 Resilient Cities Initiative**.

Pioneered and funded by Rockefeller Foundation. The 100 Resilient Cities (100RC) initiative is a program that supports the adoption and incorporation of a resilience vision which includes assessing the shocks (i.e., earthquakes, fires, floods) and the stresses that weaken the fabric of a city on a day-to-day or cyclical basis, so that the participant cities become more resilient and better prepared to face the physical, social and economic challenges of the 21st century.

The project promotes the hiring of a Chief Resilience Officer (CRO) charged with fostering and coordinating the resilience initiatives of the city, offers a network of experts who can help develop a city's resilience strategy, and provides access to services offered by strategic partners at a global level. As a member of the 100RC Network, the city gains access to other 100RC cities in order to exchange experiences and share best practices. 100RC aims to help individual cities become more resilient and build collaboration among governments, civil society, the private sector, and individual citizens. The program consists of three phases.



## Phase 1

### Identification of the Top Challenges Faced by the City

In this phase, a resilience baseline is established with the participation and involvement of various key stakeholders. This phase concludes with the preparation of the Preliminary Resilience Assessment (PRA)

## Phase 2

### Deeper Knowledge of City's Priorities

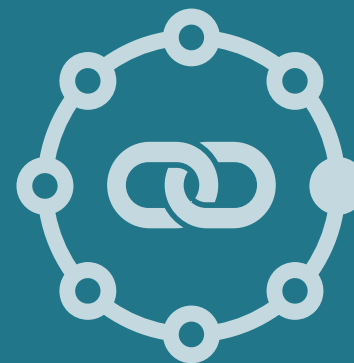
During this phase, new analysis is conducted and the city's primary challenges are explored in more depth. Gaps and interdependencies are also identified. This phase ends with the launching of the Resilience Strategy for the city.



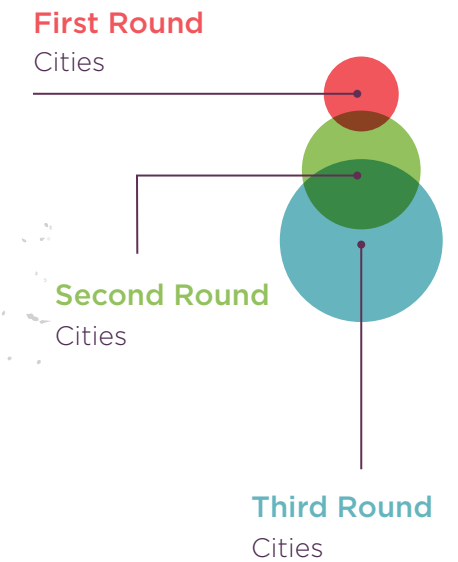
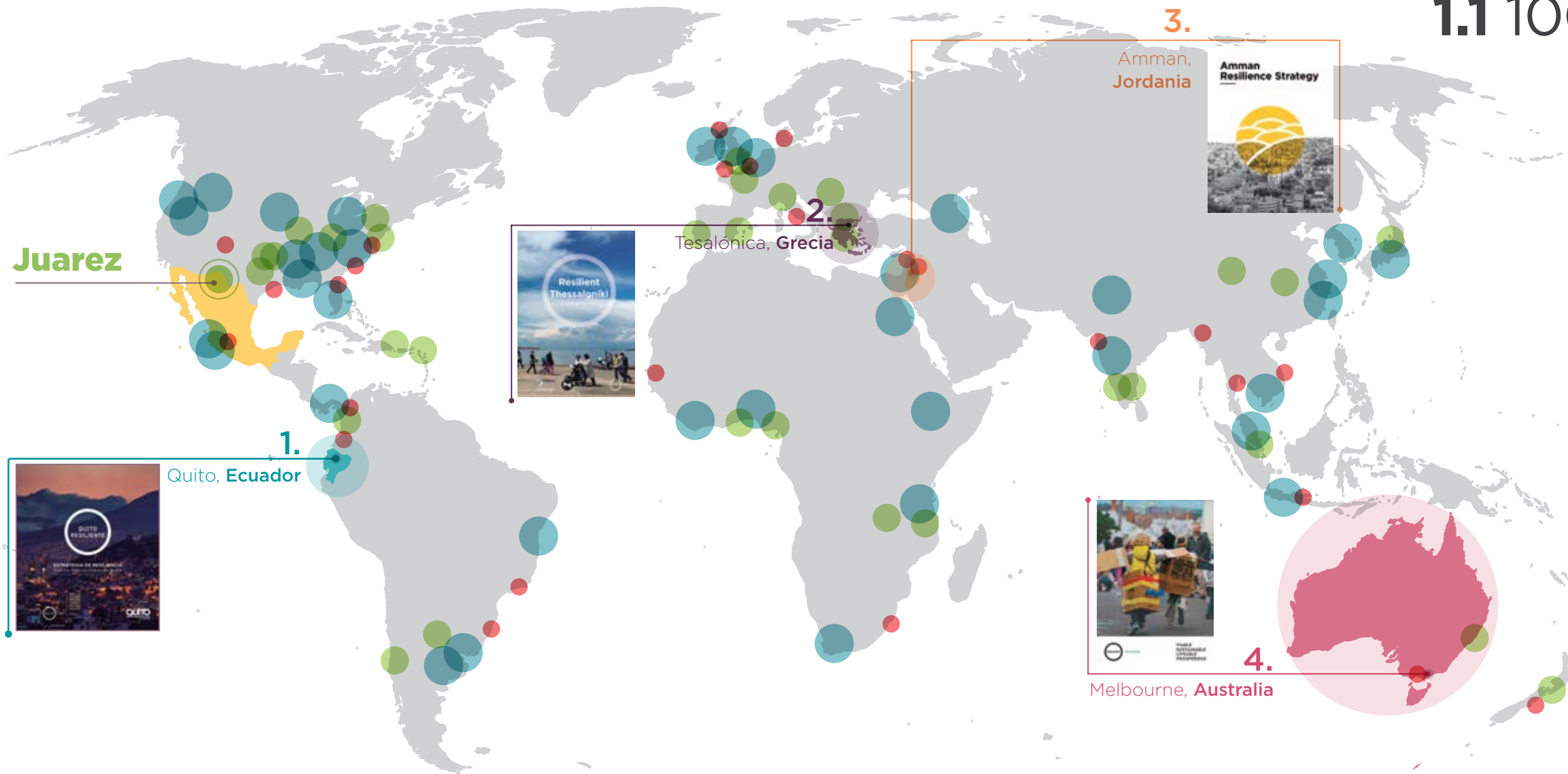
## Phase 3

### Strategy Implementation

This phase focuses on development and implementation of the initiatives identified in the Resilience Strategy.



# 1.1 100RC Cities that Inspired Juarez



## First Round Cities

- Bangkok
- Berkeley
- Boulder
- Bristol
- Byblos
- Christchurch
- Da Nang
- Dakar
- Durban
- El Paso
- Glasgow
- Los Angeles
- Mandalay
- Medellin
- Melbourne
- Mexico City
- New Orleans
- New York
- Norfolk
- Oakland
- Puerto Alegre
- Quito
- Ramallah
- Rio de Janeiro
- Roma
- Rotterdam
- San Francisco
- Semarang
- Surat
- Vejele

## Second Round Cities

- Accra
- Amman
- Athens
- Barcelona
- Belgrade
- Bangalore
- Boston
- Cali
- Chennai
- Chicago
- Dallas
- Deyang
- Zhuangzi
- Juarez
- Kigali
- Lisbon
- London
- Milan
- Montreal
- Paris
- Pittsburgh
- San Juan
- Santa Fe
- Santiago de los Caballeros
- Santiago
- Metropolitan Region
- Singapore
- Saint Louis
- Sydney
- Thessaloniki
- Toyama
- Tulsa
- Wellington

## Third Round Cities

- Addis Ababa
- Atlanta
- Belfast
- Buenos Aires
- Calgary
- Can Tho
- Cape Town
- Colima
- Guadalajara, Metropolitan Region
- Haiyan
- Honolulu
- Jaipur
- Jakarta
- Kyoto
- Lagos
- Louisville
- Luxor
- Great Manchester
- Melaka
- Miami, Metropolitan Region
- Minneapolis
- Montevideo
- Nairobi
- Nashville
- Panama
- Paynesville
- Pune
- El Salvador
- Seattle
- Seoul
- Tbilisi
- Tel Aviv
- La Haya Toronto
- Washington DC
- Yiwu

## 4 Cities that Inspired the Strategy

1. Quito
2. Thessaloniki
3. Amman
4. Melbourne

In 1970 ecologists coined the term resilience to describe the capacity of a system to maintain or recover its functionality in the event of an interruption or disruption. Resilience is applicable to cities, as they are complex systems that are

constantly adapting to changing circumstances. To build this recovery capacity, cities must be designed and function in such a way that they can resist, respond and adapt quickly to shocks and stresses.

# 1.2 Understanding Urban Resilience

The concept of a resilient city becomes relevant when acute **shocks and chronic stresses threaten the city's systems.**

## Conceptual Resilience Framework

The **CRF** is the result of extensive research on resilient systems. It identifies seven resilience qualities all resilient cities have:

### Reflective



They use past experiences to inform future decisions..

These are well-conceived, well-constructed and well-managed systems.



### Robust

### Inclusive



Prioritize broad consultation to create a sense of shared ownership in decision- making.

Bring together systems and institutions that work together to achieve greater ends.



### Integrated

### Resourceful



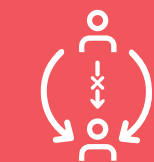
Recognize alternate ways to use resources in times of crisis to meet their needs or achieve their goals.

Create spare capacity to accommodate disruptions due to extreme stresses, surges in demand or an external event.



### Redundant

### Flexible



Systems that enable a city to adopt alternative strategies in response to changing circumstances or a crisis, external threats, lack of data or the inclusion of new stakeholders.

# 1.3 Conceptual Resilience Framework

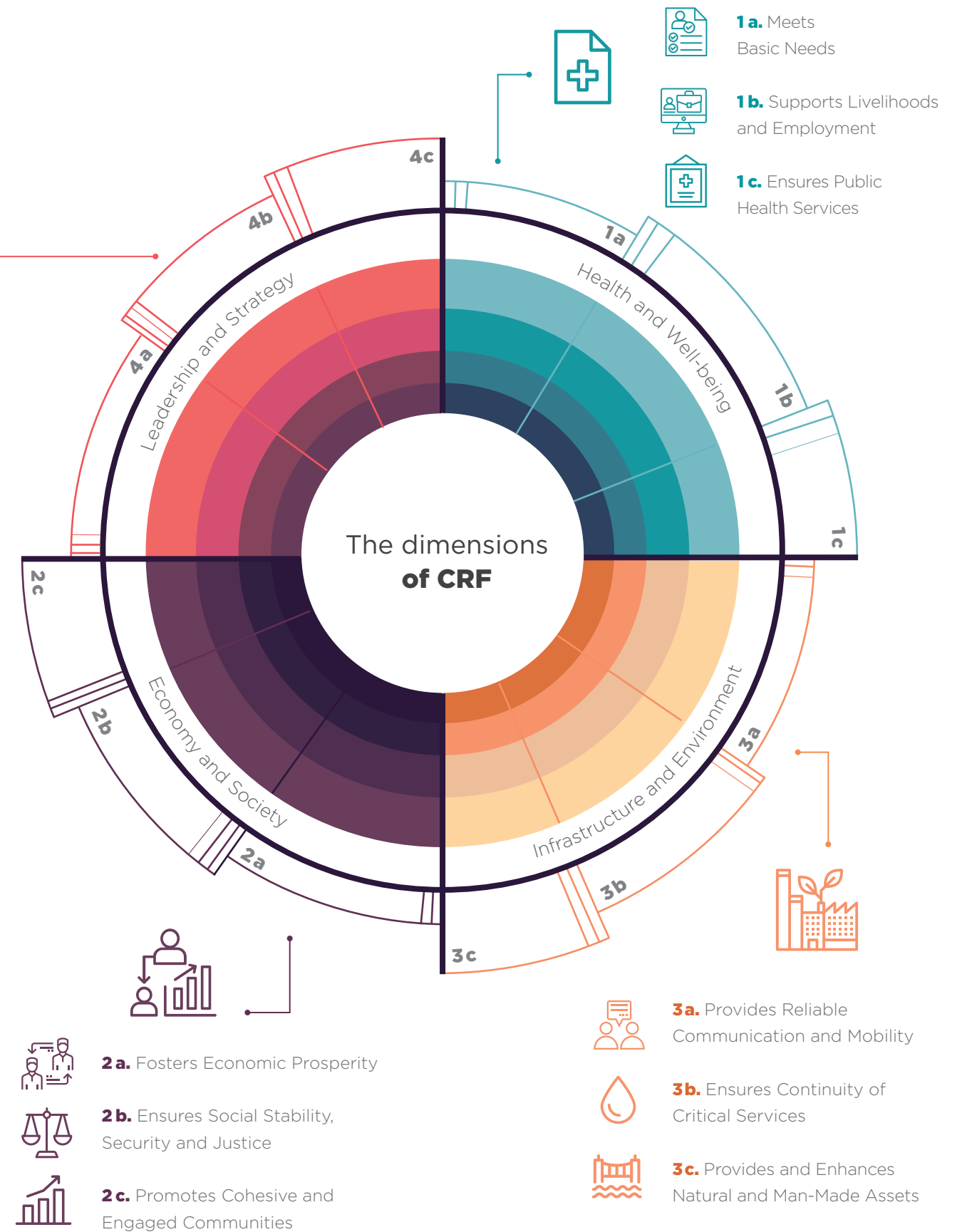
The Conceptual Resilience Framework (CRF) was developed in collaboration with Arup<sup>2</sup> to create a global standard for assessing the resilience of a city and to establish universal indicators for an analysis of urban resilience that is uniform across the various cities that are part of the 100RC initiative. The CRF serves as a guide for the collection of data, perceptions, and ideas from various sectors and stakeholders, including the scientific community, the private sector, civil society and government. The CRF, which consists of 4 dimensions, 12 main indicators and 50 sub-indicators, is a guide and a set of recommendations that facilitate Tailoring is a basic function that depends on risk assessment as well as the integration and potential expansion of the good resilience practices that already exist in a city. In addition, it must involve institutions and stakeholders acti-

vely committed to the resilience-building effort. the strategy development process. Cities have diverse challenges and contexts, and so each must tailor the resilience strategy development process to its specific needs and capacities.

2. Arup is a British company that specializes in design, engineering and consulting.



-  **4 a.** Promotes Leadership and Effective Management
-  **4 b.** Empowers a Broad Range of Stakeholders-
-  **4 c.** Fosters Long-Term and Integrated Planning



# 02

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| RESILIENT JUAREZ

# An Overview of Juarez

*Juarez is located in the northern part of Mexico, in Chihuahua State, by the shore of the Rio Grande along the border of the United States. It is Chihuahua's largest city and Mexico's eighth largest metropolitan area (INEGI, 2015).*

Photo credit: Luis Pegut

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The economy of Juarez is based on manufacturing. The city is strategically located near the border bridges and has quick access to many areas.

Most of the raw materials come from U.S. companies that use their Mexican subsidiaries for manufacturing because of Mexico's lower labor costs.

# 2.1 Juarez through History

## The City's Origins

The city of Juarez dates back to the 17th century, with the establishment of the Mission of Our Lady of Guadalupe in 1659, the bringing of peace, and conversion of the Jumano, Suma and Manso Indians who had lived there since ancient times. During the Spanish conquest of

the northern territories of Mexico, the city became a strategic stopping place for travelers in the inhospitable country. At the beginning of the 18th century, a "presidio" (military town) was established to protect the interests of the Spanish crown.

**JUAREZ, MEXICO.**



Bridge across the Rio Grande by Fred Murer, from the special collections of Juarez Autonomous University.

The city's early irrigation system consisted of two main canals (Acequia Madre and Acequia del Pueblo) and their numerous secondary canals. Despite the area's desert surroundings, an abundance of water and fertile soil enabled intensive farming. To

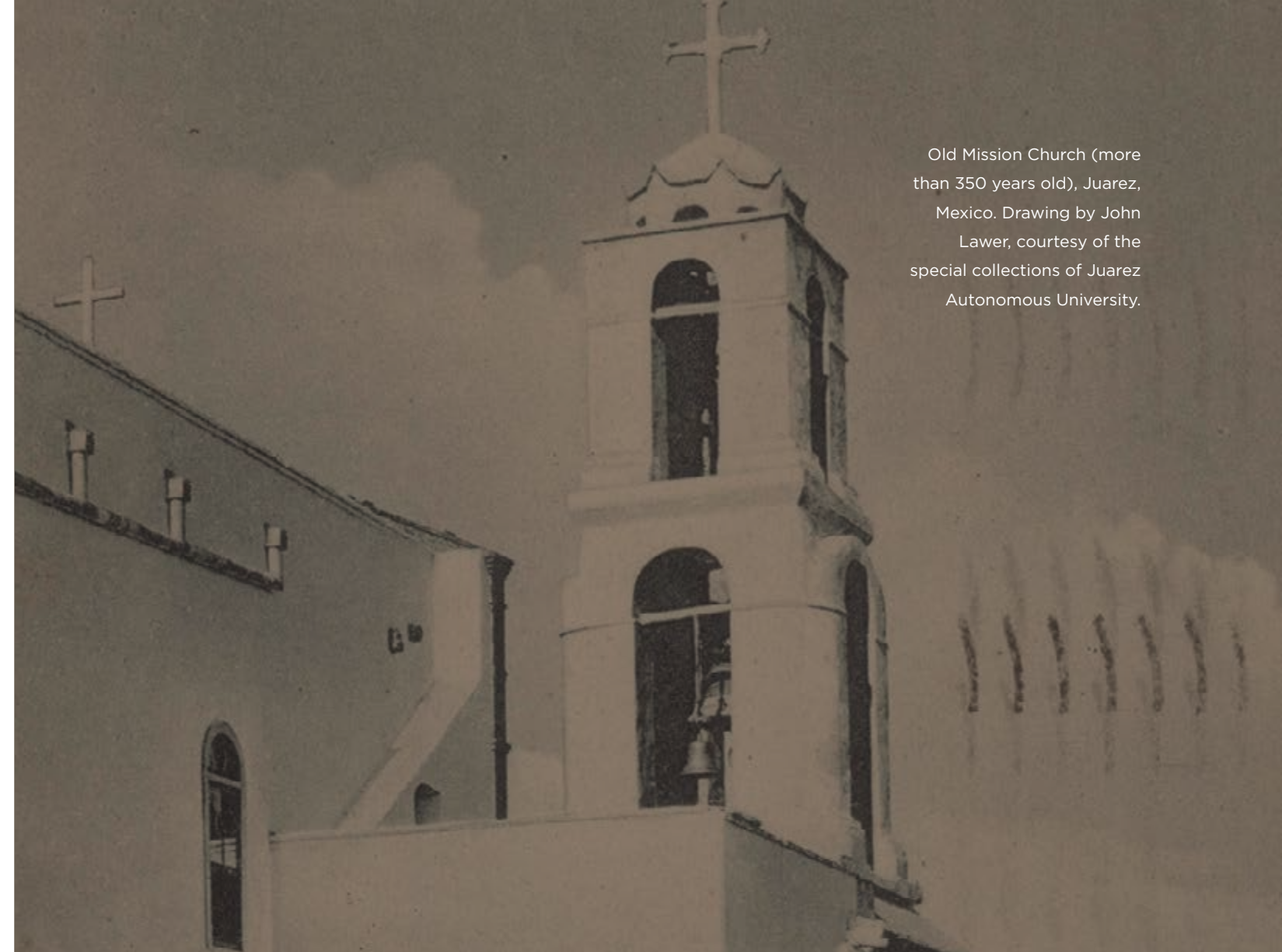
the eyes of a traveler at the end of the 18th century, Paso del Norte was like the "Murcia Orchard itself" and from that time forward was famous for its vines, fruits and, above all, the cotton, which is so characteristic of northern Mexico.



## Modern City

In the first decades of the 20th century, many border cities got their supplies from their sister cities in the U.S., as they were able to find a diversity of products at good prices. In Juarez a nascent industrial zone, which was linked to cotton and other agricultural products for the local market, extended southwest along the railroad tracks. By 1950, there were 6,765 jobs in the commercial area

along the tracks, on the street leading to the international bridge, around the old mission, and in the main streets of the city. Another thriving industry at the time was the entertainment industry, specifically cantinas (bars). The idea of driving the city's economic development by strengthening industry, commerce and agriculture was beginning to take hold by 1960 among those with economic and political influence.



Old Mission Church (more than 350 years old), Juarez, Mexico. Drawing by John Lawer, courtesy of the special collections of Juarez Autonomous University.

## Industrial City

Starting in 1960, programs to foster the city's development were begun:

# 1

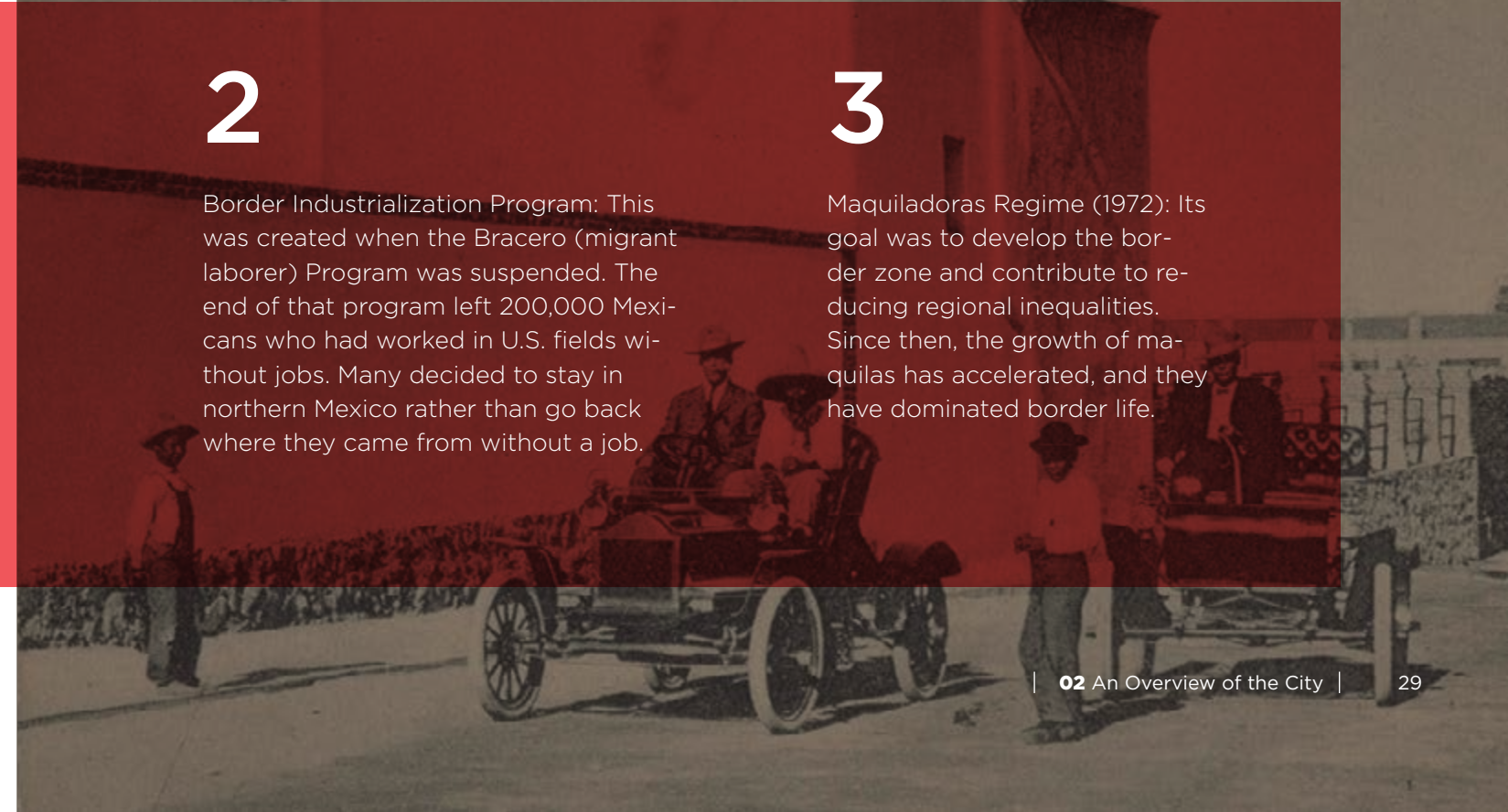
National Border Program (1961): Its goal was to foster economic and social development along the border, making it appealing to tourists. To this end, the Federal Government invested in the construction of cultural centers, museums, and spaces for the sale of Mexican crafts.

# 2

Border Industrialization Program: This was created when the Bracero (migrant laborer) Program was suspended. The end of that program left 200,000 Mexicans who had worked in U.S. fields without jobs. Many decided to stay in northern Mexico rather than go back where they came from without a job.

# 3

Maquiladoras Regime (1972): Its goal was to develop the border zone and contribute to reducing regional inequalities. Since then, the growth of maquilas has accelerated, and they have dominated border life.



