

Building Resilient Infrastructure in the Dominican Republic



Component II: Social Infrastructure Building Climate Resistant Communities in the Dominican Republic

Buidng Resilient Infrastructure in Dominican Republic
Componet II: Social Infrastructure

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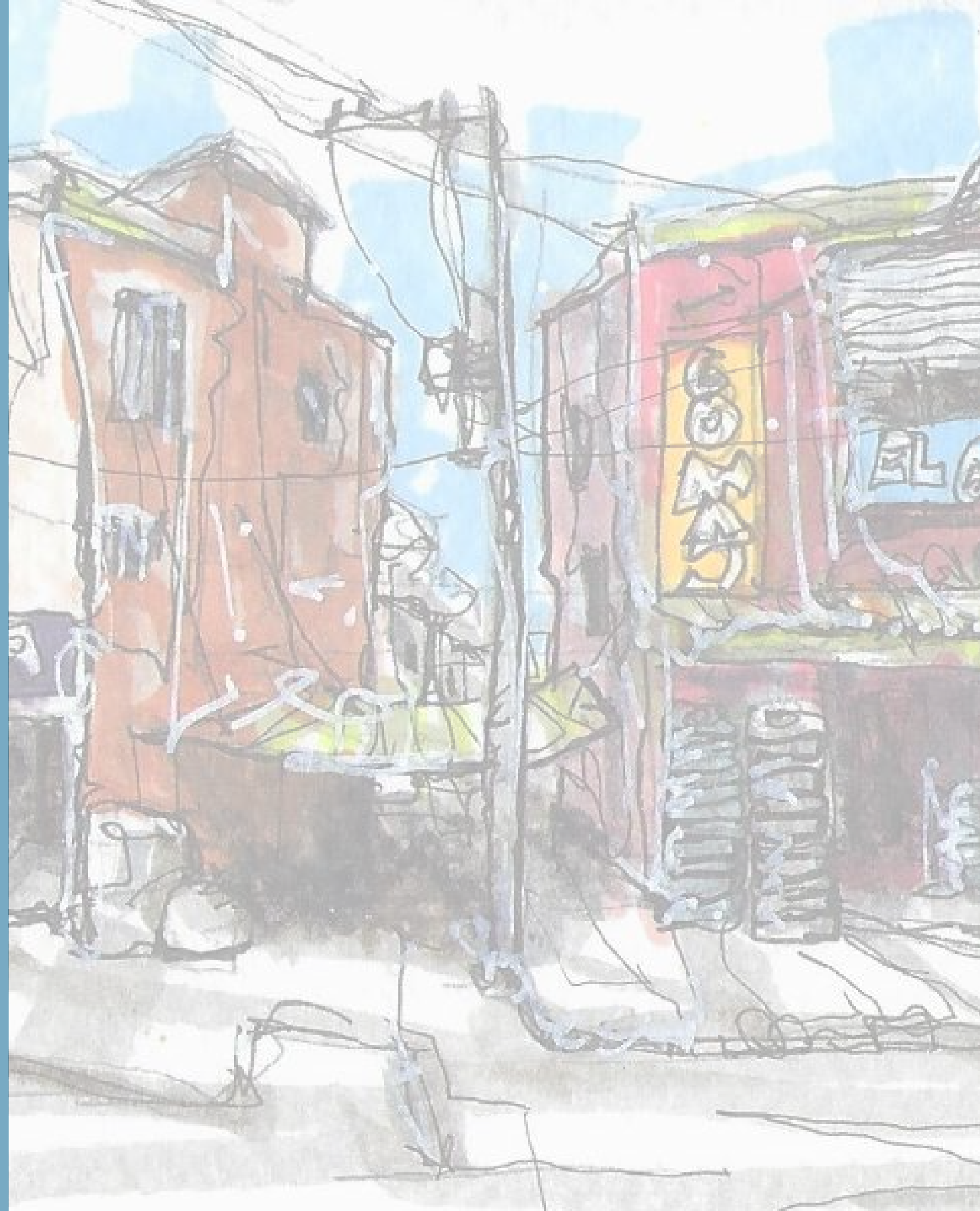
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INTEC

City Council (AYUNTAMIENTO DN)



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INTRODUCTION

Vulnerability has different definitions, but generally refers to socioeconomic factors that diminish the ability of a community or social group to cope with or survive stress, crisis or shock (SSHAP, n.d.). Resilience and community vulnerabilities are interconnected, as attaining community resilience advocates building the capacities and resources for communities to prepare for and respond effectively to an emergency. In turn, it proactively prevents and reduces the shock generators and systemic issues that drive vulnerability.

Within this framework, the proposal for a Community Resilience Center in Cristo Rey arose as a result of the synergy between Columbia World Projects, the National District Municipality, the Universidad Iberoamericana and INTEC. UNIBE plays an important role in the formation and implementation of the Resilience Center.

The social infrastructure component, coordinated by the Universidad Iberoamericana, was designed with the objective of finding an effective link between social and urban indicators, in order to understand how the physical environment and its vulnerability affect the social structure of the community and to plan a strategy that gives a sense of belonging to the Resilience Center to be set up by the National District Municipality.

There are two other components that were developed in parallel to the social infrastructure component: a Digital and Physical Infrastructure component, and a Public Policy Infrastructure component. The main objectives of the Social Infrastructure component during Phase I, described in this document were:

- Conduct an overall assessment of the level of community resilience in Cristo Rey to understand community needs.
- Design a stakeholder strategy and community education and communication plan to link the community to external synergies.
- Produce and disseminate lessons learned so that other jurisdictions can execute a similar process.

The work methodology was supported by the following research process:

COMPREHEND ----- APPREHEND ----- EXECUTE -----PROGRAM

The project proposed to achieve the objectives of the Social Infrastructure Component was divided into three phases:

1. Information gathering and problem diagnosis
2. Community participation
3. Recommendations focused on strengthening community resilience through the Resilience Center.

Based on what has been analyzed, diagnosed and proposed in Cristo Rey, it is proposed that the Cristo Rey Community Resilience Center should at least fulfill the functions of:

- Meeting space, training and empowerment of the community. Through community programs and spaces for participation.
- Safe and Accessible Space. A well-used building, safe, in good condition and with the capacity to support critical elements, such as solar panel systems and batteries.
- Resilient Infrastructure. Both in the use of Sustainable Energy and by incorporating/ implementing an Emergency Preparedness Plan.

It must also be a reliable source of communication and a direct link between the community, local authorities and national authorities related to emergency prevention and early attention.

In addition to its resilient infrastructure, the Center must be able to manage/coordinate the establishment of an emergency committee; design a communication and distribution plan to increase community preparedness; and identify emergency response resources (directory availability of trucks, materials, houses with power generators, etc.).

Committees should be created to provide opportunities for conversations and announcements, organize periodic social events to increase community visibility, participation and vision. Create an agenda with clear priorities and desired outcomes.

For everything related to community management and organization for risk management and emergency management issues, accompaniment will be needed from DNA or another institution (COE, Red Cross, Civil Defense).

Through the Cristo Rey Community Resilience Center, plans should be developed to:

- Emergency preparedness and community risk mapping.
- Partial and total evacuation
- First aid: physical and mental health, chronic problems.
- Communication
- Access to transportation, fuel, food and water.
- Power interruption/energy alternatives.
- Temporary shelter
- Recovery
- Relief distribution

On a routine basis, when there is no emergency, the Cristo Rey Community Resilience Center can aim to address certain identified community needs in a way that provides spaces, activities and services that foster a sense of community ownership of the center.

These activities/services could be: a social incubator with a program of educational solutions that contribute to empowering community members. A community can expand its offerings by holding events periodically to increase visibility, participation and community vision. This will help build stronger connections between people.

GLOSSARY OF TERMS

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Adaptation	1.1
Informal settlement	1.2
Climate Change	1.3
Community Resilience Centers	1.4
Disaster	1.5
Emergency	1.6
Public space	1.7
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GLOSSARY OF TERMS

Adaptation. In human systems, the process of adjustment to actual or expected climate and its effects, to moderate damage or take advantage of beneficial opportunities. In natural systems, process of adjustment to the actual climate and its effects; human intervention may facilitate adjustment to the predicted climate and its effects.

Informal settlement. These are residential areas in which :

1. Inhabitants do not have tenure rights over the land or houses they live in, ranging from squatting to informal renting;
2. Neighborhoods often lack basic services and urban infrastructure.
3. Housing may not comply with building and planning regulations and is often geographically and environmentally located in hazardous areas.

In addition, informal settlements can be a means of real estate speculation at all income levels of residents, both rich and poor. Slums are the most deprived and excluded informal settlements, characterized by poverty and large agglomerations of dilapidated housing, usually located on the most dangerous land. In addition to the instability of tenure rights, slum dwellers lack basic infrastructure and services, public space and green areas, and are constantly exposed to eviction, disease and violence.

Climate Change. A change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods. The UNFCCC thus makes a distinction between climate change attributable to human activities altering the atmospheric composition, and climate variability attributable to natural causes.

Community Resilience Centers. Community resilience centers are disaster-resistant infrastructures that facilitate access to services on a temporary basis during emergencies. These spaces, through partnerships with institutions and the integration of community organizations, support the development of information and knowledge about hazards to progressively increase community resilience. Resilience centers can in some cases be temporary shelters for people and provide basic services without interruption during emergencies, but their greatest added value is the joint construction with the community of knowledge and capacities for action. Adapted from Community Resilience Centers Program, California Strategic Growth Council

Disaster. Severe disruptions to the normal functioning of a community or society due to hazardous physical phenomena interacting with vulnerable social conditions, resulting in widespread adverse human, material, economic, or environmental effects that require immediate emergency response to meet essential human needs, and may require external support for recovery.

Emergency. It is a disturbance or damage of various kinds (to health, property, environment, etc.). Public space. Places of public ownership or public use, accessible and enjoyable by all free of charge and without profit. This includes streets, open spaces, and public facilities.

Disaster risk management (DRM). Processes for designing, implementing, and evaluating strategies, policies, and measures to improve understanding of disaster risks, foster disaster risk reduction and risk transfer, and promote continuous improvement of disaster preparedness, response, and recovery practices, with the explicit goal of improving human safety, well-being, quality of life, and sustainable development.

Marginalization. It is the lack of participation in social benefits and resources, in the network of social decisions, their groups lack internal integration, the marginal man cannot overcome his condition by himself.

Mitigation (of climate change). Human intervention to reduce sources or increase sinks of greenhouse gases.

Mitigation measures. In the context of climate policy, mitigation measures are technologies, processes or practices that contribute to mitigation, for example, renewable energy technologies, waste minimization processes, and practices that promote the use of public transport.

Resilience. The capacity of social, economic and environmental systems to cope with a hazardous event, trend or disturbance by responding or reorganizing in a way that maintains their essential function, identity and structure, while retaining the ability to adapt, learn and transform. This definition is based on that used in the Arctic Council publication (2013). (Glossary in Annex II of WGII AR5).

- **Urban Resilience.** Capacity of urban systems to recover quickly from any event caused by disturbing phenomena of natural or anthropogenic origin. Its purpose is to prevent an event from evolving into a disaster (UN-HABITAT).