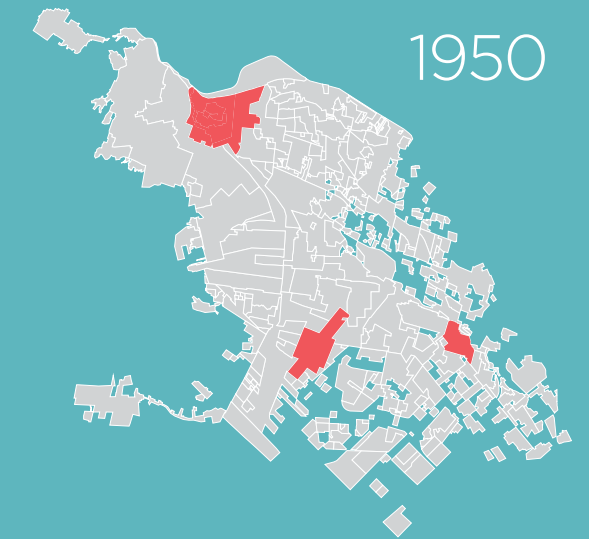
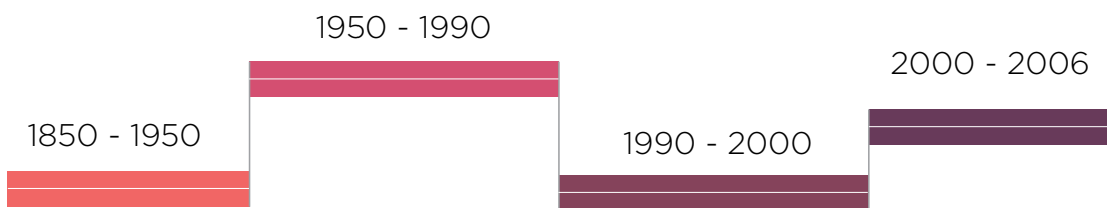
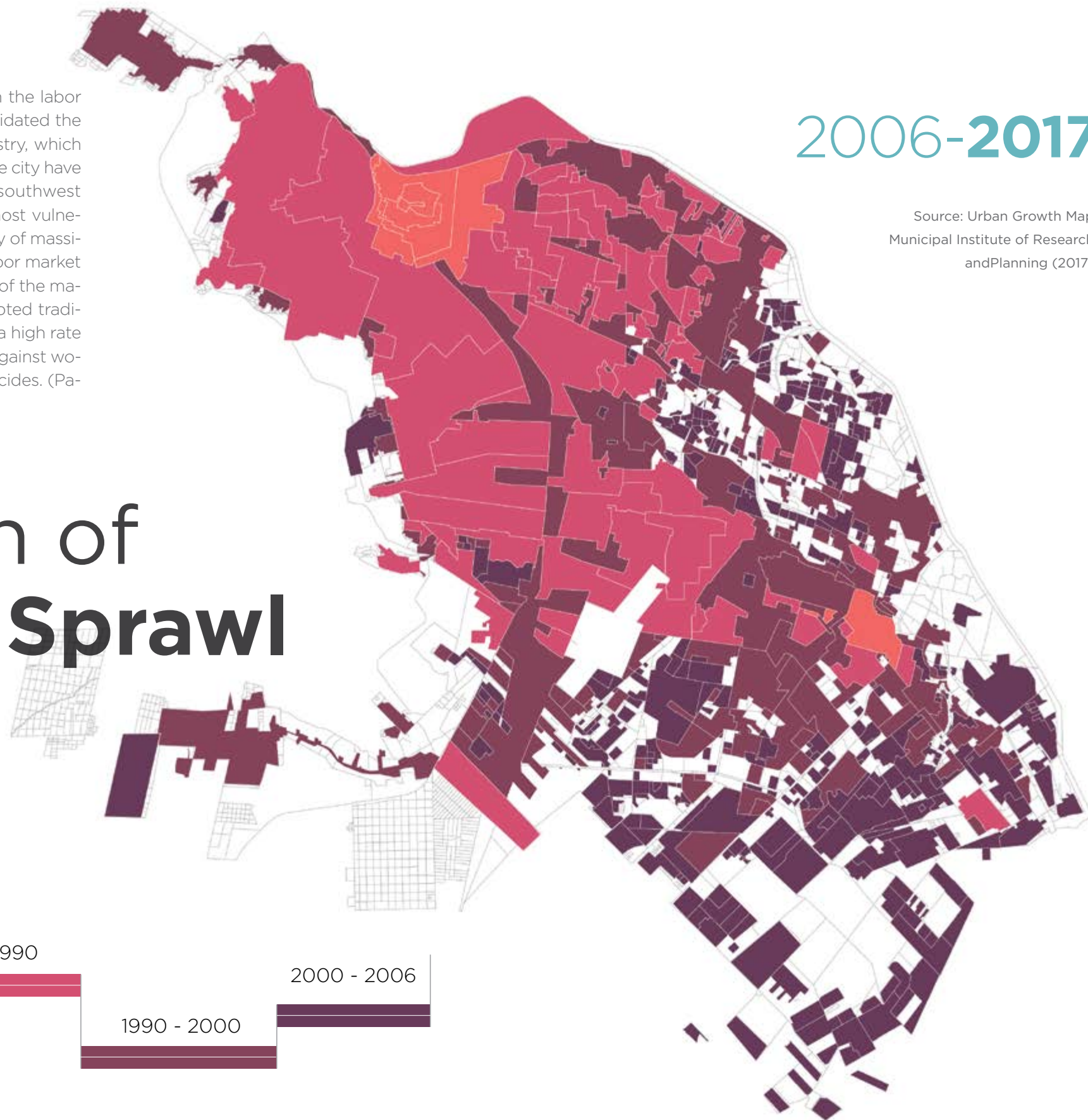


From 1983 to 1990, the growth in the labor force was so strong that it consolidated the position of the maquiladora industry, which has shaped the city. Migrants to the city have usually settled in the west and southwest areas of the city, which are the most vulnerable sections of the city. The entry of massive numbers of women into the labor market was another effect of the growth of the maquiladora industry. This has disrupted traditional family roles and resulted in a high rate of domestic and sexual violence against women as well as a high rate of femicides. (Pardilla, 2012: 699).

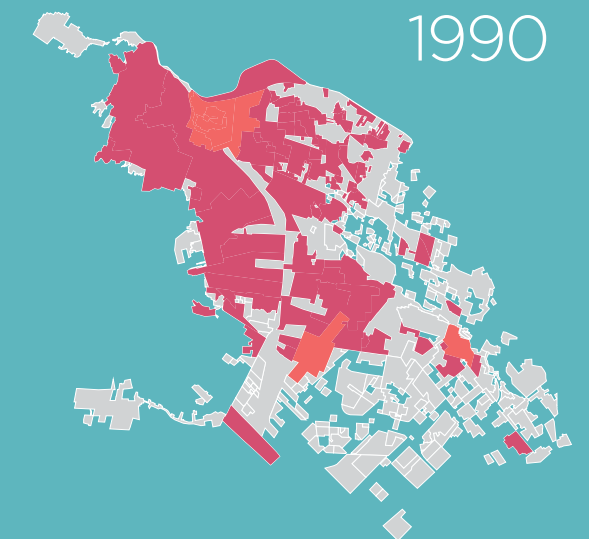
# Growth of Urban Sprawl

## 2006-2017

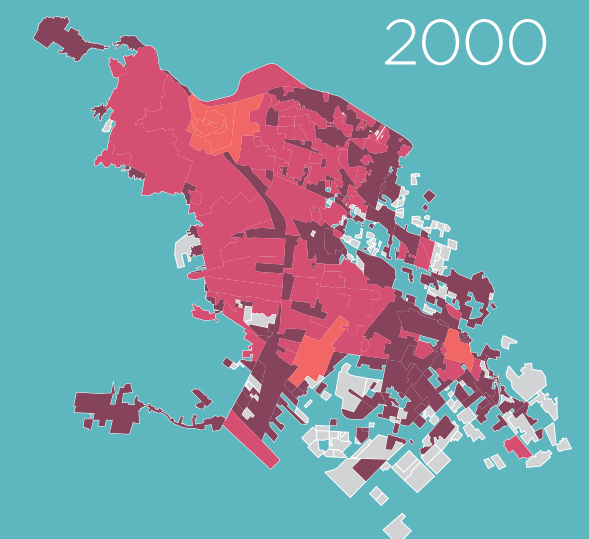
Source: Urban Growth Map  
Municipal Institute of Research  
and Planning (2017)



1950



1990



2000

# 2.2 Juarez in Figures



## Climate and natural environment

Latitude North: 31° 44'  
Longitude West: 106° 29'  
Altitude: 1.140 masl

Water consumption  
230 l/resident/day  
(JMAS, 2013)



Rainfall Annual average  
154 Millimeters  
(2005-2010)



Desert-arid - extreme weather

44°C  
111.2 °F  
Maximum temp.

-22.2 °C  
71.96 °F  
Minimum temp.

Population  
1,391,180  
(2017)

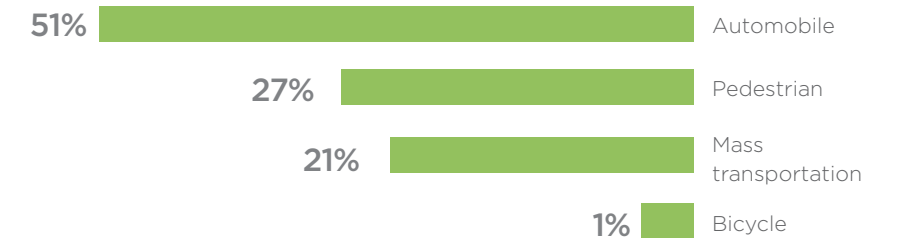


99.4%  
Life in the city



## Mobility

### Traveling in 2014 (PMC)



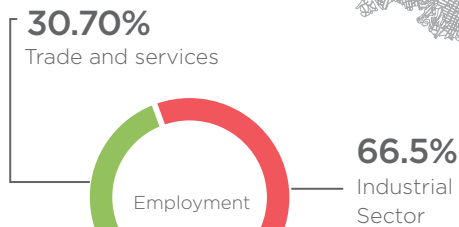
### Border crossings 2016<sup>3</sup>



3. Information obtained from the following page <http://es.pdnuno.com/about>, managed by the international bridges Board of Directors.

## Economy

30140515.81 Acres  
Territory



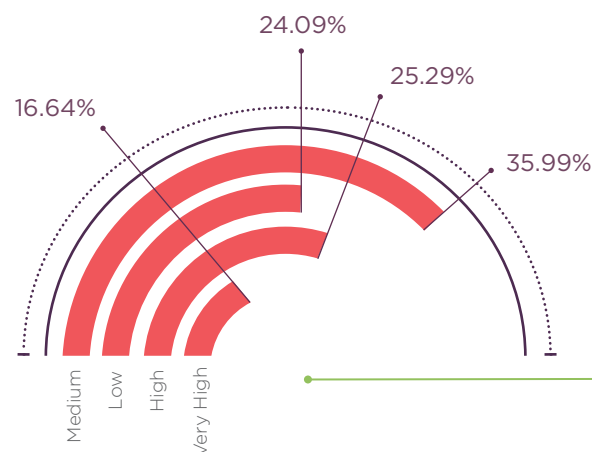
85.3%  
Population with Health coverage  
(PDUS, 2016)



Rate of Schooling  
9.7  
(2015) (PDUS, 2016)

Inflation rate  
3.95  
(PEJ, 2017)

Level of wellbeing 2010  
(PDUS, 2016)



499  
industrial plants  
(2013)

83%  
in operation

39.9%  
Population with income below the poverty line  
(CONEVAL, 2015)

Urban solid waste  
1,200 -1,300  
tons / day

5.66 m<sup>2</sup>/hab  
Green space  
(9-16m /inhab. WHO recommendation)

# 2.3 Resilience Challenges in Ciudad Juarez<sup>4</sup>

Urban Resilience is the capacity of individuals, communities, institutions, businesses and systems within a city to survive, adapt and grow, no matter what kind of chronic stresses and acute shocks they experience.<sup>5</sup>

4. The information source for the resilience challenges was the Sustainable Urban Development Plan for Ciudad Juarez 2016.

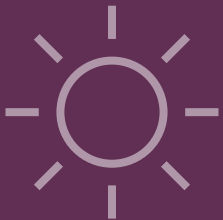
5. Definition used by 100RC.



## Extreme Weather

Juarez is located in a semi-desert zone, with extreme weather and summer temperatures that exceed 40 °C (104 °F), with low humidity, while in winter the temperature drops below 0 °C (32 °F). Historically,

the minimum registered temperature was -22 °C o -7,6 °F). During spring and fall, temperatures are mild. Winds with speeds above 40 km/h (24 mi/hr) are always present and nights can be very chilly (IMIP, 2010).



In the summer

**+ 40°C (104° F)**



En el invierno

**- 0°C (32° F)**



Winds with speeds exceeding  
**40 km/h (24 mi/hr)**



## Unemployment



2001-2003

**66,602**

Formal jobs were lost

2008-2009

**70,073**

Formal jobs were lost



2012-To date

**64,305**

Formal jobs have been gained

One of the social issues that has impacted the city is unemployment, which worsened in two specific periods. Between 2001 and 2003, 66,602 formal jobs were lost, and between 2008 and 2009, 70,073 formal jobs were lost due to the world economic recession.

From 2012 to the present, the city has just barely recovered 64,305 formal jobs. Beyond increasing the number of jobs in industry, the most important challenge is to improve wages, as most are below the poverty line.



# Public Security

Homicides

2009	2010	2011
<b>2,449</b>	<b>2,932</b>	<b>1,552</b>

reduction of violence



2012	2013
<b>751</b>	<b>485</b>

down to

Ciudad Juarez suffered the most severe social crisis in its history during the 2006 – 2012 administration, mainly due to the Federal Government’s effort to combat drug trafficking. During this period, crimes such as kidnapping, extortion and homicide increased. In 2009 there were 2,449 homicides. In 2010 there were 2,932 and

in 2011, 1,552 were reported. In the last few years, due to various strategies and the joint efforts of the three levels of government and civil society, there has been a significant reduction in violence, especially in the number of reported homicides. In 2012, there were 751 homicides, while in 2013 there were only 485.



# Femicides

Starting in 1993, Ciudad Juarez became known worldwide for the disappearances of women and its high rate of femicides. There was a significant increase in 2009 (164), 2010 (304) and 2011 (195), years that coincide with the war against drug trafficking. By the

year 2009, the femicide rate was 19.1% for every 100,000 women, compared with the rest of the country, where the rate was 2.5% for every 100,000 between 2004 and 2009 (Small Arms Survey research, 2012). This tragic history, known as Las muertas de Jua-

rez (The dead women of Juarez), left a mark on the city and brought civil society together to reduce the femicide rate. It also led to the creation of the Ciudad Juarez Forensic Sciences Laboratory to help solve these and other crimes.

Disappearances and deaths

1993-2005

**442**

“Las Muertas de Juarez”



in Ciudad Juarez

2009

**19.1%**

2004-2009

**2.5** in the rest of the country

1993-2017

**1,455**

TOTAL

Source: Conavim

2010 | 1.3 million inhabitants



**39.86%**

earned between 0 and 2 minimum wages



# Poverty

In 2017, the city had almost 1.4 million inhabitants, of which 37.8% were living in poverty. Of the employed and economically active population (PeA), 39.86% earned between zero and two minimum wages, while 32.79%

had to earn between two and four minimum wages. Based on these figures, finding a decent home and affordable transportation is just out of the question for many Juarez residents. According to a study conducted by

**37.8%**

lived in poverty



**32.79%**

earned between 2 and 4 minimum-wages

Colegio de la Frontera Norte in 2016, 85 zones have been identified as priority areas for investment and reducing the conditions of poverty. The zones are located in the western and southern

western sections of the city, where the greatest economic, infrastructure and transportation deficiencies exist, as well as where the population has a limited level of education.

# 03

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| RESILIENT JUAREZ

## Developing the Strategy

*Juarez Resilience Strategy has the goal of keeping essential city functions operating during a crisis and of creating a resilient model with actions that will ensure the city's capacity to respond to environmental, social and economic challenges.*

Photo credit: Luis Pegut

The Resilience Strategy encourages a long-term, cross-cutting view that will help the government, private sector, civil society as well as ordinary citizens to understand and address acute shocks and chronic stresses in a structured way at all levels (federal, state and municipal). The resi-

lience challenge must be addressed in a holistic way that integrates the views of all stakeholders and takes into account all of the challenges facing Ciudad Juarez. In September 2015, the three phases for implementing the Juarez Resilience Strategy began.

# 3.1 Elements of the Strategy

The Strategy sets priorities and develops resilience measures to improve the lives of Juarez inhabitants by building a more equitable society and focusing on the groups that are most vulnerable to the risks and challenges of the 21st century.

1.

The building of resilience is an inclusive process based on the participation of stakeholders from various levels of government (municipality, city, state, federation) and from the academic community, civil society, and companies or representatives of the private sector, as well as on multilateral and bilateral cooperation with development organizations.

2.

The Strategy builds the city's adaptive capacities to face environmental challenges, such as climate change, and chronic stresses that are risks to the future sustainability of the city, such as environmental degradation, lack of mobility, and deteriorating, and air quality.

3.

The **essential components** of the Juarez Resilience Strategy

To **develop activities and identify priorities, the following** elements were evaluated:



Various territorial (city/municipality/region) risks to which the city is exposed.



The quality, integrity and reliability of information about the city's resilience needs and opportunities.



The level of understanding of resilience challenges and opportunities.



The existing decision-making processes as well as existing strategies, programs and actions that build resilience.



The commitment and acceptance by key stakeholders.



The capacity and openness of government and civil society regarding the innovation, new ideas and paradigm changes needed to build up an adaptive capacity to face chronic stresses and respond to acute shocks.



The methodology proposed by 100RC, which will be described in more detail.

# 3.2 Juarez Resilience Strategy Milestones



**2014**  
November  
Selection of Ciudad Juarez as a Resilient City



**2015**  
September  
Citizen Perception Workshops



**2016**  
June  
Appointment of a Chief Resilience Officer



**2017** February  
**2018** November  
Diagnosis, Development and Implementation



**2018** January  
Public Consultation Workshops



**2017**  
January  
Preliminary Resilience Assessment



**2017** December  
**2018** March  
Implementation of the Juarez Resilience Strategy



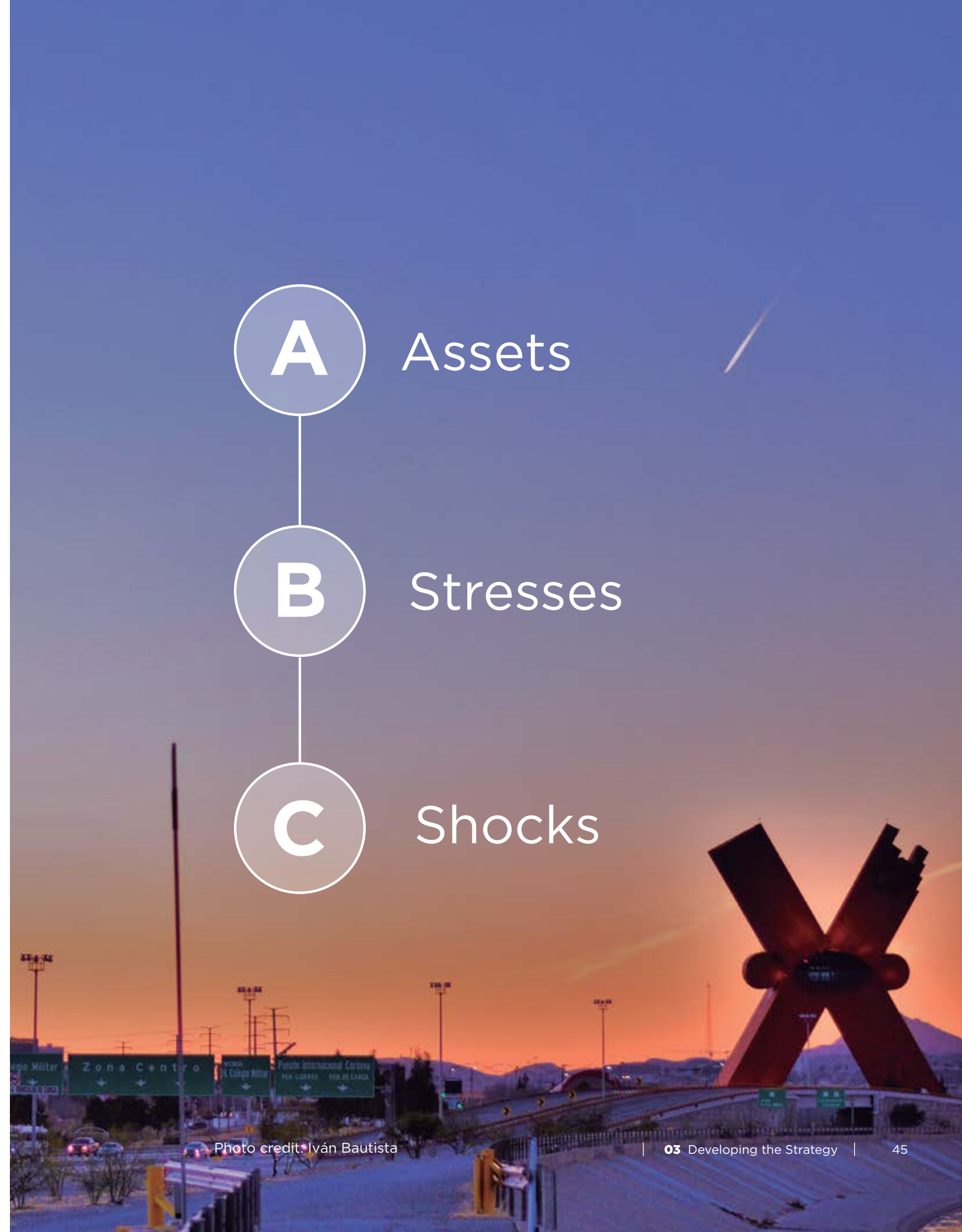
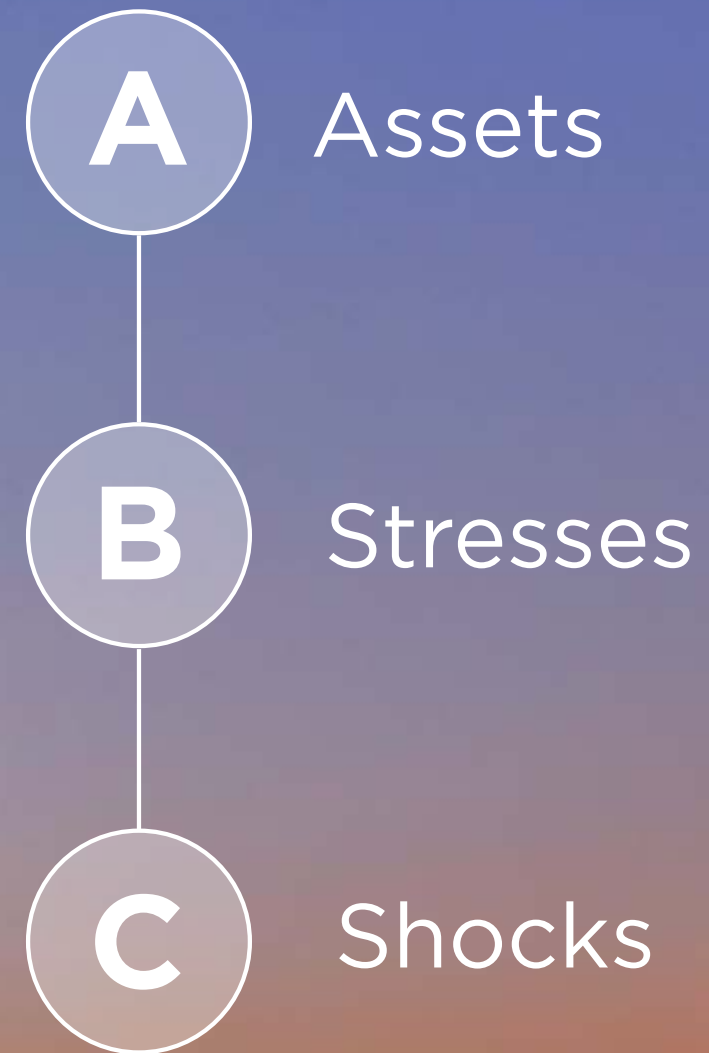
**2016**  
September  
Creation of the Resilience Directors Committee

# 3.3 Resilience Diagnostic

Diagnosing the city's resilience involved a review of government and academic publications; identification of stakeholders; semi-structured interviews and surveys; perception workshops and workshops on physical assets, stresses and shocks; and an inventory of the resilience-building actions and programs already in place(Phase I). In 2016, risk assessment exercises were conducted with city staff and interested stakeholders through workshops, community walks, and reviews of existing plans and data. In addition, 273 surveys and 10 interviews were conducted with stakeholders from civil society, academia, government, and the private sector. The outcomes were as-

essed with the toolkit developed by 100RC and AECOM<sup>6</sup> to determine the city's infrastructure assets and the interrelationship between acute shocks and chronic stresses and the city's level of vulnerability. With this process some of the most relevant assets for building resilience in the city were identified.

6. The analysis of inputs was conducted using a toolkit developed by AECOM, an international consulting firm that is a strategic partner of 100RC.







**Assets** are defined as tangible goods owned by the city-that are part of the system that enables the city to function. These assets are critical to maintaining the population’s quality of life. **They may be economic natural, urban, social or technological infrastructure.**

# Assets



Public Parks and Recreational Areas



Main Highways



Sewage



Irrigation Canals



River Ways



(Public and Private) Care Facilities for Senior Citizens



Water Supply Storage



Homeless Shelters



Day Care Centers



Parking Lots in Public Squares

Public parks and recreational areas are prominent assets. On the other hand, management of assets has a low level of service or maintenance, as it is the case of mobile network or telephone networks, allocation of natural gas, sewage systems, irrigation canals, river ways and water storage, among the main ones.

The toolkit was also used to analyze the following to determine stresses and shocks.

- Risks and threats to the city.
- Potential shocks and impacts of serious breakdowns in the city’s basic infrastructure.
- Current trends and future scenarios related to external social, technological, environmental, economic and political forces.
- The most likely scenarios posing the greatest risk to the city and their relationship to the city’s chronic stresses.
- Existing relationships between acute shocks and chronic stresses and their effects on the city.

# Stresses

**Chronic Stresses** are ongoing factors that weaken the fabric of a city.



Lack of accessibility and poor quality of basic utilities (water and electric power)



Lack of accessibility and poor quality of public services (health and education)



Chronic health conditions in the population (e.g., asthma, high blood pressure, diabetes)



Environmental pollution



Economic crisis



Unemployment



Discrimination (e.g., gender, race, sexual orientation)



Lack of safe and affordable housing



Inefficient public transportation



ocial and economic inequality



Domestic and/or community violence

**Acute shocks** are sudden, catastrophic events that threaten a city. With stakeholders from various areas and sectors, we identified acute shocks that impacted the city’s resilience, **its institutions, and the support systems necessary to keep it functioning.**

# Shocks



Droughts, heat waves



Snow storms



Extended rainfall with surface flooding



Disease outbreaks



Extreme weather



Natural events resulting from climate change

The results of the analysis show that two of the main stresses on the city—lack of access to basic utilities and lack of infrastructure—would greatly impact the city’s capacity to re-

cover quickly in the event of an acute shock. Stresses such as deteriorating critical infrastructure or downturns in the local economy would also increase in the event of an acute shock.



## 3.4 Preliminary **Resilience Assessment**

The Preliminary Resilience Assessment (PRA),<sup>7</sup> **which was developed based on the diagnosis, reflects the complex interrelationship between acute shocks and chronic stresses affecting the city. Based on the results,** actions to address these challenges must be developed strategically. **Five discovery areas were identified, initial actions were determined, and implementation of these actions will be coordinated across the various sectors.**

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<sup>7</sup> Preliminary Resilience Assessment.

# Discovery Areas

Five discovery areas were identified by asking a key diagnostic question that resulted in the following vision statements:



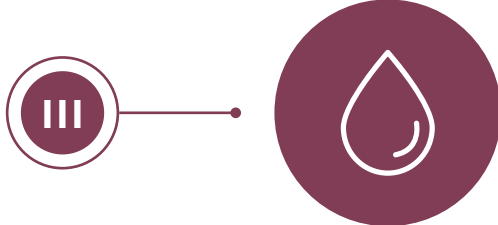
## Mobility

The identification of alternate, sustainable and inclusive mobility systems to drive urban development with a resilience lens.



## Economic Diversification

Transformation of the city's economic system, with an emphasis on developing affordable housing and investing in education, innovation and local entrepreneurship.



## Water Management

Implementation of water management strategies linked to a framework of best management practices and public participation.



## Public Spaces

Creation and/or adoption of public spaces to reduce crime and increase public security will also help mitigate environmental shocks.



## Cross-Border Cooperation

Development of resilient strategies that will enable a sustainable environmental strategy for the entire Juarez-El Paso region.

# Cross-Cutting Pillars

To strengthen cooperation among stakeholders and foster an inclusive strategy, the following **cross-cutting pillars** were included to provide a framework of universal, shared values:



## Good Governance

This refers to bringing representatives and those represented closer. It is characterized by open city council sessions and a professional, efficient and transparent government that is accountable and open to citizen participation. It involves recognizing the new role of citizens and strengthening the city's public institutions based on their needs and desires. To achieve full participation and have influence on the decisions made, citizens need to be educated in the issues, well organized, vocal, vigilant, and ready for action.



## Human Rights

All authorities have, within their jurisdiction, the obligation to foster respect, protect and guarantee the human rights of each and every inhabitant of the city, which is especially important in Juarez, a city that has suffered severely from waves of violence, threats to public security, and femicides.



## Citizen Participation

Ciudad Juarez guarantees the right of its citizen, both individually and collectively, to participate in government through the various mechanisms and instruments specified by the Constitution and the Law. The goal is to enable citizens to have an impact on the government's decision-making process and on the oversight, management, and execution of political, administrative, urban, environmental and transportation initiatives. Another goal is to guarantee equal access for all citizens to basic services, such as water, public spaces, and economic, social, cultural, and national resources that will improve their quality of life.

# Institutional Structure

Identifying how stakeholders were connected to Ciudad Juárez's resilience was one of the primary activities in developing the Strategy. Stakeholders played a strategic role in

assessing the findings included in the city Preliminary Resilience Strategy (PRA). Each stakeholder's role and involvement in was mapped as follows:

1

## Internal Work Team.

This team consists of the Resilience Office staff based in Juárez, internal and external consultants, and decision makers who collaborated in defining the Juárez Resilience Strategy.

2

## Resilience Directors Committee.

This group's primary function is to review and discuss decisions based on the Resilience Strategy and to vote on all decisions related to the stages in the Strategy's implementation.

3

## Regional Stakeholders.

These stakeholders are from both sides of the U.S.-Mexico border, and they are important binational players who can influence the Juárez Resilience Strategy.

4

## Key Stakeholders.

These stakeholders interact directly with the internal work team and play an essential part in the development and execution of the Strategy.

Mayor of Juárez

Chief Resilience Officer

Dimensions



### Economy and Society

Urban Development General Direction  
Municipal Board of Water and Sanitation  
U.S. Environmental Protection Agency



### Infrastructure and Environment

Juárez Strategic Plan  
Entrepreneurial Coordinating Council  
Borderplex  
National Association of Cargo Transportation



### Health and Well-Being

Department of Health  
Health and Community Development FEMAP



### Leadership and Strategy

Municipal Institute for Research and Planning  
Ciudad Juárez Autonomous University  
Technology HUB

# Strategy Pillars

The discovery areas were constrained by laws and public policies. However, the pillars reflect, through a lens of resilience, the ideals and aspirations that underpin the Resilience Strategy. The pillars form a strong framework for a complex system of

actions. Every pillar is based on the ideas shared by local stakeholders and global 100RC members who provided their knowledge, experience, and expertise to help with the development of the Juarez Resilience Strategy. Here are the pillars:



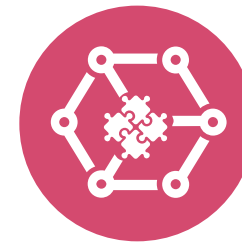
## Inclusive Juarez

A safe and empowered community that welcomes cultural diversity, strengthens the sense of belonging, and fosters laws and programs to empower an informed, involved, committed and responsible citizenry.



## Prosperous Juarez

A city that works towards achieving a strong, diversified economy that functions in harmony with sustainable development principles while remaining competitive.



## Integrated Juarez

A city with a resilient planning model, which bases urban planning and development regulations on the city's specific context, features and challenges, with social and community cohesion as its goal.



## Adapted Juarez

A society that protects the environment and is prepared to face threats to it, that takes into account its desert climate and surroundings, and that explores various resource management methodologies.

**The Juarez Resilience Strategy** was collaboratively developed by various strategic actors, inspired by the diverse experiences of other cities, and nurtured by a wealth of ideas from a broad range **of stakeholders.**





# Vision

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Ciudad Juarez is a pioneer of the resilience movement along the northern border of Mexico. It is a city that is preparing for the future by creating the conditions for an inclusive prosperity; by facing environmental, social and economic challenges through adaptation; and by fostering the well-being of all the inhabitants of the region.

Photo credit: Luis Pegut

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# 04

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| RESILIENT JUAREZ

# Strategy Pillars

Photo credit: Luis Pegut

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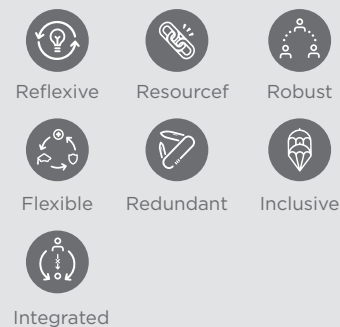
# 4.1 Strategy structure

The Juarez Resilience Strategy is a tactical guide for government agencies acting on behalf of the public good to decision making with a resilient approach. It is also a framework of actions to ensure that citizens are prepared to face any stress or shock to the city. The Strategy is inclusive, and emphasizes the participation of vulnerable groups, such as women, young people, and children. To achieve the goal of inclusiveness, human and economic resources must be mobilized. The Strategy consists of 4 pillars, 11 goals and 33 actions. The four pillars are the Strategy's backbone. They reflect the values of Juarez society and will act as a guide to achieving the ideal of a resilient city. Eleven long-term goals underpin the Strategy's concrete actions and are directly connected to the pillars, The 33 actions represent specific projects and tactical activities that will help Juarez meet the Strategy's objectives. The actions vary from simple to complex, and they may be undertaken in the short, medium or long term. In addition to the actions, this document describes related initiatives by other groups in civil society, in government departments, and in academic institutions, and also introduces some of the projects fostered by the Resilience Office.

## 4.2 ¿How to read action cards?

- 1 Eje al que pertenece la acción
- 2 Nombre de la Meta
- 3 Nombre de la acción
- 4 Nomenclatura

### 5 Resilience Qualities:



### 6 Estado:

**Nuevo:** Acción en proceso de desarrollo con alto potencial de ser desarrollada en el corto o mediano plazo.

**Existente:** Acción que ya ha sido desarrollada o está en proceso de ejecución.

**Aspiracional:** Acción que requiere de mayor investigación y planificación.

### 7 Type:

**1. Signature:** Action that is different from the others because it is critical for the building of the city's resilience.

**2. Priority:** Action required for building resilience in the city.

**3. Supplementary:** Action that supports or is part of a priority or a signature action.

### 8 Term:

- 1. **Short:** Up to 2 years
- 2. **Medium:** 2 to 5 years
- 3. **Long:** More than 5 years

**9 Lead:** Stakeholder in charge of executing the action

**10 Stakeholders:** Partners who will support development of the action.

**11 Description:** General description of an action. What has to be done? How is it to be done? With whom? Expected outcomes.

**12 Indicators:** Variables that enable monitoring of the project process.

**13 CRF:** Refers to the contribution of this action in the construction of resilience in the city.



### 14 Cross-Cutting Axes:

- 1. Human rights
- 2. Citizen participation
- 3. Governance

1  
4  
4.2  
4

2  

### Environmental Education and Culture for Citizens and the Private Sector

3

**4.2.1. Municipal Strategy for Environmental Education**

**5 Resilience Qualities**

Reflexive
Robust
Inclusive
Integrated
Resourceful
Redundant
Flexible

**7 Type:** Supplemental

**8 Term:** Short

**6 Status:** Aspirational

**9 Lead:** Ecology Direction

**10 Stakeholders:**

- Resilience Office
- General Civil Protection Direction
- Social Development General Direction
- Academic Institutions
- Civil Associations
- SEMARNAT
- Colegio de la Frontera Norte

**12 Indicators/Expected Outcome**

- + Environmental strategy published
- + Number of educational campaigns implemented

**11 Description:**

The primary goal of the Environmental Education Strategy is to educate the people of Juarez to take responsibility for the natural and social environment in which they conduct their day-to-day lives. Following the Environmental Non-Formal Education Guide (SEMARNAT, 2009), the strategy will seek to foster actions that will transform people's habits and attitudes, and provide incentives for everyone to be accountable for their environment.

For the strategy's construction, in 2018 the Ecology Direction will:

1. Prepare an environmental culture assessment.
2. Develop policies, programs and national and/or international agreements, and develop its capacity.
3. Determine the scope and structure of the program that will feed the strategy.
4. Identify resources for implementing the strategy.

To launch this project, the Ecology Direction will work closely with SEMARNAT's Education and Training Center for Sustainable Development, which has experience in implementing this type of strategy in Mexican cities. The Ecology Direction will also consult with national, state and municipal experts on environmental and education issues, and will publish the Environmental Education Strategy in the first half of 2019.

**13 CRF:**

**14 Cross-Cutting Axes:** 1. Human rights, 2. Citizen participation, 3. Governance

**15 ODS:** 9, 4, 16



| RESILIENT JUAREZ

# Inclusive Juarez

A Safe and Empowered Community

Photo credit: Luis Pegut

## Goals:



**1.1.**

**To recover urban public and vacant spaces that can foster positive social interaction.**

**Expected Outcome:** The citizens of Juarez will have a wide range of recreational options in green, multi-functional public spaces through the collaboration of the Government, private entities, and citizens.



**1.2.**

**To improve safety and security for women.**

**Expected Outcome:** Women in Juarez will be able to travel freely and safely throughout the city.

# Inclusive Juarez Context

As the name Inclusive Juarez suggests, this pillar stresses the importance of citizen participation in the creation and development of the city's urban spaces—it essentially aims at getting them involved in the design of their own habitat. Juarez is a border city with almost 1.4 million inhabitants who are primarily young people. The city is also a mixture of immigrant cultures from various parts of the country. The Preliminary Resilience Assessment determined that the city's infrastructure and services are insufficient, that income levels are generally low, and that the population is largely uneducated. In addition, the society is greatly polarized, with marginalized populations living in the most vulnerable areas of the city, such as the outskirts of Juarez. The challenges only increase as the social context in which many of the citizens of Juarez live is explored.

The high rates of violence in recent decades and the lack of public security have increased the citizens' sense of isolation and reluctance to interact with the world outside their homes. This is especially the case for women, given the alarming rates of femicides and disappearances. Thus, the resilience challenge for this pillar directly focuses on citizens and their interaction with their immediate environment. Inclusive Juarez seeks to transform and improve the living conditions of the inhabitants of Juarez by restoring public spaces. The pillar aims to make these urban areas not only places where positive social interaction can take place but where women, who are one of the most vulnerable groups in the city, can feel safe.



## Green Spaces / Parks

These are open spaces with trees, where everyone is free to enjoy walking, relaxing, and recreation. They usually have paths, places for relaxation, and playgrounds for children.



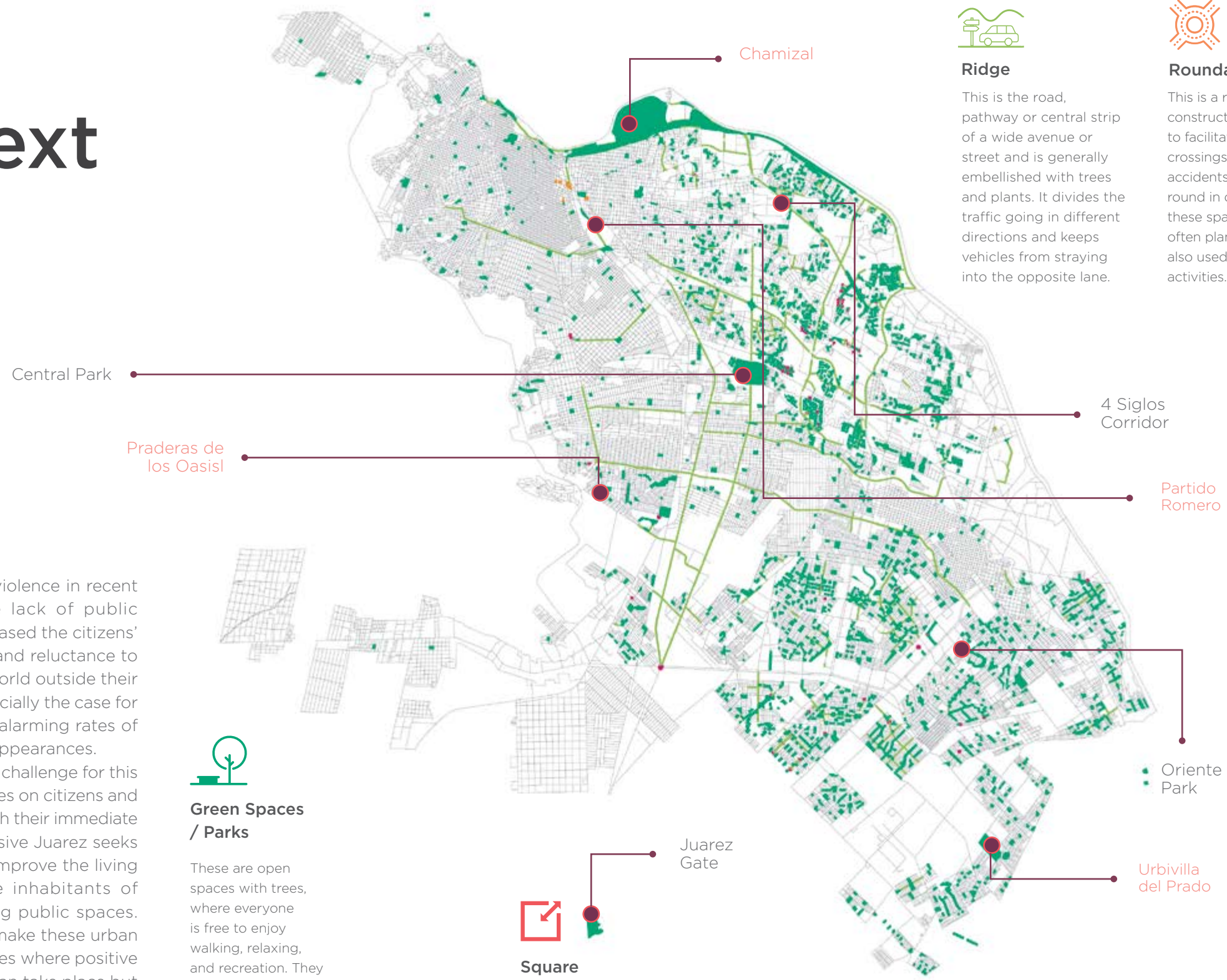
## Ridge

This is the road, pathway or central strip of a wide avenue or street and is generally embellished with trees and plants. It divides the traffic going in different directions and keeps vehicles from straying into the opposite lane.



## Roundabout

This is a road construction designed to facilitate road crossings and to reduce accidents. Typically round in design, these spaces are often planted and are also used for various activities.



## Square

This is an open space where people can gather together and engage in various civic, cultural, recreational, political or social activities.

Map Source: Parks and Green Spaces Map. Research and Planning Municipal Institute (2017)

# Inclusive Juárez Inspiration Map



## 8 Cities that inspired the pillar

### 1.1.1. Santiago de Chile

#### Resilient Parks

In Santiago de Chile, high-impact projects such as the New Urban Parks Construction Plan are increasing the number of green spaces in vulnerable areas.

### 1.1.2. Atlanta

#### Design Contests

Atlanta is promoting design contests for resilient infrastructure with institutions and universities to transform a public space into a national benchmark of resilient design for the year 2018.

### 1.1.3. Dakar

#### E.P. Adoption

Dakar is fostering collaboration with the private sector to promote the adoption of green spaces in the city.

### 1.1.4. Rotterdam

#### Resilient Workshops

With programs such as *We-Society*, Rotterdam is connecting various groups with the city's wider initiatives, as it continues to increase the city's resilience.

### 1.1.5. Pittsburgh

#### Empty Lot

Pittsburgh has implemented under-utilized land recovery strategies in vulnerable areas of the city to benefit the community.

### 1.2.3. Quito

#### Safe Corridor

Quito is developing *Safety of Women in Public Spaces*, a program to reduce the harassment of women in transportation and public spaces.

### 1.2.2. Glasgow

#### Community Leadership

Glasgow is encouraging citizen involvement to build trust and a resilience culture among its citizens and institutions.

### 1.2.1. Atenas

#### Technological Tools

In July 2013, Athens launched the *synAthina* platform in order to establish a permanent and effective link between city services and citizens. Citizens can connect with each other and suggest projects that may improve their quality of life.

# 1.1

## Recover Urban Public and Vacant Spaces to Foster Positive Social Interaction

### 1.1.1 Promote and Drive the Creation of Resilient Parks

#### Resilience Qualities:



**Status:**  
New

**Lead:**  
Planning and Assessment  
General Direction

#### Stakeholders:

- SEDATU
- General Direction of Public Services
- Public Works General Direction
- Social Development General Direction
- Urban Development General Direction
- Research and Planning Municipal Institute

#### Indicators / Expected Outcome

- + Number of recovered parks
- + Population benefited

**Type:** Signature

**Term:** Medium

#### Description:

Juarez has an average of 5.6 square meters of green space per inhabitant, which is below the 9 square meters of green space per inhabitant identified by the World Health Organization as the optimum ratio.

According to the analysis conducted by the Resilience Office during the Preliminary Resilience Assessment, current conditions in the city have created a need to foster positive social interaction through increasing the number of green spaces in which that interaction can take place.

One response to this challenge is a project called Resilient Parks (RP). An RP is a space that brings together green infrastructure, urban agriculture, and native plants, and that provides a place where artistic, cultural, and sports activities can take place. An alliance between the Municipality and SEDATU will finance this project. The Resilience Office, in collaboration with the Planning and Assessment General Direction and Social Development General Direction, will identify the parks in vulnerable areas of the city that will be included in the project. In the first stage, in the period from 2018 to 2019, the General Direction department expects to create five RPs in the city. This action, which is described in the city's Sustainable Urban Development Plan 2016, makes the creation of inclusive spaces a priority. In addition, as this is an action linked to the Colima Resilience Office, the Planning and Assessment General Direction will design a neighborhood intervention guide and explore urban design methodologies, such as tactical urbanism, with the neighbors who will use the resilient parks.

#### CRF:



#### Cross-Cutting Axes:



#### SDO:



# 1.1

### 1.1.2 Organize the Annual Contest *Let's Enhance a Public Space.*

#### Resilience Qualities:



**Status:**  
New

**Lead:**  
Resilience Office  
Planning and Assessment  
General Direction

#### Stakeholders:

- Research and Planning Municipal Institute
- Public Works General Direction
- Parks and Gardens Direction
- Social Development General Direction
- Academic Institutions
- Rebuild by Design
- Ciudad Juarez Autonomous University

#### Indicators / Expected Outcome

- + Number and square meters of recovered spaces

**Type:** Signature

**Term:** Short

#### Description:

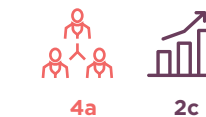
The annual contest "Let's enhance a public space" is an open invitation to experts and people interested in architecture and urban planning to participate in optimizing and improving their areas, in building the city's resilience elements into their proposals as well as planning and design processes.

The Municipal Government, academic institutions and international bodies collaborate in putting on the contest. To foster intersector inclusion, they bring together experts to act as judges and to assess and take part in the process.

In the second half of 2017, the first contest proposal, to conduct an intervention for Juan Gabriel Great Plaza was launched. Rebuild by Design, a 100RC partner, facilitated the participatory design that was adopted to implement this initiative. This first version of the contest had valuable results and involved the Gehl Institute, which monitored the process and acted as judge for the projects. The winning project incorporated resilience elements, including green infrastructure, bike paths, eco-technologies, and a participatory, collaborative design process that was sensitive to the community's culture and history. The first stage of the project will be implemented in the second half of 2018 and will end in early 2019.

An action linked to this contest is the creation of a public fund to implement the winning project using funds primarily from the Municipal Government.

#### CRF:



#### Cross-Cutting Axes:



#### SDO:



# Rebuild by Design and Gehl Institute



After identifying the existing challenges in the public spaces of Juarez and the lack of social cohesion and public life, the city developed alliances with Rebuild by Design and Gehl Institute to create an innovative and collaborative design proposal.

Rebuild by Design focuses on analysing and reinventing urban spaces through a community approach.

Gehl Institute is an international organization whose mission is to transform the way in which cities are shaped by making public life the driver for design, policy, and governance.

*HADVD Arquitectos* team submitted the winning proposal. This local architectural firm rescued conceptual elements of Juan Gabriel, "Juarez Diva" with organic shapes that connect the space to users and the urban context, providing the square with a resilience value-added. The project will be implemented by the city using local funds. This type of proposal process for the transformation and improvement of public spaces, which involves community participation, is expected to be repeated annually.



The joint project, the Urban Design Contest **Let's Enhance Gran Plaza Juan Gabriel**, took place in two phases:

1

A workshop, **Public Life and Community**, was conducted on **September 11 and 12, 2017.**



Aimed at architecture, design, and urban planning students as well as professionals and other interested parties



More than 100 students participated in the process during the workshop.



The goal of the workshop was to provide tools and methodologies for the analysis and renovation of public spaces by Rebuild By Design and the Gehl Institute.

2

The second phase, from October 20, 2017, to January 18, 2018, involved the development and launch of the invitation to the contest.



3 final contestants submitted their proposals to the community in a participatory process on December 15, 2017.



9 teams of participants

Attended by about 50 people, among them community members, decision makers and subject matter experts, who provided their feedback on the final proposals during the collaborative process.

The collaboration was extremely valuable, as it offered an alternative approach to the urban planning process.

This process achieved the goal of getting the community, especially young people, involved in reimagining and improving a public space in Juarez.