- **Community Resilience.** Capacity of the social system and institutions to cope with adversity and to subsequently reorganize themselves to improve their functions, structure, and identity. It identifies the way in which human groups respond to adversities that affect them collectively at the same time and in similar ways: earthquakes, floods, droughts, attacks, political repression, and others, while showing how the community's existing resources are developed and strengthened. (The community perspective of Resilience. Juan de Dios Uriarte Arciniega).

Risk. The potential for adverse consequences to occur for which something of value is at risk and in which an outcome or the magnitude of the outcome is uncertain.

Disaster Risk. The losses that could be caused by a disaster in terms of lives, health conditions, livelihoods, assets and services, and that could occur in a particular community or society at a specific period of time in the future.

Degraded high vulnerability tissues (T_{dav}). Portion of the territory or environment with similar physical characteristics, in which the fragility of referents in the everyday constitutes the human experience, inhabited in the uncertain and precarious by most of the population, with insufficient linkages and exposed to an increasing risk of wide-spread and intersectoral threats.(Moyano, 2015)

Vulnerability. Characteristics and circumstances that make a person, a group of people or a community more prone to suffer the harmful effects of a hazard.

Social vulnerability. The concept of social vulnerability has two explanatory components. On the one hand, the insecurity and defenselessness experienced by communities, families and individuals in their living conditions as a result of the impact caused by some type of traumatic economic-social event. On the other hand, the management of resources and strategies used by communities, families and individuals to cope with the effects of that event.

Physical vulnerability/infrastructure. It is associated with human settlements located in risk areas, as well as the deficiencies of their physical structures to absorb the impact of various events.

CIUDADES SOSTENIBLES Y RESILIENTES



¿QUÉ ES RESILIENCIA?

resiliencia
nombre femenino
 Capacidad humana de asumir con flexibilidad situaciones límite y sobreponerse a ellas.

urbanismo
 La capacidad de las personas, los municipios, las instituciones, las empresas y los sistemas de una ciudad para sobrevivir, adaptarse y crecer a pesar de las tensiones crónicas y los choques agudos que experimentan.

"El Centro de Cristo Rey es muy resiliente, ya que le brindó prosperidad económica al barrio"

¿QUÉ ES UNA CIUDAD SOSTENIBLE?

La ciudad sostenible es una ciudad que recupera y potencia su vida propia, y por tanto la de sus habitantes, mientras favorece la regeneración y el respeto de su entorno natural, así como la cohesión social, la educación para la paz y la integración cultural.

¿QUÉ ES UN CENTRO DE RESILIENCIA?



SOCIAL COMPONENT. BUILDING RESILIENT INFRASTRUCTURE. GENERAL METHODOLOGY

01

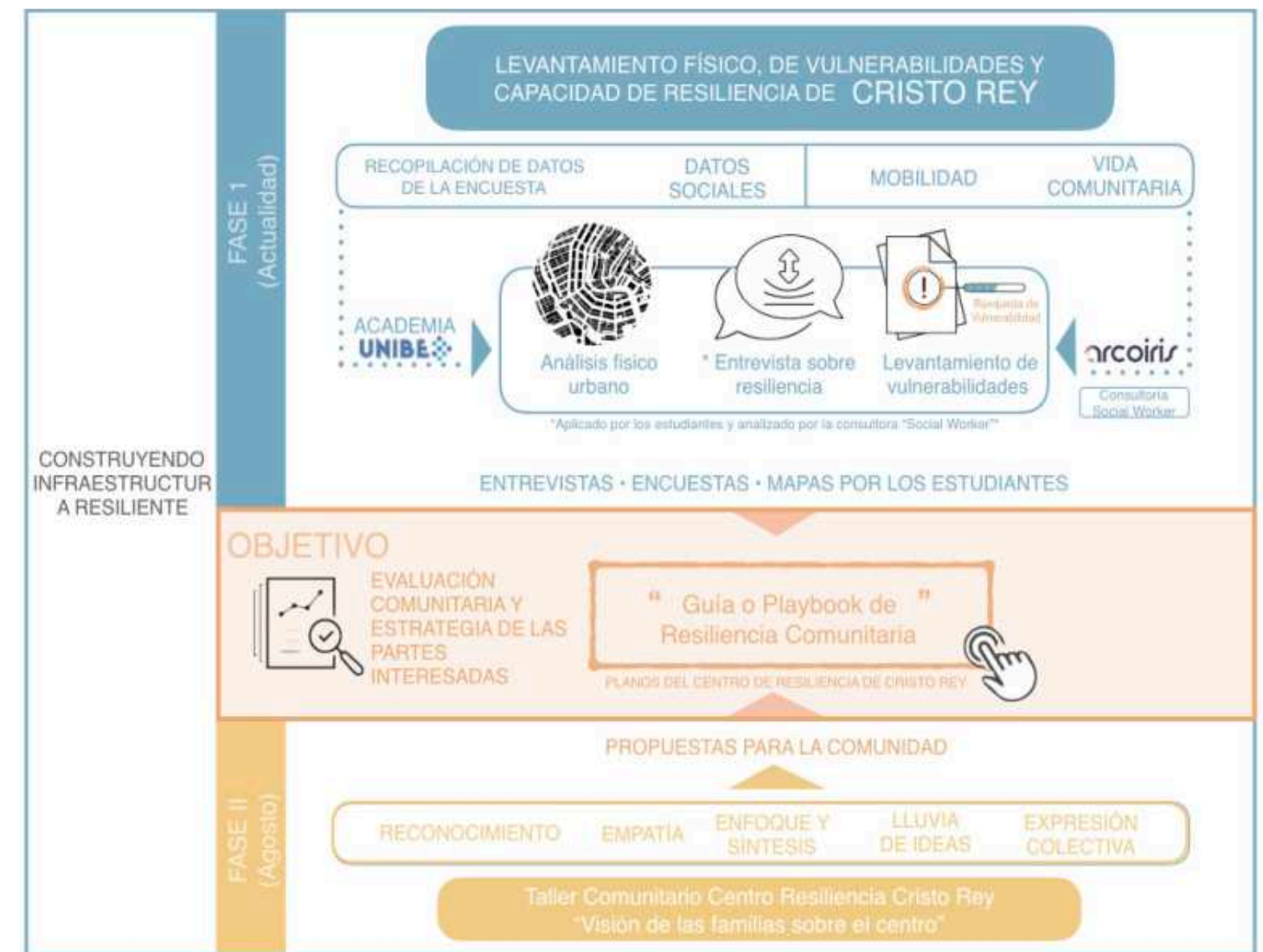
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Information gathering phase	1.1.1
Community participation phase	1.1.2
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CONTENT