Alliances and collaborations with Gehl Institute were developed to train students and professionals in this participatory approach.

Photos: Views of HADVD Arquitectos' winning project for the Urban Design Contest "Let's Enhance the Gran Plaza Juan Gabriel."



# 1.1

## 1.1.3 Adoption of Public Spaces Program Design and Implementation.

### Resilience Qualities



**Status:**  
Existing

**Lead:**  
Economic Development  
General Direction

#### Stakeholders:

- Resilience Office
- Social Development General Direction
- Industrial Associations
- Entrepreneurial Coordinating Council
- Index Juarez
- Civil associations

#### Indicators/Expected Outcome

- + Incentives granted
- + Recovered area in square meters

**Type:**



Supplementary

**Term:**



Medium

#### Description:

The project fosters social responsibility within industries, companies and local businesses through the adoption of common-use spaces such as parks, corridors and pathways. These entities will be able to impact these types of urban spaces through legal instruments such as coordination agreements to create safe green zones that can be used for entertainment. By encouraging solidarity and social responsibility, the Economic Development General Direction's goal is to have a company or a maquiladora restore and maintain a park in a low-income district and/or parks located around their facilities for the benefit of both their workers and the community. The Economic Development General Direction office is leading this action and has developed a list of these spaces, including their specific features and boundaries, in order to facilitate the adoption process. The Economic Development General Direction invites companies to demonstrate their commitment to enhancing their local environment.

This action includes two phases:

1. The Economic Development General Direction creates and updates a catalogue of available spaces that both lack infrastructure and are adjacent to companies. Given their location, these spaces have the potential for a high social impact.
2. The Economic Development General Direction fosters and creates tax incentives for companies joining the program.

By late 2018, the Economic Development General Direction expects that at least 10 parks will have a sponsoring company that will provide the required maintenance, fences, mesh canopy, lighting, playgrounds for children, and bathrooms, among other benefits.

#### CRF



2a

3c

#### Cross-Cutting Axes:



1

2

3

#### SDO:



9

11

# 1.1

## 1.1.4 Art Programs and Cultural Workshops for Children and Young People in Public Spaces

### Resilience Qualities



**Status:**  
Aspirational

**Lead:**  
Resilience Office  
Juarez Municipality  
Culture Institute

#### Stakeholders:

- Education Direction
- Social Development General Direction
- Juarez Youth Municipal Institute
- Academic Institutions
- Civil associations

#### Indicators/Expected Outcome

- + Number of workshops conducted
- + Number of children trained
- + Number of participant schools

**Type:**



Signature

**Term:**



Short

#### Description:

This action to develop cultural, artistic, and educational skills during childhood and youth is a necessary part of building community resilience. The Resilience Office and the Juarez Municipality Culture Institute created this initiative for children and teenagers at the primary school level (6 to 15 years old). The goal is to foster the development of creative as well as intellectual and personal growth through artistic and cultural activities. Indirectly, this initiative will also foster civic values based on common roots and identity. The Resilience Office and the Juarez Municipality Culture Institute will deliver an art workshop at the schools for one month and the workshop will conclude with a feature representation of the learnings.

During 2017 the international organization MasterPeace, using its project "Wall of Connections," collaborated in a pilot project for this initiative. The goal was to train sixth-grade students in recreational activities (in this case, a painting workshop using the airbrush technique). The students were from Cuitlahuac, a grade school in a vulnerable area of the city, and the workshop ended with the collective construction of a mural in which students depicted their view of the city and applied their new skills. The project's success underscored the need to encourage and expand the personal development of the children of Juarez. Projects such as this can better prepare children to become citizens committed to their communities. The Resilience Office and the Juarez Municipality Culture Institute plan to implement this project in at least two schools in every six-month term. The workshops will start in the first half of 2018. The Resilience Office and the Juarez Municipality Culture Institute will pursue alliances with national and international organizations to develop the workshop programs and the skills of participants.

#### CRF



2c

1b

#### Cross-Cutting Axes:



1

2

3

#### SDO:



3

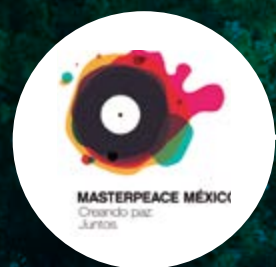
4

16

# Masterpeace México

MasterPeace is an international organization dedicated to inspiring everyone to use their talent and energy to build peace and unity. It is active in 47 countries across Europe, Africa and Latin America. Since 2015, MasterPeace has been present in Mexico and inspiring thousands of young people, mainly in Mexico City. Through projects, campaigns, and spaces for dialogue, MasterPeace has been inspiring young people to act and work for peace, primarily through the arts.

In May 2017, MasterPeace joined the Juarez Resilience Office to develop a project called "Walls of Connections," a global MasterPeace campaign to paint 100 walls in more than 40 countries. The goal is to turn walls that divide communities into symbols of connection.



The end of the project was simple: to get a connection wall. However, to add a resilience element, the Resilience Office organized a spray paint workshop before the mural was created.



About 120 children attended the workshop. It ended with the creation of the mural.

Victor Moreno, a plastic artist from the community, delivered a workshop geared to sixth graders at Cuitlahuac grade school in the Praderas de la Sierra district at the southeast edge of the city.



The mural was a mosaic, a work of art through which the children depicted how they viewed the city, using the skills they learned in the workshop.



On May 26, 2017, the community presented the inspiring mural in which the children expressed their dreams, ideas and aspirations.



This experience led to the development of a community project called “Resilient Workshops,” which develops artistic, educational and cultural skills while reinforcing social cohesion and community involvement in the vulnerable districts of Juarez.

**The collaboration culminated with a cultural event called “PeaceTalk: How art and culture contribute to a resilient city.”**

Event participants included Sofie De Wulf, Director of MasterPeace Mexico and Latin America; Rodolfo Vázquez, Operations Director of Technology Hub, a binational incubator devoted to fostering innovation, entrepreneurship and industry in the region; and local artists Victor Moreno and Jesus Robledo,, who were the workshop instructors.



PeaceTalks are monthly conferences organized by MasterPeace in which artists and social entrepreneurs share their experience in peace building with the audience.



# 1.1

## 1.1.5 Vacant Plots Recovery Program

### Resilience Qualities



**Status:**  
Aspirational

**Type:** ■ ■ ■  
Priority

**Term:** ■ ■ ■  
Long

**Lead:**  
Urban Development  
General Direction

### Description:

Under the Sustainable Urban Development Plan 2016, about 20% of the urban area of Juarez is vacant land or wasteland. This situation is not only one that can lead to violence but it also negatively impacts public security and the urban image of the city. This initiative focuses on increasing owner awareness of the empty lots they have in urban areas and encouraging them to allow temporary use of these lots as public spaces, mainly in areas where there are none. This action fosters the creation of green spaces that improve the quality of life throughout the city. The Urban Development General Direction is creating a mechanism that will provide incentives to wasteland owners to join the green space creation project.

### Stakeholders:

- Resilience Office
- Research and Planning Municipal Institute
- Planning and Assessment General Direction
- Public Works General Direction
- Technical Direction

The Urban Development General Direction is the agency in charge of regulating urban growth in the city and will be the project lead in a collaboration with the Planning and Assessment General Direction, the Public Services General Direction, the Public Works General Direction, and the Municipal Treasury Department to prepare and publish tax and legal incentives. In addition, to establish guidelines for these incentives, the Urban Development General Direction will publish a call to participate in 2018 that will be targeted to various sectors of civil society, city neighborhoods, and research organizations interested in the project:

1. Operation of the initiative.
2. Legal support instruments.

The purpose of this action is to ensure that this urban area becomes a compact, connected, safe, diversified and resilient city in the long term, despite its increasing population density.

### Indicators/Expected Outcome

- + Incentives granted
- + Recovered area in square meters

### CRF



### Cross-Cutting Axes:



### SDO:



# 1.2

## Improve the Safety of Women in the City

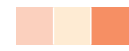
### 1.2.1 Technology Apps for Citizen Safety and Security

#### Resilience Qualities



**Status:**  
Existing

**Type:**



Supplementary

**Term:**



Short

#### Lead:

Municipal Government

#### Stakeholders:

- General IT Direction
- Social Communication General Coordination
- Municipal Institute for Women
- Public security Direction
- Social Media Coordination

#### Description:

The Municipal Government has developed several virtual applications (apps) for mobile devices to increase the safety of women and other citizens in the city. Examples of these apps are “No estoy sola” (I am not alone) and “Seguridad Ciudadana” (Citizen Safety), which enable users to make emergency phone calls for assistance and safety.

This initiative fosters the creation and distribution of apps and the adoption of new virtual trends. In addition, the Municipal Government, jointly with the Municipal Institute for Women and the Public Security Direction, will create local and international social media campaigns to encourage the use of these apps.

This action will reduce the current communications gap between the Municipal Government and the city’s citizens during emergencies and other situations.

The Municipal Government expects to develop new applications that can offer a better response when the city needs to address environmental events, traffic jams, vehicle traffic, and other challenges. The Municipal Government will invite the community and everyone interested in developing these apps to participate, will encourage more development of this type of communications technology, and will capitalize on local talent.

#### Indicators/Expected Outcome

- + Number of apps developed
- + Number of downloads

#### CRF



#### Cross-Cutting Axes:



#### SDO:



# 1.2

### 1.2.2 Community Leadership Program

#### Resilience Qualities



**Status:**  
Aspirational

**Type:**



Supplementary

**Term:**



Medium

#### Lead:

Juarez Strategic Plan  
Resilience Office

#### Stakeholders:

- Social Development General Direction
- Municipal Institute for Women
- Community Centers General Direction
- Civil Associations
- Academic Institutions

#### Description:

With this action, the Resilience Office will create a program to identify and train community leaders as part of the municipality’s planning processes. Identifying leaders who can successfully implement programs and actions within their communities is critically important, especially as these community leaders will have local contacts, understand local issues, and be involved in alliances with various stakeholders within their communities. This action facilitates collaboration between government agencies and the city’s communities, and strengthens the ties between them.

In the past the women of Juarez have shown a greater commitment to programs that focus on improving their quality of life, so this action targets them first.

The Resilience Office will conduct this work jointly with the city’s network of neighborhoods, which have experience in identifying leaders in various districts. The community leadership program will include public assemblies, citizenship training seminars, and other types of support activities. By late 2018, the Resilience Office will have program operation guidelines and a pilot project in place.

#### Indicators/Expected Outcome

- + Number of community leaders
- + Programs implemented

#### CRF



#### Cross-Cutting Axes:



#### SDO:





**Three citizens** are

allowed to take part, and they have 3 minutes to voice their opinions at each session.

These are transparent, as they enable participation and live broadcasting.

**July 7 2017**

Fue la primera reunión previa a la sesión de Cabildo

**53 sessions**

have been conducted under this system

**23 people**

have participated in ordinary and extraordinary sessions

**July 12**

The first open city council session was conducted

**9 people**

have taken part in preliminary sessions



reaching up to **20,000** online viewers.



The broadcasting takes place through the official social media sites of the City of Juarez (YouTube and Facebook)

**Juarez is currently the only Mexican municipality with open city council sessions.**

The objective is to build a better city through a democratic process

For an "open" session, three key factors are required:



Citizens must be present and involved in preliminary and working sessions of the City Council



Citizen initiatives must be allowed to be introduced



Sessions must be broadcast live

# Local capsule: Open City Council

This initiative enables citizens to have a say in ordinary and extraordinary sessions of the City Council, in meetings prior to those sessions, and in meetings with decision makers.

# 1.2

## 1.2.3 “Safe Corridor for Women”

### Resilience Qualities



**Status:**  
Existing

**Type:** Priority

**Term:** Medium

**Lead:**  
Municipal Institute for Women

### Description:

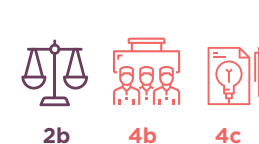
Juarez is known globally for the large number of feminicides committed in the city. To address this, the Municipal Institute for Women developed a project called “Safe Corridor for Women.” This project targets the city’s historical district, which is an area that has been marked by violence and a lack of security. It is also a place where many women have disappeared. Besides the office of the Municipal Institute for Women, the project includes safe areas, panic buttons, and policed safety and pink zones that give priority to women and girls. The motto of the project is “If it is safe for women, it is safe for everyone.” The project signifies a radical change in the city’s response to violence against women and a new vision for achieving safety and security in the city.

The Resilience Office, working jointly with the Municipal Institute for Women, will design various actions, such as a proposal for a sustainable gender-oriented urban design, courses on women’s empowerment, and the establishment of urban orchards to help families economically. To get the project off the ground, the Resilience Office will liaise with other 100RC cities to benefit from their experience and to learn best practices. Through this international collaboration and knowledge sharing, it is hoped that the project will achieve a new level of security for the women of Juarez and transform the world’s negative view of the city.

### Indicators/Expected Outcome

- + Number of successful courses
- + Number of attendees
- + Urban-architectural proposal of the Safe corridor

### CRF



### Cross-Cutting Axes:



### SDO:



# 1.2

## 1.2.4 International Safety and Social Inclusion Network (ISSIN)

### Resilience Qualities



**Status:**  
Aspirational

**Type:** Signature

**Term:** Short

**Lead:**  
Resilience Office

### Description:

The extraordinarily high rates of violence in the city in the last 10 years require transformative actions to address public security and violence. However, this challenge is not exclusive to the city but should be explored and addressed on regional, national, and international levels.

During the Resilience Summit held in 2017, the CRO and representatives of cities with public security challenges met and agreed on the creation of an International Safety and Social Inclusion Network (ISSIN).

Cities included in the network in this first stage are:

- Mexico: Juarez, Colima, and CDMX
- Estados Unidos: Chicago, Nueva Orleans and San Luis.
- Colombia: Medellín and Cali.
- Argentina: Santa Fe.

The purpose of the network is to create a permanent communication channel among cities that have suffered from organized crime-related violence in order to mitigate the effects caused by criminals by sharing successful experiences as an aid for an effective construction of public policy on safety matters. In addition, it will foster meetings with mayors and decision-makers on public security matters. Every ISSIN member will monitor the establishment of social programs to accompany the process to prevent violence at a micro-local level. The Resilience Office first expected outcome from this network is the creation of the First International Exchange Forum on Good Public Security Experiences at Ciudad Juarez during the last half of 2018.

### Indicators/Expected Outcome

- + Cities belonging to ISSIN
- + Scheduled meetings
- + Agreements achieved
- + Agreement creation signature

### CRF



### Cross-Cutting Axes:



### SDO:



Local capsule:

# Safe Corridor for Women



The Municipal Government is dedicated to preventing gender violence and to recovering the historical district of Juarez.

In the last 24 years  
**1,572**  
femicides



in 2017 only, there was a record of  
**28**  
femicides

**60**  
women murdered and 23 women disappeared



Given these figures, the Municipal Institute for Women proposed the creation of a safe corridor for women in the historical district of Juarez.

Strategies like this aim to reduce the number of violent acts against women. Secure spaces include panic buttons, public security, and interactive digital stations. The Municipal Government's goal is to empower women and their families through artistic, cultural, sports and economic activities.

The goal is the creation of an urban environment where women feel safe and are completely free to exercise their rights as citizens



Transforming the existing image of the city on gender issues is a parallel goal.

## App I am not alone

This is an application for mobile telephones that enables users to keep family and friends informed in an emergency or dangerous situation. It is a part of a state-of-the-art effort by the independent Municipal Administration to use technological tools to increase public security and lower the safety risk in Juarez neighborhoods

The app is free.



No Internet service is required. Just network and cell phone credit need to be available



The app is compatible with Android devices and will soon be available for iOS

The app allows the user to pre-set it to contact five people in case of an emergency



Alerts will be automatically sent when the cell phone is shaken. The alerts are in the form of a text message that can be customized to request help. The text message also sends the geo-referred location of the person in peril.

The app was officially launched on July 5, 2017, and the average user rating is 4.0.

The app has had more than 50,000 downloads from Google Play and has 20,000 active accounts. It has been downloaded not only in Mexico, but also in Spain and Chile.

The current release of the app is the 1.2 version, which has enhanced settings and minor bug fixes for sending SMS.

"To me, being resilient means knowing that I am safe at all times no matter where I am"

Verónica Corchado





| RESILIENT JUAREZ

# Prosperous Juarez

A strong, diverse and competitive economy

Photo credit: Luis Pegut

## Goals:



### 2.1.

**Juarez is a Model of Innovation and Competitiveness.**

**Expected Outcome:** Juarez will have a more diversified economy that will increase productivity and offer more stable, well-paid job opportunities, especially for women and young people.



### 2.2.

**Foster New Business Models with a Circular Economy.**

**Expected Outcome:** Companies in Juarez will reduce their waste production in a sustainable manner and will foster consumption of local products and services, creating jobs and economic activity.



### 2.3.

**Enhance the Image of Juarez and Its Tourist Appeal.**

**Expected Outcome:** The city of Juarez will move away from its past as the most violent city in the world, reinventing itself as an appealing destination for its cultural and tourist attractions, and building among its citizens a shared sense of identity and pride in their city.



# Context

## Prosperous Juarez

Juarez is strategically located at the border of Mexico-and the United States. At this border, there is a continuous flow of capital from the export maquiladora industry (IME). This location encourages investments of all kinds and attracts many people seeking better working conditions. Consequently, there is a high demand for services, networks, and infrastructure, which is resulting in an ongoing expansion of urban sprawl. IME has defined the current face of the city. Between 2000 and 2010, the city attracted 75% of the direct foreign investment in Chihuahua State and was the largest contributor to the state's gross domestic product at 43% (Padilla, 2012: 898). Although the IME sector provides 66.5% of the formal jobs in the city, IME's environmental impact degrades the city and pollutes its ecosystem and natural resources irreversibly.

The figures in the urban competitiveness index for 2016 showed a city with a low unemployment rate. Nevertheless, the challenges at the border are not lack of employment, but the low income level of almost 40% of the population, which only earn the minimum wage and lack even a rudimentary level of education. The school desertion rate is 6% in secondary school and 17% in high school. Per data provided by Coneval, by 2015 39.9% of the population had incomes that fell below the poverty line, 14.5% had low incomes and few opportunities due to a lack of skills and inadequate education, and 13.7% suffered due to lack of access to food.

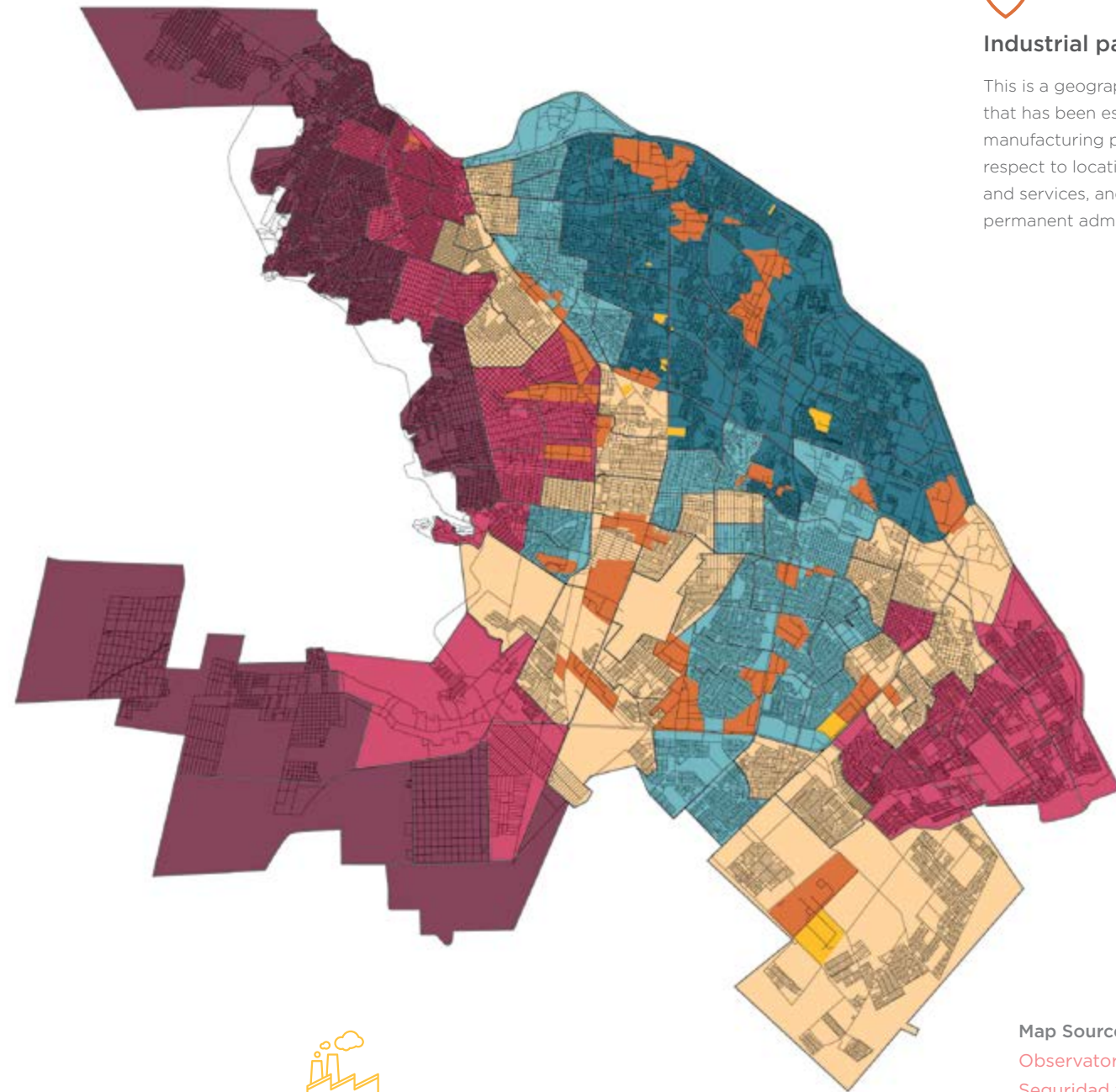
**40%**  
is paid minimum wage.

**6%** is the school desertion rate in secondary school.

**17%** is the school desertion rate in high school.

**39.9%** of the population had incomes below the poverty line, per Coneval data for 2015.

This pillar focuses on the need to diversify the current economic model through innovation, competitiveness, and respect for the environment. Needed are green jobs that are of a better quality and better paid if a more sustainable future is to be achieved. Another aspect of this pillar is the initiative to transform the international image of Juarez by improving conditions in the city so that it becomes known for its culture and history.



### Industrial park \*

This is a geographically limited area that has been especially designed for manufacturing plants (maquiladoras) with respect to location, infrastructure, facilities and services, and that is managed by a permanent administration.

### Socioeconomic level:

- High
- Medium - high
- Medium
- Medium - low
- low



### Maquilas \*

These are manufacturing facilities conducting industrial activities such as production, transformation, assembly, storage and distribution. These companies operate internationally, as they typically import raw materials and export products made from them to other countries.

**Map Source:** Socioeconomic Levels Map. Observatorio Ciudadano de Prevención, Seguridad y Justicia de Chihuahua. (Chihuahua Prevention, Safety and Justice Citizen Observatory) FICOSEC (2015)

\*Source: Sociodemographic and economic analysis update of the Urban Development Program for Ciudad Juarez, Chihuahua. Georeferenced Directory of industrial parks, areas, and industries in Juarez. Research and Planning Municipal Institute 2014

# Prosperous Juarez Inspiration Map

**10 Cities**  
that inspired  
the pillar



## 2.1.1. Semarang

**Indicators System**  
Semarang uses data analysis to foster efficiency in economic interventions, with a flexible and sustainable approach to commercial practices.

## 2.1.2. Medellín

**Innovation Workshops for Children and Young People**  
Medellin fosters the development of educational programs to awaken the enthusiasm and interest of young people in science, technology and innovation.

## 2.1.2.1. Santiago de Chile

**Support Fund**  
*Impact Santiago Co-Creation Program* drives the Innovation and Competitiveness Funds (FIC) to strengthen scientific research.

## 2.1.3. Amman

**Women Empowerment**  
Amman is promoting a plan that brings women into the city's workforce and that supports entrepreneurship and job opportunities.

## 2.2.1. Tsalónica

**Municipal Sustainability and Circular Economy Program**  
Is implementing the principles of a circular economy to improve recycling rates, grow environmental awareness, and create new local economic opportunities.

## 2.2.1.1. Semarang

**Economic Development Forums**  
Semarang designed an Economic Development Forum and Job Promotion project, which has a great potential to reduce unemployment in the city.

## 2.3.3. Semarang

**Ecotourism**  
Semarang develops ecological and educational tourism that makes the most of the region's potential in order to expand the local economy.

## 2.3.2. Santa Fe

**Touristic-Cultural Scenarios**  
Santa Fe fosters projects that promote the natural and cultural riches of the region and develops proposals for economic and workforce decision making as part of its effort to safeguard and protect the city against natural disasters.

## 2.3.1. Atenas

**Brand**  
Athens is a vibrant city that improved its global image and fostered a new sense of belonging.

## 2.2.2. Pittsburg

**+A-D Strategy**  
As an example of a circular economy, the *412 Food Rescue* initiative collects fresh, healthy food and distributes it directly to community organizations serving those in need.