GENERAL METHODOLOGY

The social infrastructure component, coordinated by the Universidad Iberoamericana, was designed with the objective of finding an effective link between social and urban indicators, in order to understand how the physical environment and its vulnerability affect the social structure of the community, so as to be able to plan a strategy that gives a sense of belonging to the Resilience Center to be set up by the National District Municipality.

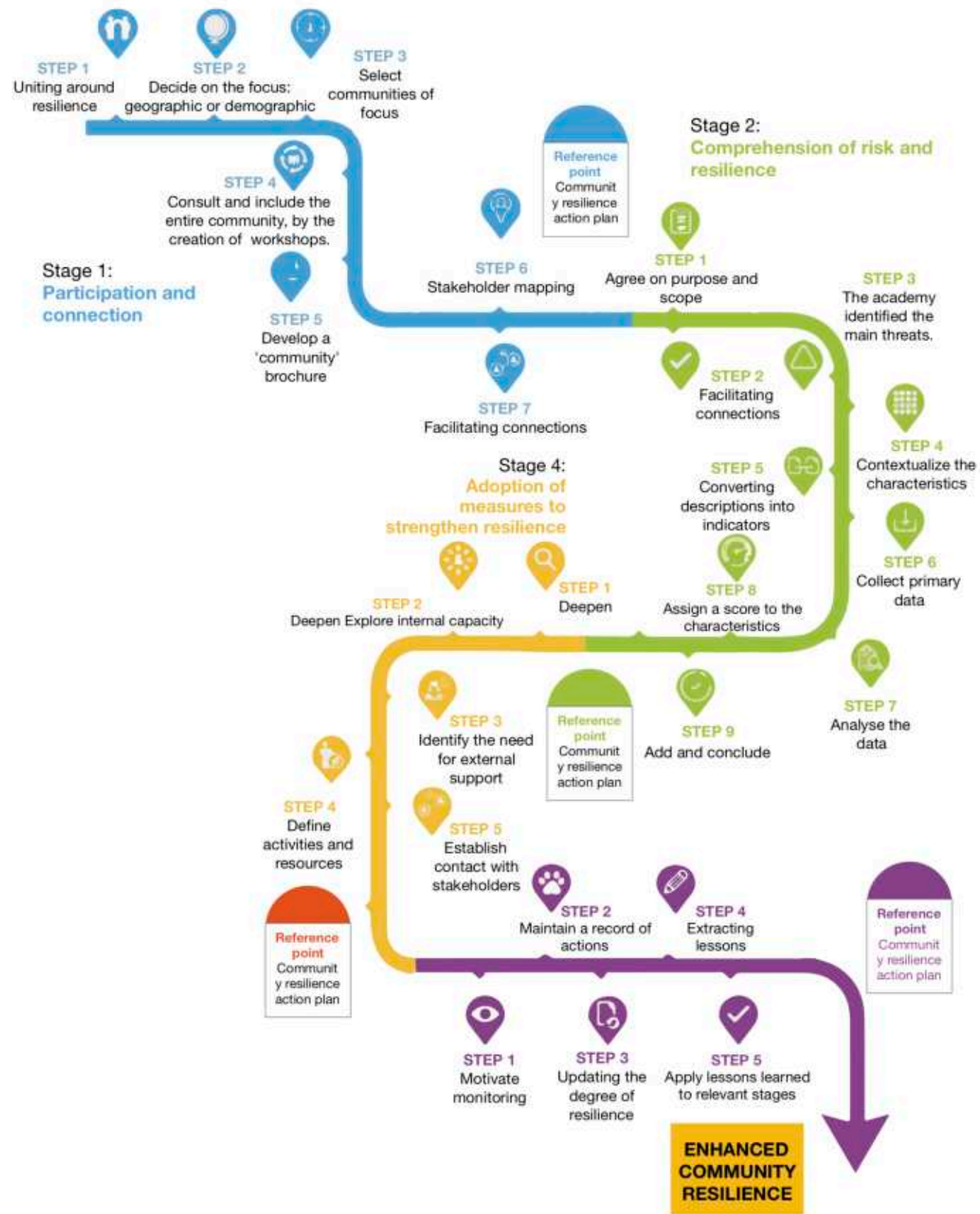
There are two other components that will be developed in parallel: the social infrastructure component, a digital and physical infrastructure component, and a public policy infrastructure component.



The main objectives of the social infrastructure component are:

- Conduct a community resilience assessment in Cristo Rey to understand community needs.
- Design a stakeholder strategy and a community education and communication plan to link the community to external synergies.

STEPS IN THE ROADMAP TO COMMUNITY RESILIENCE



- Produce and disseminate lessons learned so that other jurisdictions can execute a similar process.

The work methodology is based on the following research process:

COMPREHEND ----- APPREHEND ----- EXECUTE -----PROGRAM

The research is divided into three phases:

1. An information gathering phase.
2. A community participation phase.
3. An implementation phase

The first two phases are scheduled to be delivered in October 2022; the implementation phase will depend on the management processes of the institutional actors involved and on the planning of the refurbishment of the existing building owned by ADN.

Information gathering phase

The information gathering phase assumes data from the public and private sector in the areas of physical networks, urban regulations, housing vulnerability and social awareness. This data captured from primary and secondary sources was used to design a survey process that was divided into two stages

1. A desktop data collection stage that generated thematic maps at urban and neighborhood scale, on the following aspects:
 - Infrastructure services and community equipment.
 - Green systems and public spaces.
 - Mobility and road network.
2. One of social information gathering, through interviews (to selected people within the community) and random surveys, which generated GIS maps and narratives on the following aspects:
 - Social data
 - Housing and Habitat Vulnerability
 - Community life

Community participation phase

The results obtained in Phase I were used to design creative workshops with the community. This information served as the basis for guiding the workshop activities. Taking into account that a process had been carried out in which it was possible to gather information that accurately showed the community's perception of the vulnerability of their environment, we considered that it would be more useful to use the workshops as a tool for empowering the community with the Community Resilience Center.

The workshop had four objectives:

1. To deepen the community members' apprehension of the term resilience and the link it has with the organization of their community. For this purpose, personal recognition and empathy techniques were used.
2. To generate a process of collective expression using brainstorming and group iteration techniques, which shed light on the aspirations that the community has towards this Community Resilience Center.
3. To focus and synthesize ideas, activities and uses that the center should and should not have. This was done on creative panels that showed in a physical and documentable way the conclusions of the participation process.
4. Seal in the memory of the community the findings and the community participation through a collective party.

Implementation phase

This phase begins with a list of the lessons learned in the process of the survey and information phases, so that they can serve as experience inputs for future projects of this type, local or international.

The findings of the previous phases will help in the design of two instruments that will allow for the effective implementation of the Cristo Rey Community Resilience Center project:

A stakeholder engagement strategy. Where relevant actors, their tasks in the implementation plan and a road map should be listed.

An operational plan for the community. Where the objectives to be developed by the actors in accompaniment to the community can be incorporated, as well as tactics and measurable performance evaluations.

CRISTO REY EVALUATION

02

Context National District
Districts | Neighborhoods

Relationship of Cristo
Rey with the rest of the
city

Socioeconomic Profile

Urban Profile.
Photographic survey of
the sector.

CONTENT

2.1

2.2

2.3

2.4

CONTEXT NATIONAL DISTRICT. DISTRICTS | NEIGHBORHOODS

The National District is the capital of the Dominican Republic, created as a province on September 7, 1934 under Law No. 745; divided by Law No. 163-01, dated October 16, 2001, into two different demarcations, the National District and the province of Santo Domingo.

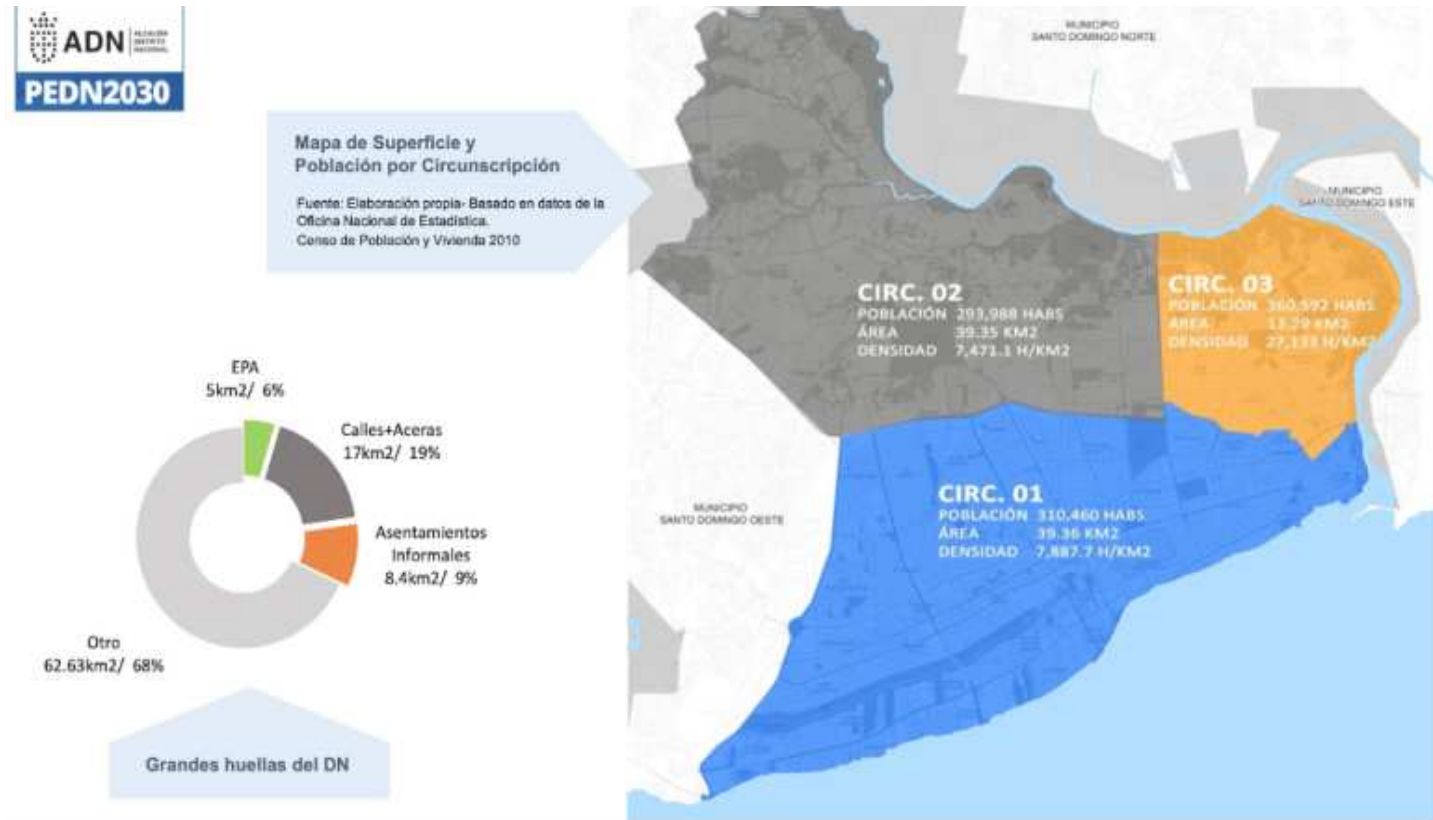
It currently has a territorial extension of 91.58 km². It is bordered on the north by the Duarte Highway up to Km. 13 and the Isabela River; on the east by the Ozama River and the municipality of Santo Domingo East; on the south by the Caribbean Sea and on the west by the municipality of Santo Domingo West. According to the IX National Population and Housing Census 2010, the National District is made up of a single municipality, called Santo Domingo de Guzmán and subdivided into 70 neighborhoods. It is the only territorial demarcation at the provincial level that is completely urban.