# 2.1

## Make Juarez a Model of Innovation and Competitiveness

### 2.1.1 Economic Competitiveness Indicators System

#### Resilience Qualities



**Status:**  
New

**Lead:**  
Economic Development  
General Direction

- Stakeholders:**
- Mexican Institute for Competitiveness
  - Industrial Associations
  - Academic Institutions
  - Economic Development
  - Civil associations
  - Entrepreneurial Coordinating Council

- Indicators/Expected Outcome**
- + Implementation of the indicators system
  - + Annual publication of the monitoring

**Type:** Priority

**Term:** Medium

**Description:**

This action is based on the need to know where and how the city is positioned in terms of competitiveness and innovation, so that guidelines can be developed for building a sustainable economic model that can serve as an inspiration for other cities along Mexico's northern border. The Economic Development General Direction will use the indicators system to establish and quantify some key elements for achieving high productivity and increasing income levels. These elements should prove useful to decision makers and support economic growth in the city.

The Economic Development General Direction and the Juarez Resilience Office will jointly complete these actions with the advice from the Mexican Institute for Competitiveness (IMCO), which will assist them in preparing a design guide for building the indicators. The project's stages are as follows:

1. IMCO will train personnel to prepare the indicators.
2. The Economic Development General Direction, jointly with all involved stakeholders, will create a database that will include all required information.
3. The Economic Development General Direction will design and build indicators
4. The Economic Development General Direction will implement the indicators and monitor competitiveness and innovation under a sustainable development model.

The Economic Development General Direction will carry out the first and second stage during 2018.

The Economic Development General Direction will conclude the design and implementation during the first half of 2019.

**CRF**



**Cross-Cutting Axes:**



**SDO:**



# 2.1

## 2.1.2 Develop Innovation and Technology Workshops for Children and Young People

### Resilience Qualities



### Status:

New

### Lead:

Education Direction

### Stakeholders:

- Education Direction
- Industrial Associations
- Resilience Office
- Juarez Starts Network
- Economic Development General Direction
- Academic Institutions

### Indicators/Expected Outcome

- + Collaboration agreement
- + Training plan using descriptive charts
- + Number of workshops conducted

Type: Supplemental

Term: Short

### Description:

Children and young people are the most vulnerable groups in Juarez society. The Education Direction must implement actions that will allow them to achieve their potential and ensure a future with more opportunities. Investing in girls and boys is betting on the future of the city.

The Education Direction will use Innovation and Technology Workshops to give children and young people creative tools for developing new skills and will focus on science and technology learning through the creation of original, innovative projects and scientific discovery. This action aims to foster creativity and reposition Juarez as a city of innovation.

The Municipal Education Direction, the Resilience Office, various academic institutions and the T-Hub will jointly implement this action.

### Stages:

1. The Education Direction will create a social service program in which engineering students will serve as workshop instructors. (Second half of 2018).
2. The Education Direction will design workshops that will become part of the curriculum in primary and secondary schools. (First half of 2019).
3. The Education Direction will conduct workshops that will motivate children and young people to continue attending school as well as develop their potential for innovation. (Second half of 2019).

### CRF



### Cross-Cutting Axes:



### SDO:



### 2.1.2.1. Support Fund for Innovative and Creative Talents (FATIC)



### Resilience Qualities



Type: Priority

Term: Medium

### Description:

As part of the strategy for the design and implementation of workshops for children and young people on innovation and technology, the Economic Development General Direction is considering the creation of a fund to support innovative projects locally that foster a diversified economy that will strengthening the city. The Fund will be an annual allocation of resources to improve the city's competitiveness and to finance economic development, research and development, and innovation programs and projects. The Fund will encourage knowledge transfer to the manufacturing sector, increase development opportunities, and improve the quality of life in the city.

The three levels of government, industrial associations, academic institutions and civic organizations must be involved and participate in the Fund's process for defining the rules and mechanisms for accessing Fund resources.

The Economic Development General Direction must make the operation of the Fund transparent and participatory, and its focus must be on the long term.

### Status:

Aspirational

### Lead:

Economic Development  
General Direction

### Stakeholders:

- Resilience Office
- Technical Direction
- Ciudad Juarez Autonomous University
- Academic Institutions
- Civil Associations
- Technology Hub
- Education Direction

### Indicators:

- + Funds for implementation
- + Financed Projects



Photo credit: Norberto Diaz

# Local capsule: Technology Hub

Open to the public in **2015** by a private initiative, **Technology Hub** is a **binational entrepreneurship and innovation** ecosystem located on the site that formerly hosted the General United States Consulate in Juarez.



This project is part of **the region's economic consolidation**

By recovering an abandoned corridor in the city and offering opportunities to entrepreneurs and young innovators, it provides easy access to business creation and development tools.



It is also a place of **convergence** for:

-  The academy
-  The Government
-  Industry
-  Society

Technology Hub hosts more than **60 companies** and **start-ups** specializing in Innovative technologies:



Through various events, including conferences, workshops, pitch sessions, and art expos, experts and investors provide support to various groups and prepare them to complete their projects.

Through

**Fundación  
Axcel, A.C.**

**FAB LAB  
Juárez**

**+ 3,000 young people**

**benefit yearly at no cost** by taking part in training, motivation and high-level coaching activities on innovation and entrepreneurship.

It also offers affordable courses on topics such as:



Robotics



Artificial Intelligence



3D Modeling

**Technology Hub**

Conducts projects with a social impact for community enrichment, thanks to the collaboration of private sector, industry and Government donors.

# 2.1

## 2.1.3 Women Economic and Social Empowerment Workshops in Ciudad Juarez

### Resilience Qualities



**Status:**  
New

**Lead:**  
Economic Development  
General Direction  
Resilience Office

#### Stakeholders:

- Juarez Starts Network
- Community Centres  
General Direction
- Juarez Youth Municipal Institute
- Municipal Institute for Women
- Academic Institutions
- Industrial Associations

#### Indicators/Expected Outcome

- + Training Plan
- + Number of workshops conducted
- + Number of women involved
- + Businesses started

**Type:**



Supplemental

**Term:**



Short

#### Description

Women have been seriously affected by the rates of violence in Juarez. Today, however, women have turned that challenge into a catalyst for change. A range of projects are now encouraging women to get involved in the local economy. According to the National Institute of Entrepreneurs, to date only 19% of the country's entrepreneurs are women. This action is therefore a commitment to support and foster an entrepreneurial culture and to create workshops designed specifically for women. Participants in these workshops will be empowered to contribute to the city's entrepreneurship and economic growth. The action plan includes the following elements:

The action plan includes the following elements:

1. Training in business entrepreneurship
2. Skills training in business promotion and development.
3. Preparation of pre-incubation and incubation proposals.

The Municipal Institute for Women and local community centers will coordinate and conduct the project. At the state level, the Economic Development and Innovation Direction will establish collaboration and funding agreements.

#### CRF



1b



2a

#### Cross-Cutting Axes:



1



2



3

#### SDO:



# Local capsule: Project Ni en more

The project invests in empowering women through social innovation and the development of a sustainable clothing business in Juarez, Mexico.

## “NI EN MORE”

A mix of Spanish, Norwegian and English, it means “**NOT ONE MORE**”, and was inspired by poet and activist **Susana Chavez Castillo**

## In 1998

she started a protest against the murders of women in the city. Unfortunately, in 2011 she became one more victim.



## Mission

To create a resilient work space and a community center for women and girls.



## Vision

To promote a job source for women in vulnerable conditions to give them not charity, but the opportunity to become economically independent.



To learn more about the project or to become one of our sponsors or donors, please visit [www.nienmore.com](http://www.nienmore.com)

Women involved in NI EN MORE live in high-risk areas of Juarez where there is no infrastructure and their safety is always a concern.

Art + Fashion + Activism + Social Change = **NI EN MORE**

# 2.2

## Circular Economy to Foster New Business Models

### 2.2.1 Municipal Sustainability and Circular Economy Program

#### Resilience Qualities



**Status:**  
Existing

**Lead:**  
Resilience Office

#### Stakeholders:

- Economic Development
- Economic Development General Direction
- IMMEX Juarez
- Industrial Associations
- Juarez Starts Network
- Academic Institutions
- Civic Organizations

#### Indicators/Expected Outcome

- + Document completed

**Type:**



Priority

**Term:**



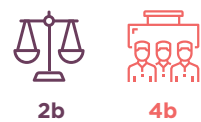
Medium

#### Description:

This action will develop a program that will enable the municipality to transform solid waste into resources for new products and services, to reduce the amount of waste the city generates, to encourage recycling, to expand environmental awareness, and to create new local economic opportunities. The Resilience Office will develop this action with the public stakeholders in charge of sustainable development in the region, representatives of companies and maquiladoras, private companies, and people who want to contribute to the welfare of the city. The program must include the following phases:

1. The Resilience Office will identify waste types by company, timing and amount.
2. The Resilience Office will create a portfolio of interested companies, identify their waste needs, and review ecological standards for companies.
3. The Resilience Office will document the processes conducted by a company, entity, or region with respect to raw materials, waste, emissions and discharges, as well as materials and energy exchanged (Torres-Marín et al., 2009; 68).
4. The Resilience Office will establish operational guidelines and acquisition methods (donations, moderate fees, and exchanges).
5. The Resilience Office will hold forums about new economic development projects that foster diversification

#### CRF



#### Cross-Cutting Axes:



#### SDO:



# 2.2

### 2.2.2 Strategy “+A-D: Más Alimento, Menos Desperdicio” (More Food, Less Waste)

#### Resilience Qualities



**Status:**  
New

**Lead:**  
Ecology Direction  
Resilience Office

#### Stakeholders:

- Municipal Institute for Women
- Economic Development General Direction
- Juarez Youth Municipal Institute
- Industrial Associations
- Academic Institutions
- Civic Organizations
- Chihuahua Entrepreneurs Food Bank

#### Indicators/Expected Outcome

- + Number of agreements executed
- + Number of beneficiaries

**Type:**



Supplemental

**Term:**



Medium

#### Description:

The National Development Plan has established processes in Mexico to benefit diet, health and education. At a local level, only a few civic organizations have agreed to recycle unused food and channel it into community soup kitchens. The challenge is compelling because 14% of the population of Juarez need access to food, according to data published by Coneval in 2015. Per the Cleaning Direction, 1,300 tons of garbage are not separated for organic waste, and therefore it is difficult to set an accurate figure for the elements that might be recycled. Sectors producing more waste are central supply stations, self-service stores, restaurants, hotels and markets.

The +A-D Strategy aims to reduce waste from human consumption of organic leftovers and promotes the best use of food. The program phases are as follows:

1. The Resilience Office will get involvement from various stakeholders from private initiative and government officers on health matters to understand the waste problem and the benefits on food safety.
2. The Resilience Office will pursue the inclusion in the health regulations of a process for donating edible food.
3. The Resilience Office will execute agreements with groups such as CANIRAC, small merchants, restaurant owners, grocery stores, and major convenience store chains to encourage donations of food in good condition to civic organizations, which will in turn channel the food to community soup kitchens or social assistance centers.

For this action, the Resilience Office requires the involvement and collaboration of a range of stakeholders that understand the challenge and can identify the best solutions so that the city can adjust its regulations on health issues.

#### CRF



#### Cross-Cutting Axes:



#### SDO:



# 2.3

## Juarez

### Positive Image and Tourist Appeal

#### 2.3.1 Transform the Public Image of Juarez

##### Resilience Qualities



**Status:**  
New

**Lead:**  
Resilience Office

##### Stakeholders:

- Economic Development General Direction
- Juarez Youth Municipal Institute
- Municipal Institute for Women
- Academic Institutions
- Industrial Associations
- Civil associations

##### Indicators/Expected Outcome

+ Project completed

**Type:**



Signature

**Term:**



Short

##### Description:

In the last decade, Juarez has been stigmatized as dangerous and violent, which has impacted tourism and investments as well as highlighted the negative perception of the city among inhabitants.

The Resilience Office has adopted this action to design a marketing program that will build, communicate and maintain a positive image of the city and help construct a new identify for Juarez while encouraging development opportunities that will appeal to investors, tourists and new residents.

The project will be developed in phases:

1. The Resilience Office will conduct a marketing and perception survey.
2. The Resilience Office will analyze and provide a summary of the survey results.
3. The Resilience Office will develop a plan for improving the city's image.
4. The Resilience Office will conduct a review of best practices
5. The Resilience Office will identify and establish mechanisms that enable agreements with key stakeholders.
6. The Resilience Office will prepare a proposal.

##### CRF



1b



2a

##### Cross-Cutting Axes:



1



2



3

##### SDO:



3



8



11



16



17





# 2.3

## 2.3.2 Promote Tourism and Culture in Juarez

### Resilience Qualities



**Status:**  
New

**Type:** Supplemental

**Term:** Medium

**Lead:**  
IPACULT  
Economic Development

### Description:

This action will design a plan that drives the creation of cultural and tourist destinations in Juarez. It will diversify tourism in this border city that straddles two different cultures by recovering the city's unique historical features and sites with the potential to attract tourists.

The Federal Government has promoted the Agenda for Competitiveness in which Juarez is identified as one of the major cities with the greatest tourist potential. The action aims to serve as a link between actions and strategies that have begun at other levels and in other areas.

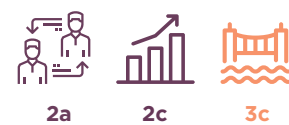
IPACULT and Economic Development will prepare plan for tourist destinations as follows:

1. IPACULT and Economic Development will prepare a historical assets inventory that includes areas with historical value, such as the Cathedral, Chamizal or Zaragoza town.
2. IPACULT and Economic Development will evaluate building conditions and will design programs for the restoration of a building, an asset or an area.
3. IPACULT and Economic Development will restore areas that are part of the city's history
4. IPACULT and Economic Development will promote the city unique sites, such as Mision de San Jose, Senecu, Casa de Adobe, and San Lorenzo..

### Indicators/Expected Outcome

- + Project completed

### CRF



### Cross-Cutting Axes:



### SDO:



# 2.3

## 2.3.3 Promote Ecotourism in Desert Settings

### Resilience Qualities



**Status:**  
New

**Type:** Supplemental

**Term:** Short

**Lead:**  
Technical Direction

### Description:

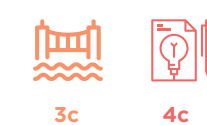
This action will encourage tourism in areas of a natural beauty and great biological wealth, such as Valle Agricola or Medanos de Samalayuca. These protected areas are iconic landscapes of the city and prime examples of the natural wealth of Juarez. This action will result in economic benefits and will also raise local awareness of the importance of preserving natural areas, which are so critical for the well-being of society as a whole. In recognizing the city's natural heritage, the city's inhabitants will also be strengthening their sense of identity as citizens of Juarez. The sustainable, planned development of tourism will help reduce environmental, socio-cultural and ethnic challenges. The Federal Government is promoting ecotourism in a desert landscape at the national level in "Master Framework of Ecotourism, Rural Tourism and Adventure Tourism," which advocates full and responsible use of the country's natural and cultural heritage.

- Technical Direction will prepare a handbook for ecotourism management of Medanos de Samalayuca with ejido owners in accordance with the Tourism in Protected Areas Program.
- Technical Direction will set up a program establishing Valle de Juarez as an agricultural space within a semi-desert zone.

### Indicators/Expected Outcome

- + Ecotourism management plan
- + Valle de Juarez Programme

### CRF



### Cross-Cutting Axes:



### SDO:





| RESILIENT JUAREZ

# Integrated Juarez

A model of resilient planning

Photo credit: Luis Pegut

## Goals:



3.1.

### Civic Rights

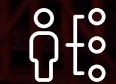
**Expected Outcome:** The city of Juarez will be an example of resilient planning. The city's historical district will be transformed into an urban area where the fundamental rights of all citizens are respected and enforced and will be a hub for tourism, business and culture.



3.2.

### Resilient Planning

**Expected Outcome:** To its vulnerability in the long term, Juarez will renew its strategic planning processes, led by a resilience office that will synthesize the views of local government, the private sector, academia and citizens.



3.3.

### Alternate Connectivity and Mobility Plan

**Expected Outcome:** Juarez will be a leader in the planning and implementation of alternative modes of safe, efficient and affordable transportation and will reduce travel times in the city.

# Context Integrated Juarez

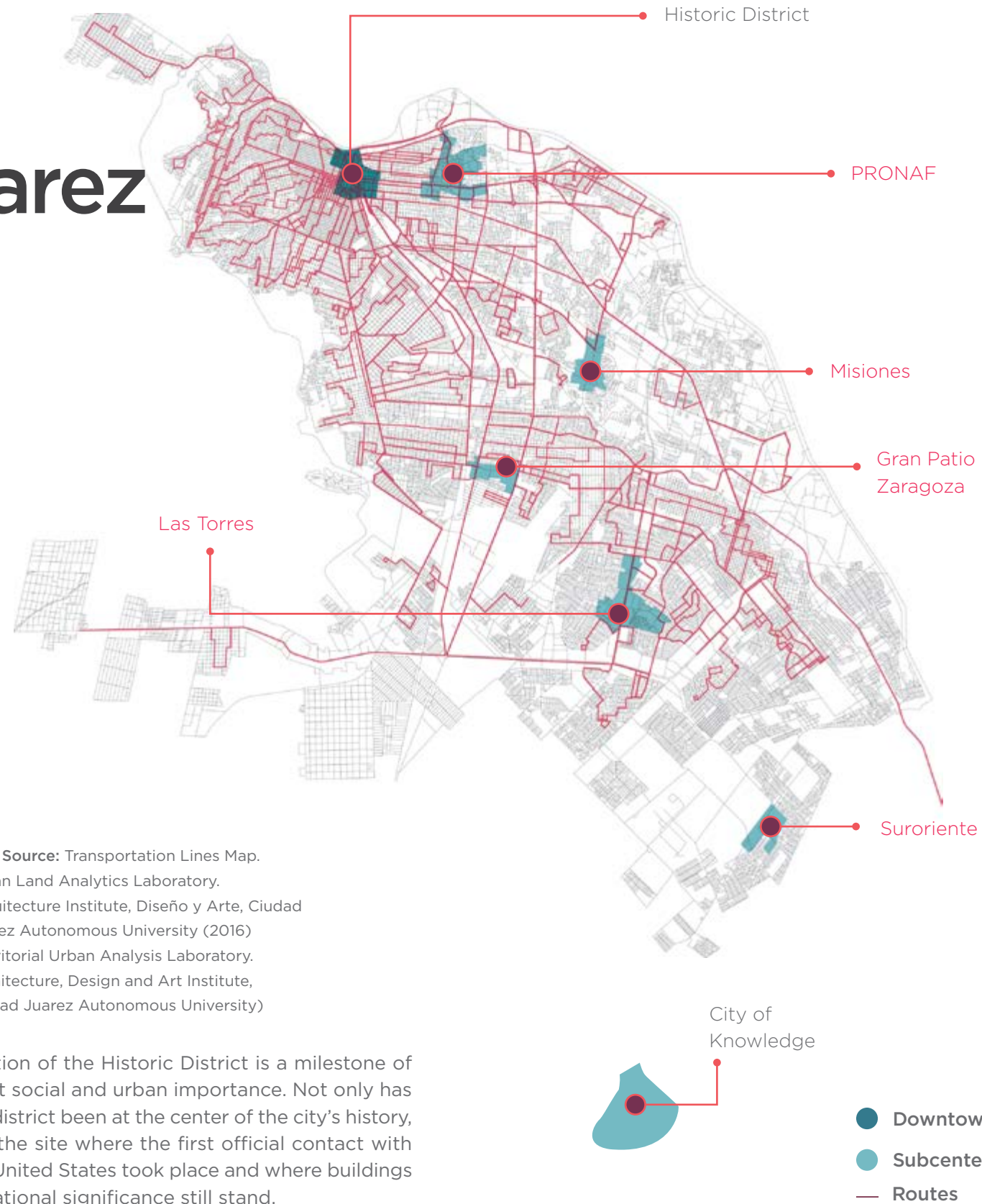
The city of Juarez has undergone exponential urban growth in the last few decades, a situation that has resulted in poor management of services and resources, which in turn has increased the city's challenges. Juarez should have strategies in place to better connect it with sections of the city that have been cut off from city services and resources. The city should adopt new, innovative urban management strategies and foster alternative and sustainable mobility systems, especially, for the existing industrial parks and the area along its northern border, which have the highest employment density.

At present there is a disconnection between the regulations on growth and development in the city and the urban reality. Despite the many regulations on urban development put in place since the late 1970s, the city still faces mobility challenges, lacks a vision for sustainable growth, and has no laws or regulations to guide urban development decisions and/or the execution of urban interventions.

The city lacks a multi-modal transportation system, which results in a poor transportation network that does not provide proper service to all users. All modes of public transportation in the city share a common destination, downtown. By 2014, 13 million trips were made by car and there were 14 million kilometers traveled.<sup>11</sup> Juarez is now designing a Comprehensive Mobility Plan that will bring together the BRT<sup>12</sup> and bicycle lanes. Given the complexity of the challenge, the plan is moving very slowly. Meanwhile the res-

**Map Source:** Transportation Lines Map. Urban Land Analytics Laboratory. Architecture Institute, Diseño y Arte, Ciudad Juarez Autonomous University (2016) (Territorial Urban Analysis Laboratory. Architecture, Design and Art Institute, Ciudad Juarez Autonomous University)

oration of the Historic District is a milestone of great social and urban importance. Not only has the district been at the center of the city's history, it is the site where the first official contact with the United States took place and where buildings of national significance still stand.



Despite the deterioration the Historic District has suffered and the negative image it has had, the area is still economically active and socially vibrant.

The Research and Planning Municipal Institute (IMIP) took the first step by preparing the Master Plan of Ciudad Juarez Historic District. The plan, which is based on a detailed analysis of the area, proposes strategic actions per area of activity. In addition, the Planning Direction created the Historic District Board of Patrons to advise in this makeover of the city's image and to propose projects and raise funds to execute them. The board will provide new funding options and guarantee transparency on project approval and resource allocation. In short, this example of innovative urban planning is a path to guaranteeing full access to the city by all its inhabitants. Public security, forums for the peaceful exchange of ideas, collective participation in urban development and planning, and exercises in solidarity are also required. The common interest of the individual and the right to property are embedded in the individual right to the city, which implies the right to a fair, environmentally sustainable use of the city's resources and services (Sanchez-Almanza, 2012).

The actions under this pillar address the right to the city, the integration of resilient planning, the drive toward sustainable mobility, and the rehabilitation of the Historic District.

11. Bicycle Mobility Plan and integration into the Public Transportation System, City of Ciudad Juarez, February 2015.

12. Bus Rapid Transit (BRT).

# Integrated Juarez Inspiration Map

## 6 Cities that inspired the pillars



### 3.1.1. CDMX

#### Civic rights

At the Mexican capital, the Right to the City Charter was created, defining the obligations, responsibilities and rights of citizens upon which public policies and city management should be based

### 3.1.2. Santa Fe

#### Historic District

Santa Fe is implementing a master plan to save a unique historic site and to transform the sprawling area into an integrated space with an urban vision for the city.

### 3.2.1. New Orleans

#### Resilience Institutionalization

New Orleans works with the Resilience Center to support the capacity and functions of the Resilience and Sustainability Office and the breadth and strength of its activities.

### 3.2.2. Da Nang

#### Resilience Culture and Communication

The Communication Program spreads resilience culture and raises awareness and educates the community on resilience.

### 3.2.3. CDMX

#### Resilience at the Border

Mexico City is fostering the National Resilience Agenda with Mexican cities that are part of the 100RC network. In turn, Juarez seeks to spearhead the resilience movement in the border cities of northern Mexico.

### 3.3.4. Amman

#### Handbook for Road Safety

The *Street Handbook* is a guide for city planners on the design and construction of secure, high-performance streets to provide universal and inclusive access.

### 3.3.2. Santiago de Chile

#### Cycle Lanes and Corridors

*Santiago using Pedals Plan* boosts the use of bicycles as a sustainable and clean means of transportation.

### 3.3.1. Amman

#### DOT Plan

Amman is developing one of the most robust pillars regarding mobility: The Comprehensive Resilient Mobility System.

# 3.1

## Right to the City

### 3.1.1. Prepare and Publish the Juarez Charter for the Right to the City

Resilience Qualities



**Status:**  
Aspirational

**Lead:**  
Resilience Office

**Stakeholders:**

- Councilors
- Juarez Strategic Plan
- Civil associations
- Academic Institutions
- HIC-Latin America

**Type:** Signature

**Term:** Medium

**Description:**

The first Charter of the Right to the City, which was born in 2005 at the UN-Habitat Cities Summit, claimed the right to the city as a human right. The document frames the top challenges in physical, economic, social, environmental, political and cultural terms.

More than 99% of the population of Juarez lives within the city's urban sprawl and about 40% of cannot afford a decent home. This situation requires development a document that enshrines the principles and strategic foundation of the right to the city: full exercise of human rights for all and democratic participation in the management of the city; the city's social responsibility for its urban spaces; equality, non-discrimination, and special protection for vulnerable groups and individuals; commitment of the private sector to social equality, and solidary economy enhancement. The Resilience Office must consider the following in creating the charter:

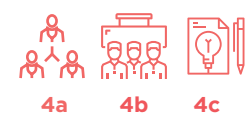
1. Creation of an invitation to multi- and inter-sector subject matter experts
2. Creation of forums that foster the exchange of ideas and experience and to identify needs, such as the rights to housing, to access to basic services, to mobility, to transportation and to energy
3. Establishment of a common agenda and strategic issues
4. Developing a Charter of the Right to the City that addresses local conditions.
5. Signing of the document by local authorities, so that the Charter is accepted as the governing principle in the building of an equitable and inclusive urban environment.