The National District represents only 7% of the metropolitan system of Santo Domingo, which has almost 1,400 km², however, it concentrates within its limits most of the economic and administrative activities of the region.

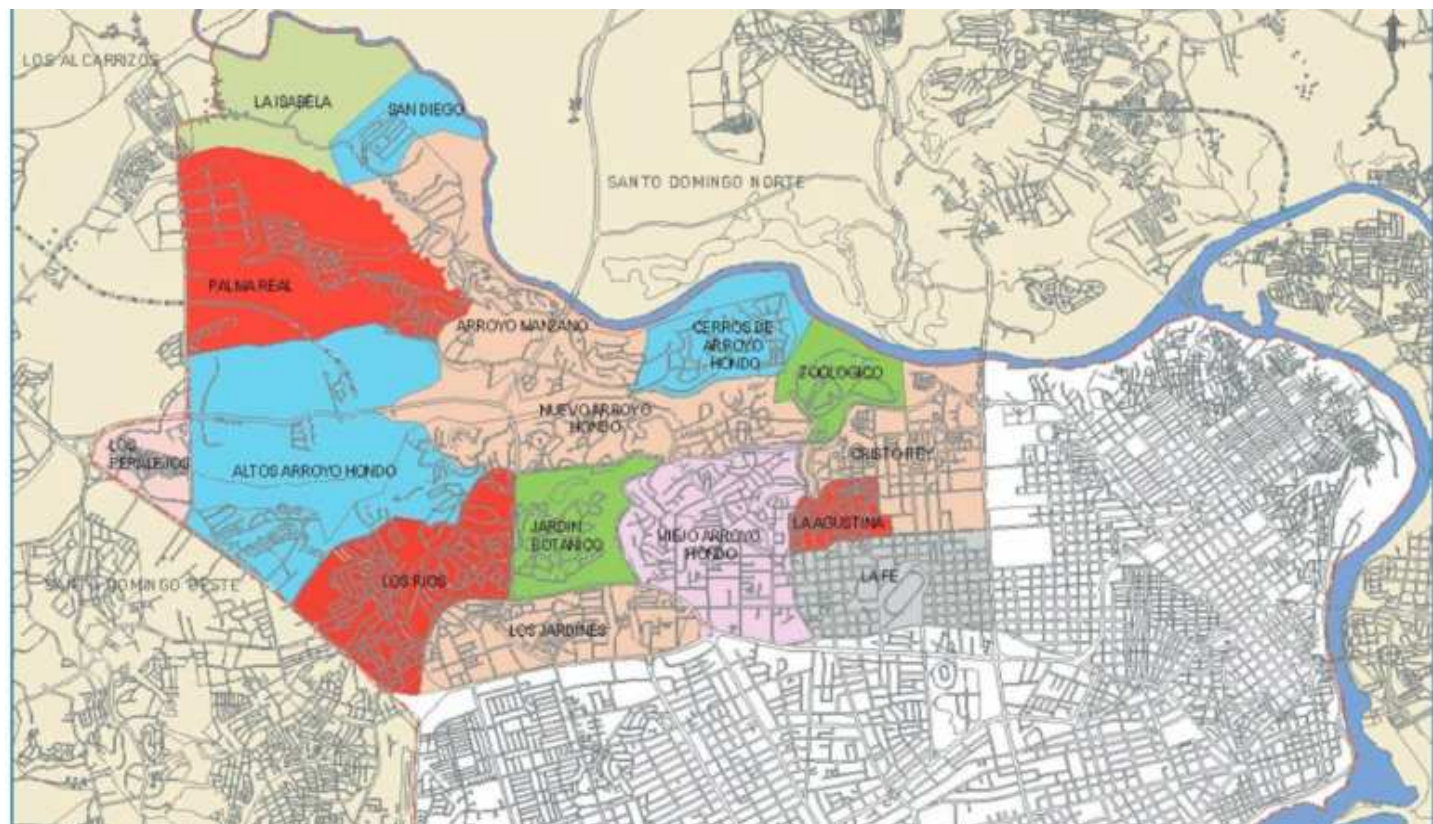
Its territory is bordered to the north by the Isabela River and the municipality of Santo Domingo Norte, to the south by the Caribbean Sea, to the east by the Ozama River and the municipality of Santo Domingo Este and to the west by the Gregorio Luperón and Autopista Duarte roads, as well as the municipalities of Santo Domingo Oeste and Los Alcarrizos.