The Resilience Office plans to publish and introduce the Charter by 2020.

**Indicators/Expected Outcome**

- + Preparation of the Charter

**CRF**



**Cross-Cutting Axes:**



**SDO:**



Strategic action:

# CDMX Charter for the Right to the City

*"The development of Mexico City Charter for Civic Rights reflects a change in the city's democratic process by unifying enforcement and exercise of human rights through a political-social pact between civil society, autonomous bodies, the government, educational entities, among others"*

*Emilio Álvarez de Icaza.*

The Charter is an instrument that defines the different obligations and the public policy and management principles of the urban movement. The official signing of the Charter took place on 13 July 2010 and was executed by local authorities from the executive, legislative, and judicial levels of government as well as by representatives of civil society and independent public organizations.

**The charter was the result of citizens' aspirations for a democratic city in which human rights are duly enforced, and it was inspired by the international debate on the Right to the City.**

The document proposes a series of public policy measures as well as commitments by various stakeholders, and it details not only what the majority of the population wants, but how their desires are to be fulfilled and what role each sector in society must play.

**The Charter is founded on 6 strategic elements:**



# 3.1

## 3.1.2. Revitalize the Historic District as a Place of Social Exchange, Recreation and Identity

### Resilience Qualities



**Status:**  
New

**Lead:**  
Planning and Assessment  
General Direction

#### Stakeholders:

- Urban Development General Direction
- UNESCO-Mx
- Resilience Office
- Municipal Institute for Women
- Research and Planning Municipal Institute
- Cultural Institute
- Economic Development General Direction
- Public security Direction
- Technical Direction

#### Indicators/Expected Outcome

- + Declaration
- + Book published
- + Roads included in UNESCO Tentative List

**Type:** Priority

**Term:** Medium

#### Description:

1. The Resilience Office will consider making the designation of a "Historic District" a municipal declaration (Perimeter A). It must consider the expert knowledge regarding the unique features of city areas to set a discussion on the matter; technical reviews institutional level and forums/workshops to discuss expectations and potential outcomes.
2. The review of the Historic District Master Plan will allow consideration of the establishment of a buffer area (perimeter B), referred to in the 1950s as the "consolidated city."
3. The Planning and Assessment General Direction will conduct a forum (*Historical evolution of border cities: What do we want to preserve and why?*) with the participation of national agencies and border communities (INAH, UACJ, COLEF, UNM Albuquerque, NMSU Las Cruces). This forum will review examples of historic preservation in border cities and will analyze the policies they are implementing. The first result of the forum will be a publication on preservation in border cities.
4. The Resilience Office will *Promote the actions of urban conservation of the old roads within Juarez urban footprint, to propose to the Conalmex-UNESCO an extension of the declaration of the World Heritage of the Camino Real de Tierra Adentro (CRTA). This requires hiring a technical study (dossier) and holding meetings with representatives of the State Government. It is suggested that the city collaborates with the private consulting office that formed the first CRTA file.*
5. The Resilience Office will extend an invitation to a workshop on transforming the urban image of strategic areas inside the consolidated city (possible topics: use of plots, how to balance utilities with housing, height of buildings and colors of facades, pedestrian/automobile mobility). The contract could be executed by private consultants and the Architectural Heritage Laboratory of UACJ.

#### CRF



#### Cross-Cutting Axes:



#### SOD:



**Festival held**

**October 21, 2017**

**More than 40 madonnari artists**  
(chalk painters) participated.

The festival showcased local talent and brought the Historic District back to life.

*"Art and culture are the most effective means to create, transform and develop resilient societies; they inspire dreams and create new forms that bring us together, no matter our age, sex or income level."*

**Jessica Fong**

Artists displayed their talents on the streets of the Historic District in the city's first festival of this kind.

Families and tourists enjoyed the art festival's buzz and the interaction with artists.

# Local capsule: GisArte: Painting culture together

The Municipal Government and the Municipal Cultural Institute and Trade Association organized this event for young artists.

# 3.1

## 3.1.3. Historic District Regulation

### Resilience Qualities



**Status:**  
New

**Type:** Priority

**Term:** Short

**Lead:**  
Planning and Assessment  
General Direction

### Description:

The city's Historic District is a unique, socially important urban space on Mexico's northern border. Ciudad Juarez is making efforts to support projects in the Historic District, some of which have not been implemented due to insufficient funding. A proposed regulation for the Historic District will provide new funding options while ensuring clarity and transparency in the project approval and resource allocation processes.

The Planning and Assessment General Direction will take the following steps:

1. Develop the content of the regulation.
2. Conduct meetings and workshops with key stakeholders and UNESCO-MX.
3. Prepare a draft of the regulation.
4. Oversee implementation of the regulation.

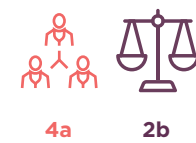
### Stakeholders:

- Urban Development General Direction
- UNESCO-MX
- Resilience Office
- Municipal Institute for Women
- Research and Planning Municipal Institute
- Cultural Institute
- Economic Development General Direction
- Public Security Direction
- Technical Direction

### Indicators / Expected Outcome

- + Regulation
- + Number of stakeholders involve

### CRF



### Cross-Cutting Axes:



### SOD:



# 3.2

## Resilient Planning

### 3.2.1. Institutionalize the Juarez Resilience Office

### Resilience Qualities



**Status:**  
New

**Type:** Signature

**Term:** Short

**Lead:**  
Mayor  
Resilience Office

### Description:

Since Juarez was selected to join the 100RC Network, the Mayor and the Resilience Office have been collaborating with officials from the three levels of government and with members of local and international organizations and academic institutions to develop actions and implement projects with a resilience lens in Juarez.

To implement any of the actions of the Resilience Strategy, the Mayor must include the Resilience Office in the municipality's organizational structure. The Resilience Office will be in charge of designing the projects articulated in this document and will coordinate with all stakeholders. It will serve as the tactical guidance agency for developing resilience within the municipality, will align the city's priorities with specific initiatives, and will determine the timing for implementation of short-, medium-, and long-term actions. The Resilience Office will create a portfolio of resilience projects to help organize initiatives originating in the city. This will help drive the creation of projects that take resilience into account and have common benefits. To accomplish all this, the Resilience Office will pursue the external funding and resources that may be needed to implement these resilience projects.

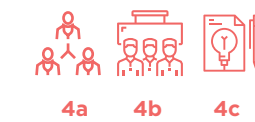
### Stakeholders:

- Technical Direction
- Planning and Assessment General Direction
- Chief Clerk's Office
- Councilors
- 100RC

### Indicators / Expected Outcome

- + Edicto de creación de la oficina
- + Número de proyectos incluidos en la Cartera

### CRF



### Cross-Cutting Axes:



### SOD:



# 3.2

## 3.2.2. Resilience Culture and Communications Strategy

### Resilience Qualities



**Status:**  
Aspirational

**Type:** Supplemental

**Term:** Short

**Lead:**  
Communication  
General Coordination  
Resilience Office

### Description:

To build its resilience, a city must create awareness of the importance of this new paradigm in all its inhabitants. That is why it is essential that the Social Communication General Direction and the Resilience Office design a communications strategy that promotes resilience across the city. To build a more resilient society, actions must be based on the local context, and citizens must be fully informed so that they can make decisions independently regarding their physical, economic, social and environmental well-being.

The Social Communication General Direction and the Resilience Office will share responsibility for the communications strategy and its implementation, as follows:

- Both will develop education campaigns at various levels, including the Public Education Ministry.
- The Resilience Office will drive awareness in the media, especially through social media.
- Both will train decision makers and explore local marketing strategies for informing people about the Resilience Office and how projects and actions developed through a resilience lens can improve their lives.

### Stakeholders:

- Private Sector Initiative
- Civil Associations
- Academic Institutions
- General Education Direction
- Social Development General Direction
- Cultural Institute of Juarez Municipality
- Media

### Indicators / Expected Outcome

- + Number of campaigns
- + Estimated number of people reached

### CRF



### Cross-Cutting Axes:



### SOD:



# 3.2

## 3.2.3. Binational Agenda on Urban Resilience at the Northern Border

### Resilience Qualities



**Status:**  
Aspirational

**Type:** Signature

**Term:** Short

**Lead:**  
Resilience Office

### Description:

Mexican border cities share a common history of divided territories, proximity to U.S. cities, manufacturing-based economies, social and urban backwardness, as well as violence. As Juarez is now part of the 100RC Network, the Resilience Office will be able to help other border cities prepare and adapt to acute shocks and chronic stresses by sharing the knowledge of other 100RC Network members and strategic partners as well as the experience that Juarez gains. It will be able to help Tijuana, Mexicali, Nogales, Piedras Negras, Reynosa, Matamoros and Nuevo Laredo with their own resilient urban planning and development. At present, the Ministry of Rural, Territorial and City Development has recognized To foster a binational agenda among the cities on the northern border, the Resilience Office will:

- Identify a group of border cities interested in adopting the resilience methodology and host discussions, seminars, courses, and workshops.
- Establish a collaboration agreement and a common agenda.
- Make a proposal to host the Resilient Cities Border Forum at Ciudad Juarez at the Asociación de Alcaldes de la Frontera Norte (AAFN) to gather the mayors together to share information and their experiences in building resilience.

### Stakeholders:

- City Hall
- Mayors of Border Municipalities.
- Academic Institutions
- Civil Associations
- SEDATU
- Colegio de la Frontera Norte
- BDAN

### Indicators / Expected Outcome

- + Number of cities with strategic alliances

### CRF



### Cross-Cutting Axes:



### SOD:





# 3.3

## Alternate Connectivity and Mobility Plan

### 3.3.1. Transportation-Oriented Development Plan

Resilience Qualities



Status: Aspirational

Lead: Research and Planning Municipal Institute

- Stakeholders:**
- Planning and Assessment General Direction
  - Urban Development General Direction
  - Public Works General Direction
  - Resilience Office
  - Academic Institutions

**Indicators / Expected Outcome**

- + Presentation of document
- + Publication in Federal Official Gazette
- + Progress reported at each stage

Type: Priority Term: Long

**Description:**

Between 2000 and 2015, urban sprawl in Juarez grew by 40%, while the population grew by barely 1%. With a density of 42 inhabitants per hectare, the unplanned development causes those who live and work in Juarez to invest more time and resources on traveling because public transportation and the road infrastructure are inadequate (Bicycle Mobility Plan, 2015). Consequently, the Research and Planning Municipal Institute has revised its development model, replacing it with a transportation-oriented development (TOD) model that will improve mobility and promote efficient, inclusive, equitable and sustainable modes of transportation (ITD, 2013). To implement this model, the Research and Planning Municipal Institute will:

1. Modify urban planning projects to make mobility one of the main principles.
2. Establish a requirement that urban development plans be updated with performance and monitoring metrics; appoint individuals to provide oversight and set penalties for non-compliance.
3. Modify housing policies to include location criteria, which must be reflected in funding and resource allocation.
4. The Research and Planning Municipal Institute included some of the TOD model's guidelines in the Sustainable Urban Development Plan for Ciudad Juarez in 2016, but they barely addressed road infrastructure. This action will establish strategic guidelines for the inclusion of DOT principles in urban development and mobility proposals submitted to the city.



# 3.3

### 3.3.2. Bicycle Lanes and Pedestrian Corridors Project

Resilience Qualities



Status: New

Lead: Urban Development General Direction

- Stakeholders:**
- Planning and Assessment General Direction
  - Urban Development General Direction
  - Public Works General Direction
  - Resilience Office
  - Academic Institutions
  - Research and Planning Municipal Institute
  - Civil Associations
  - Technical Direction

**Indicators / Expected Outcome**

- + Number of intervened kilometres

Type: Signature Term: Medium

**Descripción:**

To improve competitiveness and quality of life for the people of Juarez, the Urban Development General Direction must modify day-to-day travel habits to encourage the use of bicycles. Given the lack of infrastructure and dependence on private cars, the number of those traveling by bicycle is less than 1% of the population, while 28% of the population get where they need to go by walking.

The city's downtown bicycle project is currently being executed and a proposal for an intercampus route is being considered. The implementation of both projects is the first stage (institutional and legislative framework) of the city's Transportation-Oriented Development Plan. This plan will promote the construction of bicycle lanes and guarantee the safety of users at various sites throughout the city.

With this action, the Urban Development General Direction is focusing on urban spaces that provide access to cyclists and pedestrians and that are connected to the mass transit network and important commuter destinations, such as workplaces, educational centers and commercial businesses. The project will improve the quality of life in the city by reducing stress and encouraging healthy exercise. It will also reduce travel costs and pollution from vehicle emissions, which will have a positive impact on the environment.

To implement this action, the Urban Development General Direction will:

1. Work with IMPI and suggest technical guidelines to urban designers preparing various proposals.
2. Foster and engage in participatory design.
3. Implement the various proposals.



# Sustainable mobility:

## “Rides with a Purpose” and the “Recreational Bicycle Lane”

Urban mobility is a challenge affecting most modern cities, a fact that has encouraged the search for new transportation models and systems to meet citizens’ needs. Sustainable mobility is an increasingly popular concept because of its economic, physical and environmental benefits.

Proposals such as “Rides with a Purpose” and the “Recreational Bicycle Lane” are designed to make a huge impact in the community through the use of bicycles as an alternative to cars and to encourage the use of bicycles in a safe manner.

“Rides with a Purpose” is an initiative of the Resilience Office that promotes the use of bicycles within the city, not just for recreation but for the health and well-being of everyone.

During 2017, two rides took place.



To transform mobility in Juarez, plans, programs and public policies that encourage the use of bicycles as an alternate means of transportation must be supported.

Its purpose was to spread the word about the heat waves across the region



The first one, “Night Ride Against Heat,” was on May 19.



Its purpose was to collect donations of food and groceries for the NGO Extiende tus Alas.



The second one, “Rides with a Purpose: Comedor Extiende tus Alas,” was on July 28



The Recreational Bicycle Lane is an initiative of the Municipal Government proposing to close a street in the Historic District every Sunday for recreational use only.

The project was conducted from November 5 to December 3 at a stretch of Av. 16 de Septiembre between 8:00 am and 1:00 pm.

# 3.3

## 3.3.3. Interactive Map of Alternate Travel Routes

### Resilience Qualities



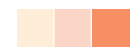
**Status:**  
New

**Lead:**  
Resilience Office

#### Stakeholders:

- Planning and Assessment General Direction
- Urban Development General Direction
- Public Works General Direction
- Resilience Office
- Academic institutions
- Research and Planning Municipal Institute
- 10ORC
- Civil Associations
- Technical Direction
- Public Security Direction

**Type:**



Supplemental

**Term:**



Short

#### Description:

Using new communication technologies, the Resilience Office will design an interactive map that brings together the experience and knowledge of bicycle riders, pedestrians and other public space users in real time in a mobile app format. The goal is to make the urban landscape easier to navigate by identifying paths, old roads, rural roads and landmarks that may improve safety and connectivity.

In the first stage of this action, the Resilience Office will host focus groups and workshops with civic organizations experienced in mobility issues to set guidelines for creating the app. The Resilience Office will then use the results of the focus groups and workshops to develop the Bicycle Plan and identify the safest, most appropriate routes for those traveling by bicycle. In the second stage, the Resilience Office, will work with IT and systems experts to build a map in a Web format or as an application by the first quarter of 2020.

To implement the two stages of this action, the Resilience Office will:

1. Conduct focus groups and workshops.
2. Design the map of travel routes jointly with citizens and civic organizations.
3. Build an interactive map of the city.

The Resilience Office estimates to have the map developed by the first quarter of 2020.

#### Indicators / Expected Outcome

- + Interactive map developed
- + Number of campaigns developed
- + Number of downloads

#### CRF



#### Cross-Cutting Axes:



#### SOD:



# 3.3

## 3.3.4. Road Safety Handbook

### Resilience Qualities



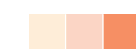
**Status:**  
Existing

**Lead:**  
Research and Planning Municipal Institute

#### Stakeholders:

- Planning and Assessment General Direction
- Urban Development General Direction
- Public Works General Direction
- Resilience Office
- Academic Institutions
- Civil Associations
- Public Security Direction

**Type:**



Supplemental

**Term:**



Short

#### Description:

The handbook will focus on three main stakeholders: bicyclists, pedestrians and motor vehicles drivers. The initiative seeks to improve the travel conditions for pedestrians and bicyclists, and for their trips, through an educational campaign on the best roads for each to use. In addition, it will promote environments suitable for walking and create guidelines for secure, affordable and universal design. This action is inspired by the UN's Global Plan for the Decade of Action for Road Safety 2011-2020, which covers the following pillars:

1. Building road safety management capacity.
2. Improving the safety of roads and broader transportation networks.
3. Developing safer vehicles.
4. Enhancing the behavior of road users.
5. Improving post-crash response..

The Research and Planning Municipal Institute aims to execute a series of actions in two stages to ensure greater safety for all types of travel and develop a project that will be eligible for international funding to implement the stages. It will:

1. In the first stage (short term), prepare guidelines and handbooks to foster a culture of road safety among users.
2. In the second stage (long term), work to ensure that municipal and state agencies adopt the pillars of the Global Plan, and, as a result, a project will be developed to enable access to international funding in order to establish each of the suggested stages.

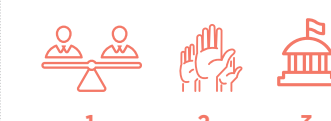
#### Indicators / Expected Outcome

- + Publication of Handbook
- + Communication and dissemination campaign

#### CRF



#### Cross-Cutting Axes:



#### SOD:



# Local capsule: Juaritos literario: los circuitos de la memoria

The literary map of Ciudad Juarez is a collaborative project that tracks literary references in which our city is the star or has an important role in the poem, novel or play.

The fictional roles of some spaces in the urban landscape were behind the creation of tour maps -maps of literary trails passing through various sites that have inspired local authors. Visitors to Juarez can take the maps and design their own walking tours of the city.

We went out to the streets after touring the pages of a long-written tradition about the old Paso del Norte

Day-to-day life in Juarez is depicted in literature as a series of adventures, mysteries, stresses and emotions, which compels us to think about ourselves and how we live in a metropolis that is full of energy and disruptions



Some literary works focus on the violence in the city at the turn of century, and promoting these works would not change the city's image, but highlight the sensational aspects of that period

However, we believe it would be a mistake to avoid remembering the difficulties the city once faced. Now we can view these events from a certain distance, as we face new challenges and work to create a future that reflects the memories and lessons of our past history. The dynamics of border cities is such that they have cycles and alternate between times of stability and times of disruption. We cannot deny what happened in the past, and turning a blind eye to it would be even worse.



*"From my field of study, literature, I think that reading works that evoke the city are the best incentive for remembering the past, making sense of grief and getting prepared to create a future in which our dreams can come true."*

**Carlos Urani Montiel**



The Juaritos Literario collective promotes and distributes the literary heritage of Ciudad Juarez (<https://juaritosliterario.com/>), which is a key foundation for building a regional identity and a sense of rootedness. The connections that exist between writers, readers and critics start when a book is opened. The collectives' literary walks bring people together in the avenues, plazas and alleys of the city. As they walk along, each walker-reader is able to rekindle images and memories from reading the book and can also enjoy sharing them with others.



# Adapted Juarez

A Society that Protects the Environment  
and Is Prepared to Face Disasters

Photo credit: Luis Pegut

## Goals:



4.1.

**Making Juarez a Model City of Climate Adaptation.**

**Expected Outcome:** Ciudad Juarez will adopt an environmental plan reflecting its location and resource issues and informed by citizen participation. This plan will become the basis of a climate action plan with specific mitigation and adaptation goals as well as a commitment to reducing carbon emissions..



4.2.

**Environmental Education for Citizens and the Private Sector.**

**Expected Outcome:** Ciudad Juarez will include comprehensive education on environmental issues in school curricula and entrepreneurial action proposals, with the goal of becoming a city that is climate neutral.



4.3.

**Comprehensive Water Management.**

**Expected Outcome:** Ciudad Juarez will see a considerable reduction in the floods that disrupt traffic flow thanks to the new investments in green infrastructure, which captures rainfall water and thus reduces water consumption and fosters water sustainability.

# Context Adapted Juarez

As a desert ecosystem (dry and arid), the northern region of Mexico endures extreme weather with documented maximum temperatures of up to 45°C and minimum temperatures of -15°C. The heat waves in the region are now more frequent and last longer every year, increasing the number of deaths per year and negatively impacting energy and natural resources.

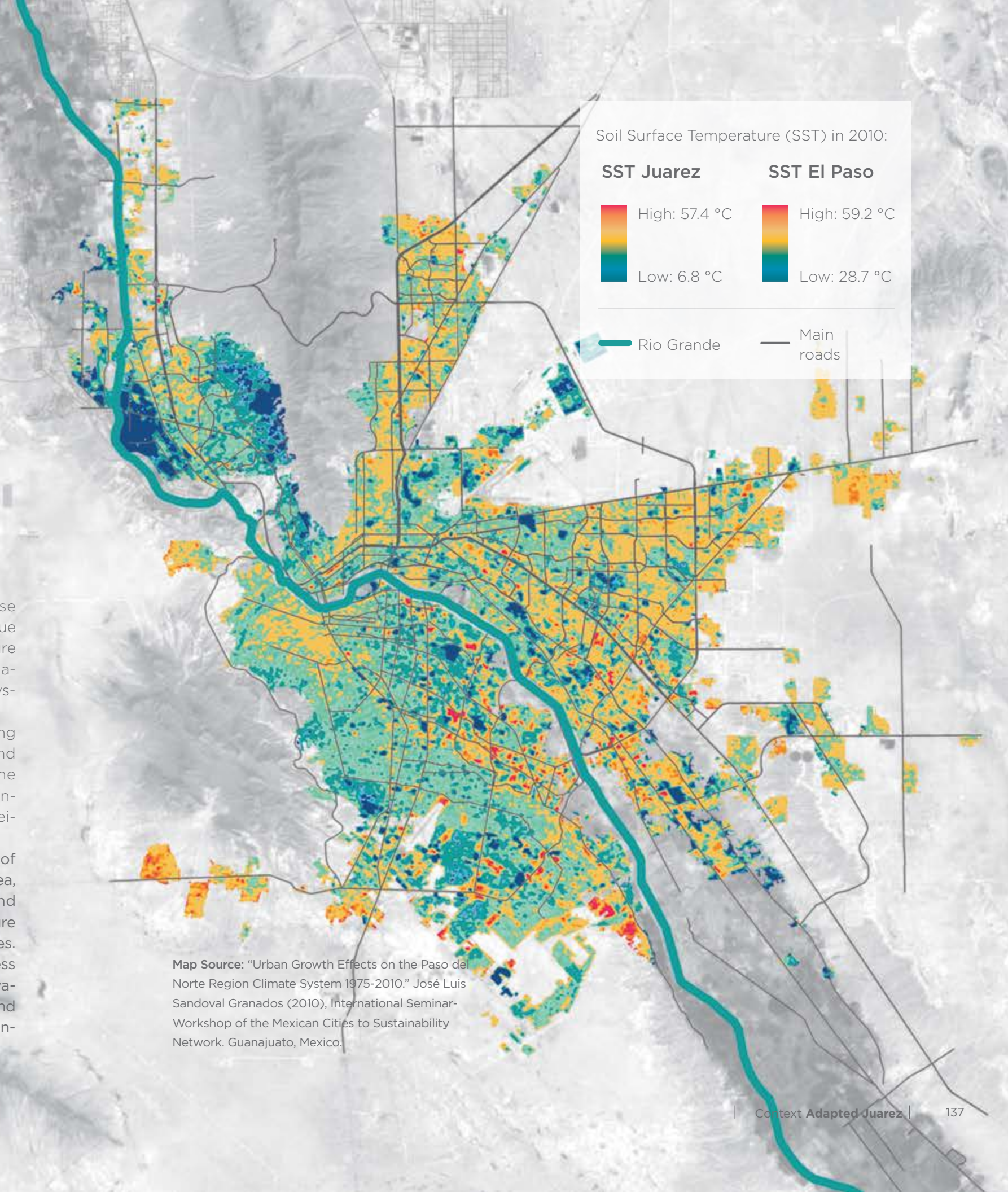
The availability of water from the Rio Grande, which is primarily controlled by the Federal Government, is a critical challenge in the region, as the water is almost entirely restricted to irrigation and agricultural use.

The other sources of potable water for Juarez are the Bolson del Hueco and Bolson de la Mesilla aquifers. These underground water bodies provide drinking water for both cities, and regulation and extraction are controlled at the federal level. The challenge lies in the fact that the optimum rate of consumption has already reached an alarming level and in the coming years, the supply of water will be reduced.

The region's sporadic rainstorms, which cause temporary accumulations of rainfall in Juarez due to its topographic conditions and infrastructure configuration, are another challenge. They damage the city's infrastructure, disrupt the transit system, and cause public health problems.

Lastly, pollution levels in the city are increasing due to emissions from cars, trucks, buses and maquiladoras. Border bridges are one of the main sources of pollution, given the large concentration of cars waiting to cross into the neighboring country.