Territorially and administratively, the National District is subdivided into three large zones or Circunscripciones and these in turn are divided into 70 neighborhoods.

District 2 is located in the northeastern part of the National District and groups 15 popular and marginal neighborhood units, with part of the population living on risky and flood-prone land.



Map of surface area and population by District and Chart of "Large Footprints" of the National District. EPA (Open Public Spaces). Source: Strategic Plan for the National District 2030. National District City Council.

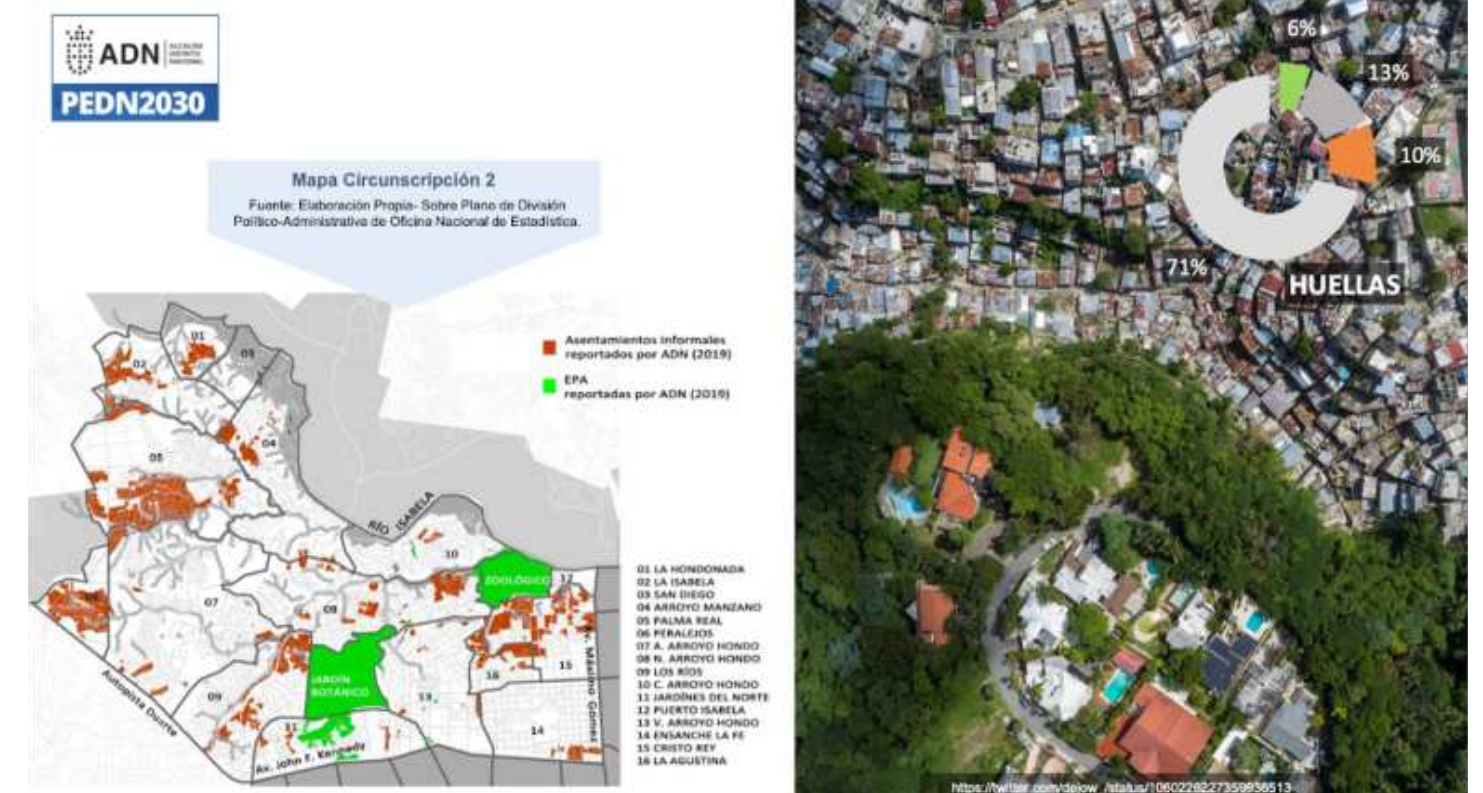


Neighborhood division of Ward 2 of the DN. Source: Indicative Plan for the Metropolitan Zone of Santo Domingo (2006). Diagnostic Report. Indicative Plan for the Metropolitan Zone of Santo Domingo. CONARE

Cristo Rey, the neighborhood where the Resilience Center will be located, is located in District 2, in the northwest of the National District and is structured in five areas or sub-neighborhoods. This territorial zone is bordered by the following neighborhoods: to the north the Zoological Garden and Puerto Isabela, to the east Villa Agrícola, to the south Ensanche La Fe, and to the west La Agustina and Viejo Arroyo Hondo.

The neighborhood of Cristo Rey has a territorial extension of 2.0 km²; it is geographically located in the northwestern part of the National District; structured in five sub-neighborhoods, and denominated neighborhood in the political-administrative division of the Dominican Republic.

Its main access roads are the following avenues: - Paseo de los Reyes Católicos - De Los Mártires - Nicolás de Ovando - Pedro Livio Cedeño - Del Zoológico - Máximo Gómez This territorial zone borders the following neighborhoods: to the north the Jardín Zoológico and Puerto Isabela, to the east Villa Agrícola, to the south Ensanche La Fe, and to the west La Agustina and Viejo Arroyo Hondo.



Characterization of District 2 of the National District. EPA (Open Public Spaces). Source: Strategic Plan for the National District 2030. City Council of the National District.