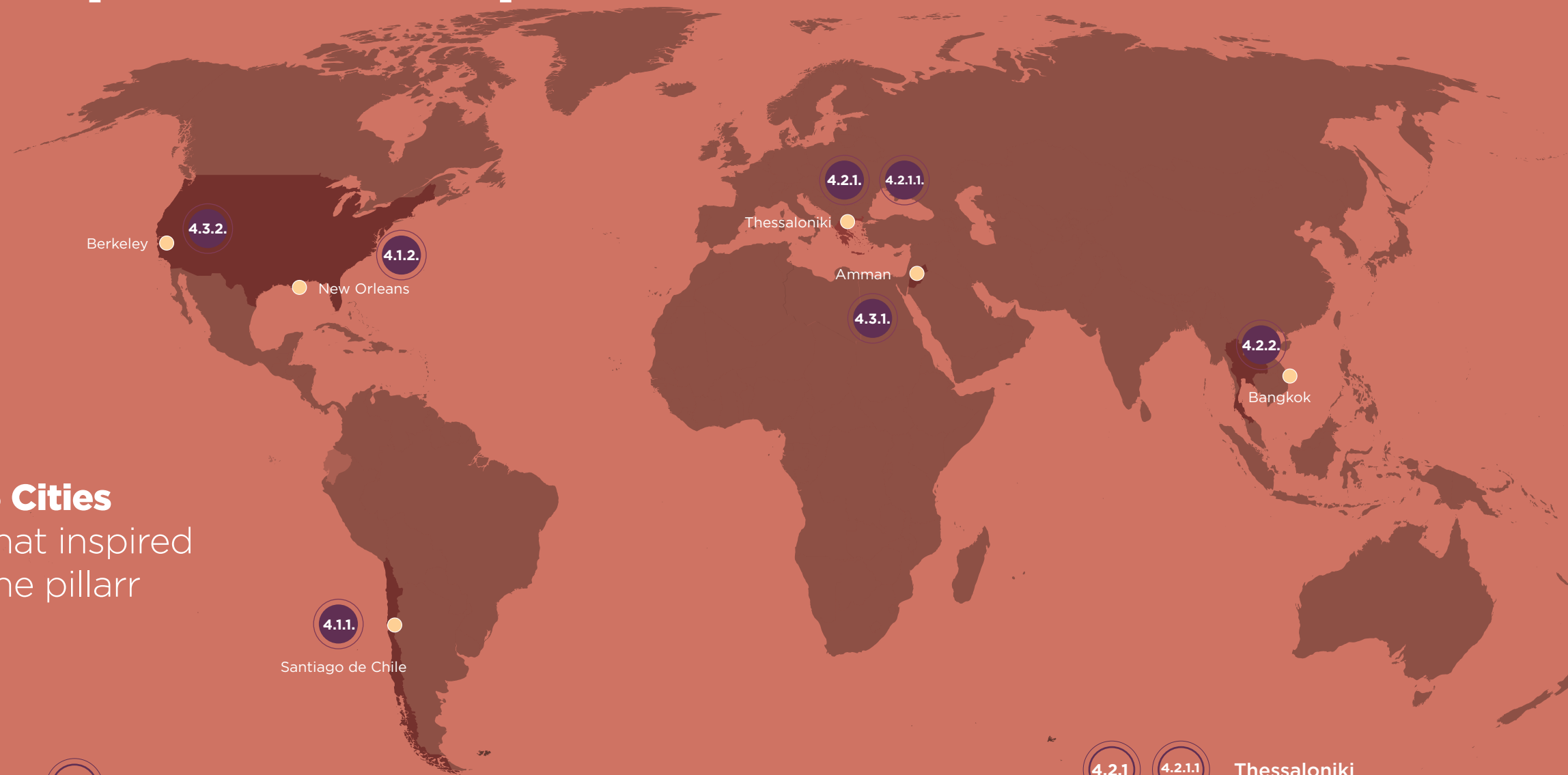
The goals of this pillar are to make the most of the potential advantages of living in a desert area, use the region's resources in moderation, and help the city preserve its resources for the future and better manage its non-renewable resources. The goals focus on the need to create awareness about the effects of climate change, such as water supply shortages, heat waves, and floods, and they incorporate resilience as the underlying principle for transformational change.



**Map Source:** "Urban Growth Effects on the Paso del Norte Region Climate System 1975-2010." José Luis Sandoval Granados (2010), International Seminar-Workshop of the Mexican Cities to Sustainability Network. Guanajuato, Mexico.

# Adapted Juarez Inspiration Map

## 6 Cities that inspired the pillars



### 4.1.1 Santiago de Chile

#### Environmental Agenda

Inspired by the Regional Program for Climate Change, Santiago de Chile is including the topic in regional public policy and finding points of convergence with the National Agenda and regional development strategies.

### 4.1.2 New Orleans

#### Municipal Strategy on Climate Adaptation

Recognizing that the effects of climate change will continue to impact the quality of life of its citizens, New Orleans is working on the design and implementation of a Climate Action Plan.

### 4.2.1 Thessaloniki

#### Environmental Education and Culture

Thessaloniki is conducting environmental campaigns through traditional and digital media, which target citizens and are conducted jointly with schools. The goal is to raise environmental awareness and develop innovative ideas for protecting the environment, which will improve the quality of life for all the citizens of the city.

### 4.3.2 Berkeley

#### Green Infrastructure

Berkeley has included green infrastructure in projects to enhance its road systems.

### 4.3.1 Amman

#### Floods

To face the recurring challenge of floods, Amman has developed a Rainfall Water Capture Plan to better manage the use of its water resources.

### 4.2.2 Bangkok

#### Urban Orchards

Bangkok is working to become a model of urban agriculture and is promoting permaculture and a participatory approach.

# 4.1

## Making Juarez a Model City of Climate Adaptation

### 4.1.1. Ciudad Juarez Environmental Agenda

#### Resilience Qualities



**Status:**  
New

**Lead:**  
Resilience Office  
Ecology Direction

#### Stakeholders:

- Juarez Strategic Plan
- Juarez Limpio
- Juarez Academic Institutions
- El Paso Academic Institutions
- Civil Associations
- Industrial Associations

**Type:** Priority

**Term:** Short

#### Description:

The environmental agenda is a planning instrument that includes actions intended to establish strategic guidelines for implementing programs, projects and initiatives with a sustainable vision.

During Phase I, the Resilience Office analysed city assets, discovered the lack of a published diagnosis or assessment for the municipality, and identified environmental policy as an area that should be developed.

The Resilience Office, in collaboration with the Ecology Direction and stakeholders identified as key actors, will:

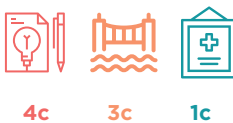
1. Conduct an assessment for the period from 2000 to 2016 of the judicial framework; municipal operations structure; international, national and state policies; key stakeholders; and budget allocated.
2. Conduct multi-sector workshops to exchange ideas for actions and to include initiatives developed by each stakeholder.
3. Prepare a document that will include all the actions identified for implementation..

In the last half of 2018 the Resilience Office and the Ecology Direction will publish an agenda that includes the actions that are the priority for a 6-year period.

#### Indicators/Expected Outcome

- + Agenda published
- + Initiatives started

#### CRF



#### Cross-Cutting Axes:



#### SDO:



# 4.1

### 4.1.2. Municipal Climate Adaptation Strategy

#### Resilience Qualities



**Status:**  
Aspirational

**Lead:**  
Resilience Office

#### Stakeholders:

- Ecology Direction
- Academic Institutions
- UTEP
- Colegio de la Frontera Norte
- Texas Commission on Environmental Quality
- Civil Associations
- SEMARNAT
- National Institute of Ecology and Climate Change

**Type:** Signature

**Term:** Short

#### Description:

The Municipal Strategy on Climate Adaptation is a document governing the actions for mitigating the vulnerability of the inhabitants of Juarez, as well as the fauna and flora in its semi-desert ecosystem, to climate effects. This strategy will integrate, coordinate and promote public actions to reduce the environmental, social and economic risks in Juarez from climate conditions through a municipal initiative that defines the mitigation strategies to be followed. It will include adaptation measures and communication and education actions. The Resilience Office will collaborate with the offices of Ecology and the Environment and Health and Planning; with the three levels of authority within the Federal Government; as well as with international entities, the academic sector, and civil associations.

To meet the strategy's three important milestones, the Resilience Office will:

1. Conduct a carbon emissions inventory for Juarez.
2. Foster the exchange of knowledge and experience.
3. Design the actions with the help of experts, prepare the document, and publish the Municipal Strategy on Climate Adaptation

The Resilience Office will submit the strategy document in the first half of 2019.

#### Indicators/Expected Outcome

- + Plan published

#### CRF



#### Cross-Cutting Axes:



#### SDO:





# Local Capsule: Effects of Urban Growth on the Paso del Norte Region's Climate System

Dr. José Luis Sandoval Granados



The doctoral dissertation *Effects of Urban Growth on the Paso del Norte Region Climate System* by Dr. Jose Luis Sandoval Granados, which he began in 2010 and completed in 2014, assessed the effects of urban growth on the climate system based on the relationship between occupation patterns and the behavior of the soil surface temperature (SST), which determined its environmental feasibility. It set forth the following objectives

- 1 Identify and classify by remote identification methods the growth and urban occupation process in the Paso del Norte region for the period from 2000 to 2010.
- 2 Assess the SST changes with regards to urban occupation patterns in the Paso del Norte region.
- 3 Assess the environmental impact of the various urban occupation patterns with regards to the SST changes.

The process was based on four approaches: 1) relationship between society and nature, 2) geographic, 3) systemic, and 4) urban occupation. The methodology was to develop and create a series of maps and models from which conclusions can be reached regarding climate effects on urban growth, on the increase in SST, and on soil and its relationship to the regional environment.

Lastly, the 30 geo-reference points shown in the Soil Surface Temperature Model (MTSS) for Ciudad Juarez revealed an increase in the SST average of these points, ranging from 33.5°C in year 2000 to 45.2°C by 2010, with a difference of 11.7°C. The maximum temperature registered was 37.2°C in 2000,\* and in 2010 the maximum temperature over this same point was 49.7°C, which is a difference of 12.5°C above the MCUC.

In identifying and classifying the growth and urban occupation process in the Paso del Norte, data showed that in 2010 the U.S. already had an area of 24,272 ha and Mexico only 12,979 ha; while by 2010 the U.S. had 36,202 ha and Mexico, barely 19,164 ha. With that, a greater influence from the U.S. end can be observed regarding the urban growth phenomenon impact on the region due to land use extension, in terms of urban constructed area cover distance.

The above results show that SST is increasing due to changes in the natural state of the soil and the effects of accelerated urban growth. Maps also now show very accurately the potential risk zones due to the SST increase, which affects not only the comfort levels in buildings, but results in increased energy consumption and higher risks to human health during heat waves.

SST records for El Paso, Texas, on the other hand, show a count of 30 points, out of the total 100 for the whole Paso del Norte region, where the maximum temperature was 50.51°C and the minimum, 36.8°C, with an average temperature of 45.7°C and an increase between 2000 and 2010 of 11°C. In the SST assessment of the same 30 points for Las Cruces, New Mexico, the maximum temperature was 51.6°C and the minimum was 28.3°C, with an average temperature of 39.9°C and a difference of 10°C between one year and the next.

From a resilience perspective, it is important for Juarez to have "heat wave" prevention programs and strategic tree planting programs that mitigate the heat islands.

*"Sustainable design and resilience are not a trend, or a method, or a project...they are a philosophy of life"*

# 4.2

## Environmental Education and Culture for Citizens and the Private Sector

### 4.2.1. Municipal Strategy for Environmental Education

#### Resilience Qualities



**Status:**  
Aspirational

**Lead:**  
Ecology Direction

#### Stakeholders:

- Resilience Office
- General Civil Protection Direction
- Social Development General Direction
- Academic Institutions
- Civil Associations
- SEMARNAT
- Colegio de la Frontera Norte

#### Indicators/Expected Outcome

- + Environmental strategy published
- + Number of educational campaigns implemented

**Type:**



Supplemental

**Term:**



Short

#### Description:

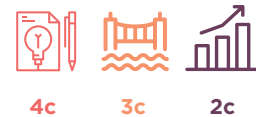
The primary goal of the Environmental Education Strategy is to educate the people of Juarez to take responsibility for the natural and social environment in which they conduct their day-to-day lives. Following the Environmental Non-Formal Education Guide (SEMARNAT, 2009), the strategy will seek to foster actions that will transform people's habits and attitudes, and provide incentives for everyone to be accountable for their environment.

For the strategy's construction, in 2018 the Ecology Direction will:

1. Prepare an environmental culture assessment.
2. Develop policies, programs and national and/or international agreements, and develop its capacity.
3. Determine the scope and structure of the program that will feed the strategy.
4. Identify resources for implementing the strategy..

To launch this project, the Ecology Direction will work closely with SEMARNAT's Education and Training Center for Sustainable Development, which has experience in implementing this type of strategy in Mexican cities. The Ecology Direction will also consult with national, state and municipal experts on environmental and education issues, and will publish the Environmental Education Strategy in the first half of 2019.

#### CRF



#### Cross-Cutting Axes:



#### SDO:



#### 4.2.1.1 Annual Program 10 Days, 10 Actions

CRF



**Cross-Cutting Axes:**



#### Resilience Qualities



**Type:**



Complementaria

**Term:**



Corto

#### Description:

Through this annual program, the Resilience Office aims to build climate change awareness among the population of Juarez for 10 days through 10 activities related to the topic of adapting to the impacts of climate change, mainly heat waves, frosts, droughts and floods. The Resilience Office will conduct ludic activities, discussions, and workshops to foster a culture in which citizens are better prepared to face and protect themselves from the adverse climate effects of this semi-desert ecosystem. In recent years the people of Juarez have suffered from a variety of extreme climate events, and so they must learn how to react and protect themselves when these events occur. In 2011 snow affected 80,000 inhabitants; in 2016, the highest temperature of the last 43 years was recorded, which increased drought conditions; in 2017 more than 100 floods occurred, affecting roads and homes in high-risk areas. The Resilience Office initially developed this action by implementing a pilot project on climate change in May 2017. The goal was to have three cities in the Paso del Norte region participate: Ciudad Juarez, El Paso and Las Cruces. The pilot project involved all the government agencies of these municipalities. In future years the Resilience Office will sponsor two campaigns: one regarding climate adaptation actions for the summer and the other, actions for the winter

**Status:**  
New

**Lead:**  
Resilience Office

#### Stakeholders:

- El Paso Resilience Office
- Las Cruces Sustainability Office
- Ecology Direction
- General Civil Protection Direction
- Social Development General Direction
- Community Centers General Direction
- Education Direction
- Joint Advisory Board
- EPA
- UTEP
- Colegio de la Frontera Norte
- Texas Commission on Environmental Quality
- Civil Associations
- SEMARNAT
- BDAN

#### Indicators:

- + Number of events
- + Number of attendees



Photo credit: Yvone Vidafña

Strategic action:

# Annual Program 10 Days 10 Actions



The **Project Framework for Extreme Heat Adaptation and Mitigation in the Paso del Norte Region**, which is part of a pilot project of the U.S. National Oceanic and Atmospheric Administration (NOAA). This project involves the creation of a **comprehensive information system on heat and health in the Paso del Norte region** (Ciudad Juarez, El Paso and Las Cruces). Under a **regional cooperation agreement**, the project's goal is to create tools to reduce the threat of diseases, loss of productivity, and death from heat waves



The Annual Program 10 Days 10 Actions was an **educational campaign** that took place for 10 days in May 2017. During this campaign, 10 actions on various topics were conducted to create awareness of heat waves and to prevent their impacts.



The activities included distribution of printed materials, mass bicycle events for families and grade school students, and bicycle conferences with participants from Mexico, the U.S. and Canada.

Now, the annual program seeks to extend the range of climate change topics beyond heat waves to climate adaptation in general.

*"Resilience, in relation to Ciudad Juarez brings to my mind post-traumatic stress. According to Calhoun and Tedeschi (1999), resilience is the result of an individual's post-traumatic growth, which is a process that helps us appreciate what is positive in life and our environment. It can change the trajectory of our lives."*

### Eugenia Posada

Research Program Coordinator, Texas Commission for Environmental Quality (TCEQ).

*"At the border, cultures converge and development is fluid and ongoing; acceptance and collaboration shape special aspects of resilience: border resilience. This border resilience will underpin the creation of strategies based on equality and the need to be prepared, balancing the responsibilities of individuals and institutions, and ensuring the health and sustainability of communities and the environment in the Paso del Norte region".*

### Patricia M. Juárez-Carrillo

Coordinator - Researcher

Center of Latin American and Border Studies (CLBS), University of Texas at El Paso



### Tri-national conference on Health and Heat: Prevention, Mitigation and Resilience in the Paso del Norte region

An event conducted in collaboration with Juarez City Hall, the Border Environmental Education Group 2020, the Texas Commission on Environmental Quality, Technology Hub, Ciudad Juarez Autonomous University, University of Texas at El Paso and the Research and Planning Municipal Institute.



The event analyzed the regional climate, identifying challenges and strategies that could lead to health risk prevention, mitigation and resilience in the face of extreme heat in the Paso del Norte region.



The goal of the conference, which featured speakers from Mexico, the U.S. and Canada, was to present both a local and regional perspective on the challenges that result from heat waves, what has been done, and the opportunities to reduce energy losses and deaths in the region.



About 100 people attended the event on May 24, 2017, and it was also broadcast simultaneously for 5 hours in El Paso, Texas, and Las Cruces, New Mexico. (9:00 am to 1:00 pm).

# 4.2

## Environmental Education and Culture for Citizens and the Private Sector

### 4.2.2. "Urban Orchards" Project

Resilience Qualities



Status: New

Lead: Resilience Office

Stakeholders:

- Municipal Institute for Women
- Civil Associations
- Rural Development Direction
- Private Sector Initiative
- Academic Institutions

Type: Priority

Term: Short

Description:

With the "Urban Orchards" project, the Resilience Office intends to promote an environmental culture by educating citizens on the importance of food production, rainfall water conservation, and organic waste management. Urban agriculture can transform bare desert spaces into green, agricultural areas producing edible organic products and providing some families with food and an additional source of income. Urban agriculture can also reduce heat islands. The project will be developed in four phases, and the Resilience Office will:

1. Identify edible species suitable for planting in this region (second half of 2018).
2. Prepare orchard prototypes (vertical, horizontal and diagonal) and irrigation (drip, spray, rainfall water harvesting) (second half of 2018).
3. Implement a pilot project that includes resilient parks, schools and public buildings (second half of 2018).
4. Create local guidelines for establishing and maintaining an orchard (year 2019).

To execute this project, the Resilience Office must bring in subject matter experts from academic institutions and civil associations. In addition, to assist the Resilience Office with the pilot project, the Federal Government's Ministry of Agrarian, Territorial and City Development (SEDATU) has methodologies and guidelines.

Indicators/Expected Outcome

- + Number of participants
- + Number of orchards installed
- + M<sup>2</sup> of planted area

CRF



Cross-Cutting Axes:



SDO:



# 4.3

## Comprehensive Management of Water

### 4.3.1. Innovative Project Portfolios to Assist in Floods

Resilience Qualities



Status: Existing

Lead: Resilience Office

Stakeholders:

- Urban Development General Direction
- Public Works General Direction
- General Civil Protection Direction
- Research and Planning Municipal Institute
- Municipal Board of Water and Sanitation
- Ciudad Juarez Autonomous University
- Colegio de la Frontera Norte
- CONAGUA

Type: Priority

Term: Medium

Description:

The Resilience Office will create a portfolio of projects with a high rate of effectiveness and a high cost-benefit for the implementation of initiatives to resolve the flooding caused by rainfall in Ciudad Juarez. The lack of proper rainfall infrastructure contributes to flooding in various areas of the city, and the current rainfall drainage system requires extensive enhancements. The following issues need to be addressed::

- a. Laws and regulations for development
- b. Long-term planning
- c. Existing facilities and their capacities
- d. Projects' specifications and maintenance.

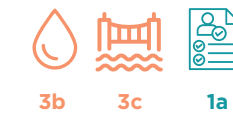
The Resilience Office will:

1. Invite water experts in the Paso del Norte region in the development of the project to assess the initiatives submitted to municipal, state and federal agencies for implementation.
2. Present the outcome of this project by late 2018 in a document with a general overview of the challenge and specific solutions that could be implemented in flood areas.
3. Obtain funding to implement the proposals

Indicators/Expected Outcome

- + Document published
- + Number of zones enhanced

CRF



Cross-Cutting Axes:



SDO:



# Local capsule: Urban Orchards



The urban agriculture project of the **Centro de Asesoría y Promoción Juvenil A. C. (CASA)** has been promoting environmental education since 2015 by providing workshops on design and garden maintenance, permaculture, home-made bio-filters, and the social economy. The project also offers workshops on the design and construction of an urban orchard; organic waste management;

soil enrichment; planting, transplanting, and harvesting of different vegetables (e.g., chard, cilantro, horseradish, squash); biofertilizers; integrated pest management; and low-tech greenhouses. In addition, the project contributes to the recovery of public spaces by participating in the reforestation of parks and planting of empty lots.

450 families have been directly benefited and now have organic orchards protected by shade houses and micro-tunnels at their homes.

More than  
**5,000 plants**

have been distributed to the community

**1,150 fruit trees**

— pomegranate, quince, peach, red and white plum, apricot, pear, apple and nectarine — have been distributed.

In 2017 **143 workshops** took place in various districts with groups in the most vulnerable areas, as well as with students in grade schools, secondary schools, and universities.



Thanks to the links with high schools, the achievements above were possible because other groups replicated the workshops in the community for faculty and students. For example, in its urban orchard, TeleBachillerato Victor Hugo Rascon Banda gave 25 workshops and 3 training courses on creating orchards in schools.

Centro de Bachillerato Tecnológico Agustín Pro has been part of the **distribution of vegetables and fruits** in some districts in the northwest section of Ciudad Juárez.



When the project began, foreign foundations, such as Misereor and Paso del Norte Health Foundation, made donations for the purchase of organic seeds, topsoil, and fertilizer from worm castings.



Technical assistance is given to a family until their orchard is self-sustaining and providing them a stable benefit because they are able to sell what they grow or save money by growing their own supply of healthy food.



# 4.3

## 4.3.2. Green Infrastructure in Public Spaces

### Resilience Qualities



### Status:

New

### Lead:

Resilience Office

### Stakeholders:

- Urban Development General Direction
- Public Works General Direction
- Planning and Assessment General Direction
- Research and Planning Municipal Institute
- Municipal Board of Water and Sanitation
- Ciudad Juarez Autonomous University
- CONAGUA
- BDAN

### Indicators/Expected Outcome

- + Publication of the outcome of the pilot project
- + Number of spaces renovated with GI

### Type:



Prioritaria

### Term:



Corto

### Description:

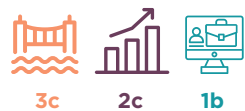
The inclusion of green infrastructure (GI) elements in public spaces has been successful in semi-desert and desert regions of Northern Mexico and the southern United States. Green infrastructure, which is multi-functional infrastructure that uses natural systems to improve environmental quality and provide social, economic, cultural and environmental services, is a component of a sustainable water use and management system (BDAN, 2017). Through a study of local spaces, the Resilience Office has identified potential sites where projects with GI systems could be implemented and deliver benefits in the long term..

In 2017, the Resilience Office, in response to the "Programa 2020" invitation, requested funding from BDAN to implement a pilot project to demonstrate the effectiveness of GI at a local level. This project proposes to educate public officials, urban planners, civil associations, and interested parties on the design of urban spaces that use GI elements and on the implementation of a prototype in an area with floods and vegetative cover erosion issues. BDAN will include the pilot project as an attachment in its Green Infrastructure Design Guidelines Handbook..

For the project, the Resilience Office will:

1. Consult with experts on GI, rainfall water, and the hydrological basins of Ciudad Juarez and El Paso.
2. Present the outcome of the project during the first half of 2018.
3. Encourage proposals for new initiatives addressing local construction regulations and public policy at a local level.

### CRF



### Cross-Cutting Axes:



### SDO:



## Local Capsule:

# Strategic Action: Paso del Norte Region Green Infrastructure Project: Workshop and Guides

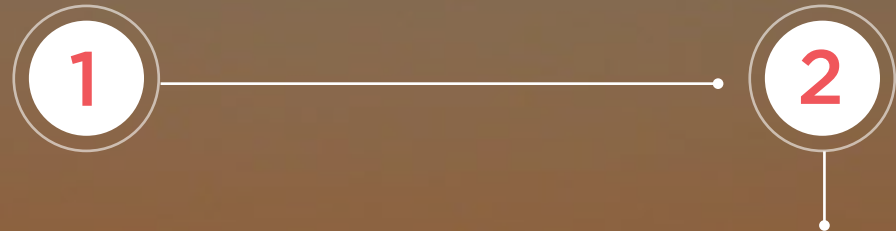
In 2018, the North American Development Bank granted funds to the Technical Direction and Resilience Office of Juarez to implement a pilot project demonstrating the effectiveness of green infrastructure at a local level.

The extreme weather in the Paso del Norte region causes intense heat waves in the summer and freezing temperatures in the winter. These extremes result in storms and excessive rainfall. In 2006, the weather resulted in outbreaks of disease and four deaths as well as an estimated US\$15 million in damages to private property and city infrastructure, including the city's pipes, sewage system, and streets. The inadequate rainfall sewage system, the lack of water-resistant areas in the streets and public spaces to keep water from filtering into the subsoil, and the floods that often occur

in low areas impair the city's ability to function. To mitigate the impacts of floods, GI, which is a multifunctional type of infrastructure that uses natural systems to improve environmental quality and provide social, economic, cultural and benefits. can be used. Strategic stakeholders will be invited to a GI workshop for training and to exchange best practices. The city will design a GI pilot project and will contribute an appendix on GI for the Paso del Norte region to the North American Development Bank's (BDAN) **Green Infrastructure Design Guidelines Handbook for**

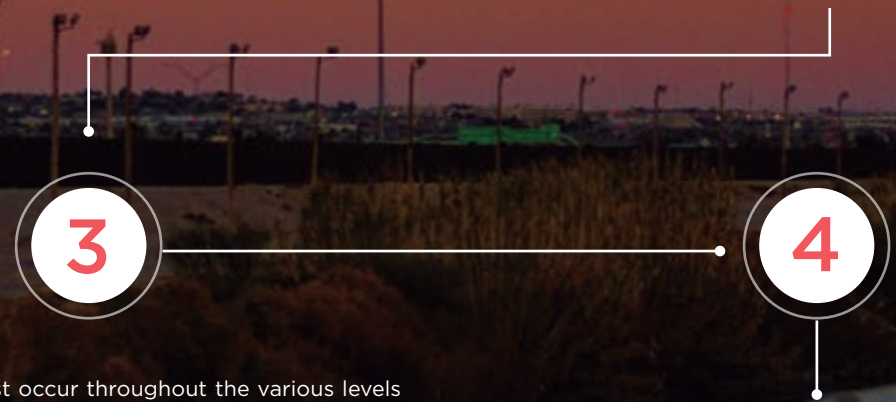
**Mexican Border Municipalities.** The overarching goal is to build a binational understanding of urban runoff management, rainfall water catchment systems, and the creation of sustainable green spaces as strategies to increase the region's resilience. El objetivo general es fortalecer una cultura binacional sobre la importancia del manejo de las escorrentías urbanas, la captura de agua de lluvia y la creación de espacios verdes sustentables como estrategias para incrementar la resiliencia de la región. The project will begin in April of 2018 and will last about 6 months.

# 05 Next Steps



Once it is published, the Juarez Resilience Strategy is expected to become the cornerstone of long-term planning. To achieve successful, effective results, the principle of resilience will be the lens through which projects are selected, resources identified, and scopes of work defined. The initiative will assign priority to actions that have a greater scope, and every action must have a project manager who is responsible for its implementation. The Strategy will be the umbrella for a portfolio of projects, in which any one action may relate to other projects.

The Strategy was built on learnings as, notwithstanding the social crisis in which Juarez society has been involved, many people invested time, knowledge and experience in the construction of a shared view to build a stronger resilience in the city. Therefore, inter and multi sector networks must be stronger and more robust, so that every project takes off from a solid base of stakeholders which, in turn, monitor progress. In the view of resilience, involvement and commitment of citizens ensure that projects have a greater repercussion and resonance, in addition to continuity.



Collaboration must occur throughout the various levels of government. The Chief Resilience Officer will have a central role and work with the city mayor. Local and state government institutions have two missions: 1) to include resilience principles in their decision-making processes; and 2) to serve as the leads for some of the actions described in this document as well as to collaborate on other actions. To enhance communication among the interested parties, a matrix identifying the various projects to be developed and stakeholder interest in participating in them will be prepared.

A monitoring system is a key element of the Strategy, and periodic assessments will gauge the progress made on its implementation. Every action has indicators for measuring the progress achieved. The periodic assessments will identify gaps and opportunities for exploring new solutions. The monitoring system will also help determine how effective the various initiatives are in building resilience in Juarez.



For a successful implementation of the Resilience Strategy, the Resilience Office must be firmly established. In addition to building resilience in Juarez, it will lead the resilience movement along Mexico's northern border. Other agencies must be engaged to help monitor the actions, consolidate methodologies, and find funding sources to support the execution of projects that result from the actions.



Prepare projects per action. There are five project management processes, which have clear dependencies and are executed in the same sequence. The subcomponents of one process may interact with the components of the other four processes. The five processes are:





# 06 Collaborators and Acknowledgments

In the process of developing the Resilience Strategy, stakeholders were included who were critical to each of the projects supported by the Resilience Office since 2016. These acknowledgments cover a period from project inception to the publication of this document. I am grateful to all the stakeholders involved in executing this Strategy and making it stronger and more successful every day through their participation.

I want to extend my deepest appreciation to every person who is passionately committed to this initiative and working to improve Ciudad Juarez, our city. Thank you to all the following for your valuable contributions to building the foundations of this Strategy and for your participation on the first Resilience Board of Directors:

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To each person listed below, I am grateful for your commitment to supporting the resilience movement in Juarez. All of us who love this place will continue planning and working together for the well-being of every inhabitant of Juarez.

Sincerely,

**Verónica González Sepúlveda**  
Chief Resilience Officer



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### Other

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# 07 Appendix

## 7.1 Indicators Table



### Goal 1.1

Recover urban public and vacant spaces that can foster positive social interaction.

Action	Term	Indicators: / Expected Outcomes	Lead	SDO	PDM 2016 - 2018
1.1.1 To Foster and Drive the Creation of Resilient Parks	Medium	<ul style="list-style-type: none"> <li>Number of recovered parks</li> <li>Population benefited</li> </ul>	Planning and Assessment General Direction	3, 11, 13, 15	5.2.4. Green spaces
1.1.2 Annual Contest "Let us enhance a public space."	Short	<ul style="list-style-type: none"> <li>Number of spaces recovered</li> <li>Recovered area in m<sup>2</sup></li> </ul>	<ul style="list-style-type: none"> <li>Resilience Office</li> <li>Planning and Assessment General Direction</li> </ul>	9, 11, 13	1.1.2. Citizen involvement
1.1.3 Design and Implement the Program "Adoption of Public Spaces".	Medium	<ul style="list-style-type: none"> <li>Incentives granted</li> <li>Recovered area in m<sup>2</sup></li> </ul>	Economic Development General Direction	9, 11	5.3. . Ecology and sustainable development
1.1.4 Art and Cultural Workshops for Children and Young People at the Public Space Program	Short	<ul style="list-style-type: none"> <li>Number of workshops conducted</li> <li>Number of students trained</li> <li>Number of participant schools</li> </ul>	<ul style="list-style-type: none"> <li>Resilience Office</li> <li>Cultural Institute of Juarez Municipality</li> </ul>	3, 4, 16	<ul style="list-style-type: none"> <li>4.3.3. Culture and education for everyone</li> <li>3.2. Family integration, social cohesion and development</li> </ul>
1.1.5 Vacant Land Recovery Program	Long	<ul style="list-style-type: none"> <li>Recovered area in m<sup>2</sup></li> </ul>	Urban Development General Direction	11, 15	5.1.1. . Human settlements and urban development



Inclusive Juarez

**Goal 1.2**

Improve safety and security for women

Action	Term	Indicators: / Expected Outcomes	Lead	SDO	PDM 2016 - 2018
1.2.1 Technology applications on safety and prevention for citizens	Short	<ul style="list-style-type: none"> <li>Number of apps developed</li> <li>Number of downloads</li> </ul>	Municipal Government	5, 16	ET 2 Gender equality and equal rights
1.2.2 Community leadership program	Medium	<ul style="list-style-type: none"> <li>Number of community leaders</li> <li>Number of programs implemented</li> </ul>	Juarez Strategic Plan Resilience Office	3, 11, 16, 17	1.1.2. Citizen involvement 2.1.3 Citizen management
1.2.3 Safe Corridor for women	Medium	<ul style="list-style-type: none"> <li>Number of successful courses</li> <li>Socioenvironmental projects developed</li> <li>Number of women participants</li> </ul>	Municipal Institute for Women	5, 11, 16	ET 2 Gender equality and equal rights
1.2.4 International Safety and Social Inclusion Network (ISSIN)	Short	<ul style="list-style-type: none"> <li>City members of ISSIN</li> <li>Scheduled meetings</li> <li>Agreements achieved</li> <li>Agreement signed</li> </ul>	Resilience Office	10, 16, 17	7. Public security



Juárez Próspera

**Goa 2.1**

Make Juarez a model of innovation and competitiveness

2.1.1 Economic competitiveness indicators system	Medium	<ul style="list-style-type: none"> <li>Implementation of the indicators system</li> <li>Annual publication of the monitoring results</li> </ul>	General Direction of Economic Development	8, 9	2.3.1 Planning and assessment 6.1.2 Productivity
2.1.2 Innovation and technology workshops for children and young peoples	Short	<ul style="list-style-type: none"> <li>Collaboration agreement with academic institutions</li> <li>Training Plan with descriptive charts</li> <li>Number of workshops conducted</li> </ul>	Education Direction	1, 4, 9, 10	6.2 Entrepreneurs and innovation 4.1.3 Science, technology, innovation and training
2.1.2.1 Support Fund for Innovative and Creative Talents (FATIC)	Medium	<ul style="list-style-type: none"> <li>Consolidation of Fund</li> <li>Financed projects</li> </ul>	Technical direction		
2.1.3 Workshops for economic and social empowerment of women in Ciudad Juarez	Short	<ul style="list-style-type: none"> <li>Training Plan</li> <li>Number of workshops conducted</li> <li>Number of women participants</li> <li>Businesses started</li> </ul>	Economic Development General Direction Resilience Office	4, 5, 8, 16	6.1.1 Employment



Prosperous Juarez

**Goal 2.2**

Foster new business models with a circular economy

**2.2.1** Municipal Sustainability and Circular Economy Program

Medium

Document completed

Resilience Office

8, 9, 12, 13

**5.3** Ecology and sustainable development  
**6** Promotion, economic development, and regulatory improvement

**2.2.2** Strategy "+A-D: Más Alimento, Menos Desperdicio" (More Food, Less Waste)

Medium

Number of agreements executed  
Number of beneficiaries

Ecology Direction  
Resilience Office

2, 3, 8, 12, 13

**3.1.3** Supplemental food assistance

**Goal 2.3**

Enhance the image of Juarez and its tourist appeal

**2.3.1** Revert Ciudad Juarez's image

Short

The project completed

Resilience Office

3, 8, 11, 16, 17

**4.3** Culture as an identity element

**2.3.2** Promote tourism and culture in Juarez.

Medium

The project completed

IPACULT  
Economic development

8

**6.3.1** Promotion of Tourism in Ciudad Juarez

**2.3.3** Promote ecotourism in desert settings

Short

Ecotourism management plan  
Program for Valle de Juarez

Technical direction

8

**6.3.2** Tourism



Integrated Juarez

**Goal 3.1**

The right to the city

**3.1.1** Prepare and publish the Juarez Charter for the Right to the City

Medium

Preparation of Charter

Resilience Office

10, 16, 17

**1.1** Open Government and citizen involvement

**3.1.2** Bring the Historic District back to life as a place of social exchange, recreation and cultural identity

Medium

Declaration  
Published book  
Inclusion of roads in the UNESCO Tentative Lis

Planning and Assessment  
General Direction

8, 9, 11, 16, 17

**4.3** Culture as an identity element  
**5.1** Urban planning  
**6.3** Touristic drive

**3.1.3** Regulation for the Historic District

Short

Published regulation  
Number of stakeholders involved

Planning and Assessment  
General Direction

9, 11, 16, 17

**5.1.1** Human settlements and urban development



Integrated Juarez

**Goal 3.2**  
Resilient Planning

Action	Term	Indicators: / Expected Outcomes	Lead	SDO	PDM 2016 - 2018
<b>3.2.1</b> Institutionalize the Resilience Office in Juarez	Short	Order creating the office Number of projects included in portfolio	Mayor Resilience Office	10, 16, 17	<b>2.3.</b> Efficient Government
<b>3.2.2</b> Resilience Culture and Communications Strategy	Short	Number of campaigns Estimated amount of people reached	Social Communication General Coordination Resilience Office	16, 17	<b>1.2.2</b> Liaison and communication
<b>3.2.3</b> Binational Agenda on Urban Resilience at the Northern Border	Short	Number of cities with strategic alliances	Resilience Office	10, 16, 17	

**Goal 3.3**  
Connectivity and Alternative Mobility Plan

<b>3.3.1</b> Transportation-Oriented Development Plan (DOT)	Long	Presentation of document Publication in Official Daily of the Federation	Research and Planning Municipal Institute	10, 11	<b>5.1.3</b> Mobility
<b>3.3.2</b> Cycle lanes and pedestrian corridors project	Medium	Number of intervened kilometres	Urban Development General Direction	3, 10, 11	<b>5.1.3</b> Mobility <b>5.3</b> Ecology and sustainable development <b>1.1.2</b> Citizen involvement
<b>3.3.3</b> Interactive map of alternate travel routes	Short	Interactive map developed Number of campaigns developed Number of downloads	Resilience Office	11	<b>5.1.3</b> Mobility <b>5.3</b> Ecology and sustainable development <b>1.1.2</b> Citizen involvement
<b>3.3.4</b> Road safety manual	Short	Publication of Handbook Training campaigns And spreading	Research and Planning Municipal Institute	11	<b>5.1.3</b> Mobility <b>4.3.3</b> Culture and education for everyone



Adapted Juarez

Action	Term	Indicators: / Expected Outcomes	Lead	SDO	PDM 2016 - 2018
<b>Goal 4.1</b> Juarez as a model city for climate adaptation	<b>4.1.1</b> Environmental agenda for Ciudad Juarez	Short Agenda published Initiatives started	Resilience Office Ecology Direction	11, 12, 13, 15, 17	<b>5.3</b> Ecology and sustainable development
	<b>4.1.2</b> Municipal Climate Adaptation Strategy	Short Plan published	Resilience Office	11, 13, 15, 17	<b>5.3</b> Ecology and sustainable development
<b>Goal 4.2</b> Environmental education and culture for citizens and private sector	<b>4.2.1</b> Municipal Strategy on Environmental Education	Short Environmental strategy published Number of educational campaigns	Ecology Direction	4, 11, 13, 15, 17	<b>5.3.3</b> Promotion of ecological culture
	<b>4.2.1.1</b> Annual Program 10 days, 10 actions	Short Number of events Number of attendees	Resilience Office		
	<b>4.2.2</b> "Urban Orchards" project	Short Number of participants Number of orchards installed m <sup>2</sup> of affected areas	Resilience Office	2, 3, 8, 12, 13, 15	<b>3.1</b> Wellbeing and social Development <b>5.2.4</b> Green spaces
<b>Goal 4.3</b> Comprehensive management of water	<b>4.3.1</b> Innovative project portfolios to aid in floods	Medium Document published Number of revitalized areas	Resilience Office	6, 9, 11, 13, 15	<b>5.1</b> Urban planning <b>6.2.1</b> Coordination with government and civil society
	<b>4.3.2</b> Green infrastructure at public spaces	Short Publication of the pilot project outcome Number of spaces enhanced with GI	Resilience Office	9, 11, 13, 15	<b>5.1</b> Urban planning <b>5.3</b> Ecology and sustainable development

# 7.2 Abbreviations and Acronyms

**AC** Civil Associations

**AECOM** Architecture, Engineering, Consulting, Operations and Maintenance

**BDAN** North America Development Bank

**Canirac** National Association of the Restaurant and Seasoned Food Industry

**CCC** Joint Advisory Board

**CCE** Entrepreneurial Coordinating Council

**CI** Industrial Associations

**Colef** Colegio de la Frontera Norte

**CONANP** National Commission for Protected Natural Areas

**Conavim** National Commission to Prevent and Eradicate Violence

**CONAGUA** National Water Commission

**CONEVAL** National Council to Assess Social Development Policy

**CGC** Social Communication General Coordination

**CRS** Social Media Coordination

**DAP** Public Lighting Direction

**DDHAM** Human Rights and Assistance to Migrants Direction

**DDR** Rural Development Direction

**DE** Education Direction

**DEC** Ecology Direction

**DGCC** Community Centers General Direction

**DGDE** Economic Development General Direction

**DGDS** Social Development General Direction

**DGDU** Urban Development General Direction

**DGPE** Planning and Assessment General Direction

**DGI** General IT Direction

**DGOP** Public Works General Direction

**DGPC** General Direction of Public Protection

**DGS** General Health Direction

**DGTM** Municipal General Direction of Transit

**DIF** Desarrollo Integral de la Familia

**DPJ** Parks and Gardens Direction

**EPA** Environmental Protection Agency

**ERJ** Juarez Resilience Strategy

**HIC** Habitat International Coalition

**IA** Academic institutions

**IMCO** Instituto Mexicano para la Competitividad

**IMDC** Municipal Sports Institute and Physical Culture of Juarez

**IMIP** Research and Planning Municipal Institute

**IMJJ** Juarez Youth Municipal Institute

**IMM** Municipal Institute for Women

**Index** Juarez Asociación de Maquiladoras A. C.

**INECC** National Institute of Ecology and Climate Change

**INEGI** National Institute of Statistics and Geography

**IP** Private Sector Initiative

**Ipacult** Cultural Institute of Juarez Municipality

**MS** Safety desk

**ODS** Sustainable Development Objectives (SDO)

**OMS** World Health Organization

**ONU** United Nations Organization

**Orelp** Resilience Office at El Paso

**OR** Resilience Office

**OSLC** Sustainability Office at Las Cruces

**PDUS** Sustainable Urban Development Plan

**PEJ** Juarez Strategic Plan

**RAE** Real Academia Española

**RBD** Rebuild By Design

**SA** City Hall Direction

**SECTUR** Ministry of Tourism

**SEDATU** Ministry of Agrarian, Territorial and City Development

**SEMARNAT** Ministry of the Environment and Natural Resources

**SM** Sindicatura Municipal

**SSPM** Municipal Public security Direction

**ST** Technical Direction

**TCEQ** Texas Commission on Environmental Quality

**T-HUB** Technology Hub

**TOD** Transportation-Oriented Development

**UNESCO** United Nations Organization for Education Science and Culture

**UTEP** University of Texas at El Paso

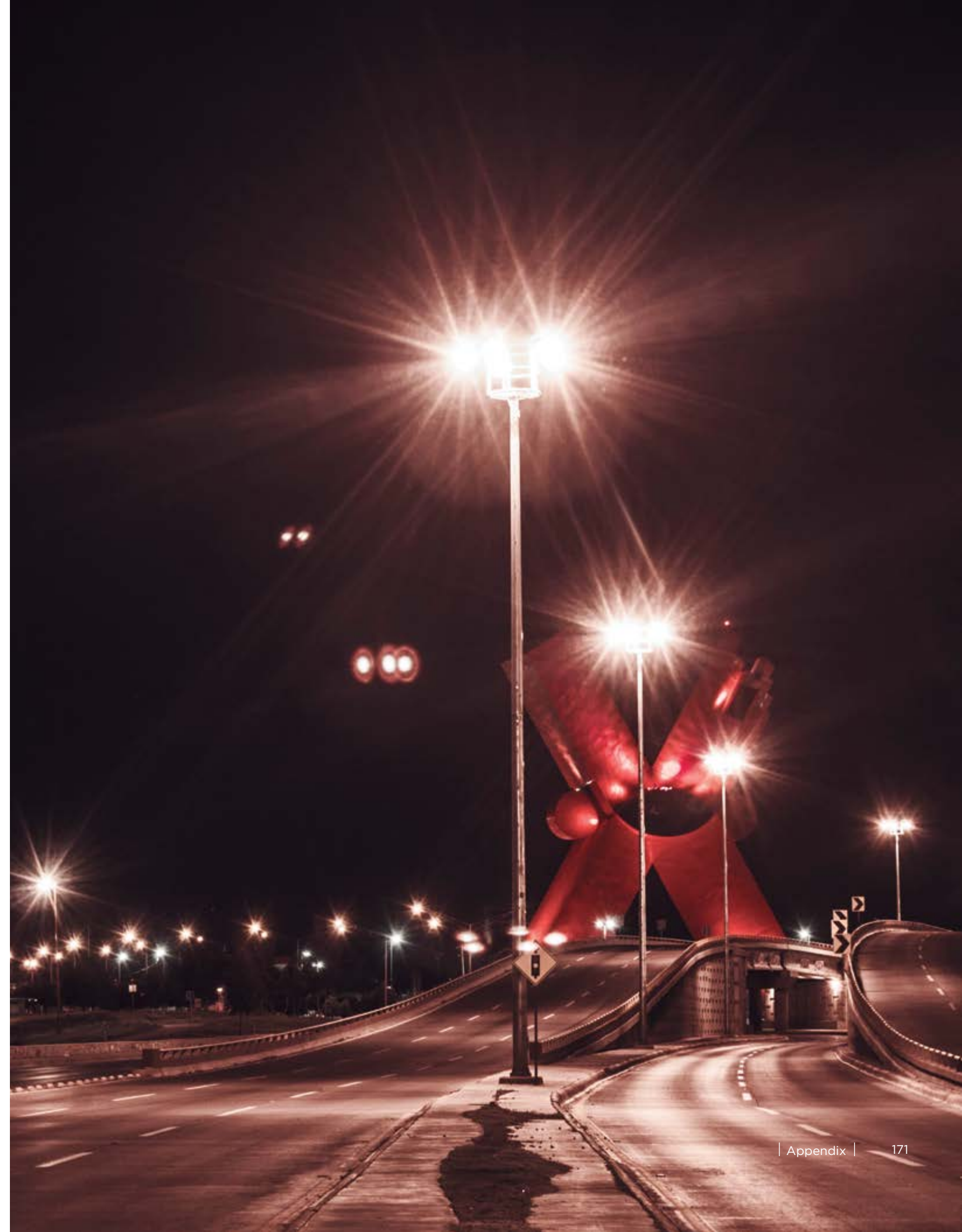




Photo Credit: Iván Bautista

## 7.3 Glossary

**Acequia (Ditch):** Irrigation method used in Juarez to irrigate cultivated land.

**City council:** Representative body of the community charged with the smooth functioning of the municipality. The city council consists of the mayor and the councillors.

**Food basket:** A value set on an amount of food that is the minimum standard for health and well-being and that is determined based on the nutritional requirements of a population rather than an individual (CONEVAL).

**Sustainable development:** The type of development that meets today's needs without imposing risks on the capacity of future generations to satisfy their needs.

**Circular economy:** An economy that is restorative or rege-

nerative by intent and by design. It replaces the concept of "expiration" with the idea of "restoration" and moves towards the use of renewable energy sources, reduces the use of toxic chemicals that prevent reuse and return to the biosphere, and aims instead to redefine products and services to eliminate waste while minimizing negative impacts.

(Ellen MacArthur Foundation).

**Solidarity economy:** An approach to economic activity that takes the well-being and quality of life of people into account, that respects the environment, and that prioritizes sustainable development above all other interests.

**Empowerment:** In political or socioeconomic terms, "to grant power [to a socioeconomically disadvantaged group] so that they can improve their lives through self-determination." (RAE).





**Femicides:** The intentional killing of women or girls because of their gender, constituting the most extreme form of violence against women and classified as such in the Mexican criminal system.

**Incubator company:** A project, company or center that creates and develops small companies or micro businesses, and provides support to such companies during their early stages (Instituto Mexiquense del Emprendedor).

**Export maquiladora industry:** Any partial product manufacturing, assembly, or packaging by a company that is not the original manufacturer. In Ciudad Juarez, the export maquiladora industry emerged in the mid-1960s as an economic response to labor shortages in developed countries.

**Well-being line:** Monetary value of a box of food, goods and basic utilities (CONEVAL).

**Economically active population:** All those of working age with the capacity and availability to contribute to the production of economic goods and services at a particular moment in time. Included are people who work or have a job (employed) and those who do not have a job but are willing to work (unemployed). Conversely, an economically inactive population includes those who are not available to work because of age, disability, or personal choice (INEGI).

**Porfiriato:** Period in Mexican history when Porfirio Díaz (1830-1915) was the country's president.

**Presidio:** City or fortress that could be used as shelter by soldiers serving in the defense of Northern Mexico.

**Bracero Program:** The Mexican Agricultural Workers Program, better known as the Bracero Program, signed by the

U.S. and Mexico in 1942. The name refers to Mexican workers, mostly farmer laborers, who were allowed temporary entry into the U.S. to make up for labor shortages in the U.S. during and after World War II. According to the Bracero History Archive, an estimated 4.6 million Mexicans came to work in the U.S. as braceros between 1942 and 1964, the year in which the program ended.

**Urban Density Increase:** A positive or negative change in the population density in an urban area.

**Urban revitalization:** Reversing the effects of the physical, social and economic deterioration of a downtown area and other important parts of a city, and creating the urban conditions that traditional downtown areas need to be sustainable (Taracena, 2013).

**Septentrion:** North.

**Empty lot:** Private, unused land that is subdivided into plots classified as "urban" according to current law, within agglomeration perimeter and that can be used for residential, industrial, commercial, and service purposes. It also refers to taxable land that is no longer classified according to its prior use (Clichevsky, 2007).

**Tactical urbanism:** Umbrella term for a collection of alternatives for the collaborative, user-generated design, construction, and management of urban spaces, based on the needs, dreams, and ideas of citizens. These alternative projects meet short-term needs and generally bypass the usual government requirements and lengthy processes (Hernandez, 2015).

**Vulnerable due to income:** A population that is vulnerable based on incomes that are at or below the poverty line.



Photo credit: **Luis Pegut**

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