This neighborhood has a population of 57,084 inhabitants, of which 49.3% are men and 50.7% are women. The population of Cristo Rey represents 5.90% of the population of the DN, and has an area of 2.1 km² (210 hectares), which means that it has a density of 28,425.9 inhabitants per km².

Taking into account that the average density in the DN is 13,028.4 inhabitants per square kilometer, it can be affirmed that Cristo Rey has almost double the average of the City of Santo Domingo, representing the 9th position in terms of housing density within the DN.

Cristo Rey has a total of 16,622 homes, which when related to the total area of the neighborhood, gives a gross residential density of 79.15 homes per hectare, which means that it is a high density neighborhood.

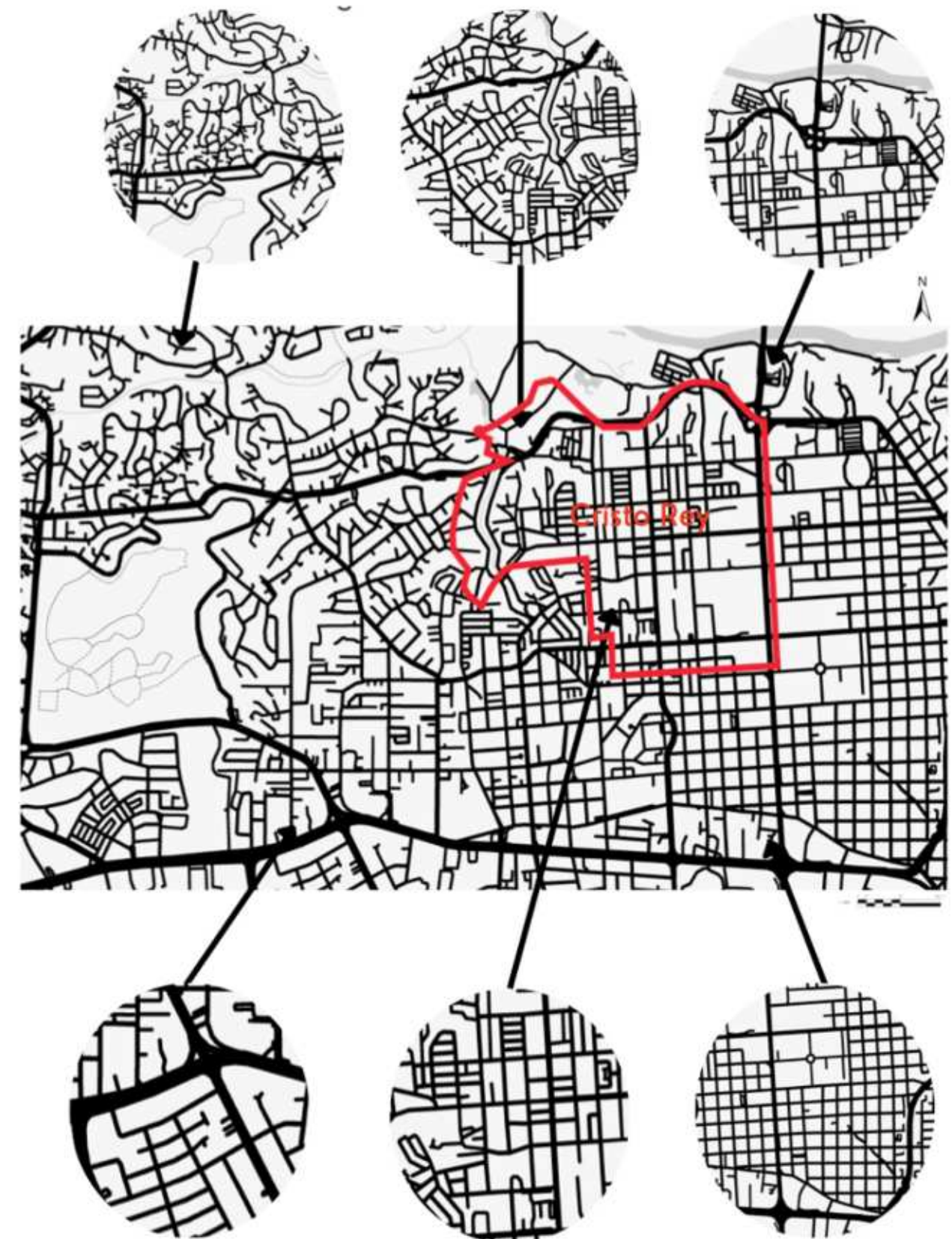
RELATIONSHIP OF CRISTO REY WITH THE REST OF THE CITY.

Urban Structure

Both the neighborhood of Cristo Rey and its surroundings present a mixed urban fabric, which combines the orthogonal structure of square blocks characteristic of the widening model, as well as an orthogonal structure of rectangular blocks and organic structure. The latter appears both in the formal part (responding to the topography and the terrain) and in the informal fabric, where the formal structure of the blocks and streets has been adulterated to build informal housing and businesses.

Irregular organic blocks are located in Cristo Rey, La Agustina, Los Caminos and Ensanche Capotillo. The square blocks are located in Villa Juana, Villa Fontana, Villa María, Ensanche La Fé and El Ensanchito.

The rectangular blocks are located in Ensanche Luperón, Ensanche Espaillat, Libertad and Villa Consuelo.



Analysis of the urban structure of the immediate surroundings of Cristo Rey.

Open Public Spaces

Cristo Rey lacks large public open spaces. Only two small parks were identified in the study area. Green areas are also non-existent. The streets have no trees, and the only trees present are located inside some blocks. There is a stream (Arroyo Seco) in the neighborhood that is in the process of being channeled to create a linear park. There are also two other small parks with children's areas.



Open Space System of the National District. Source: Plan de Ordenamiento Territorial 2030. POT Capital. Municipality of the National District.



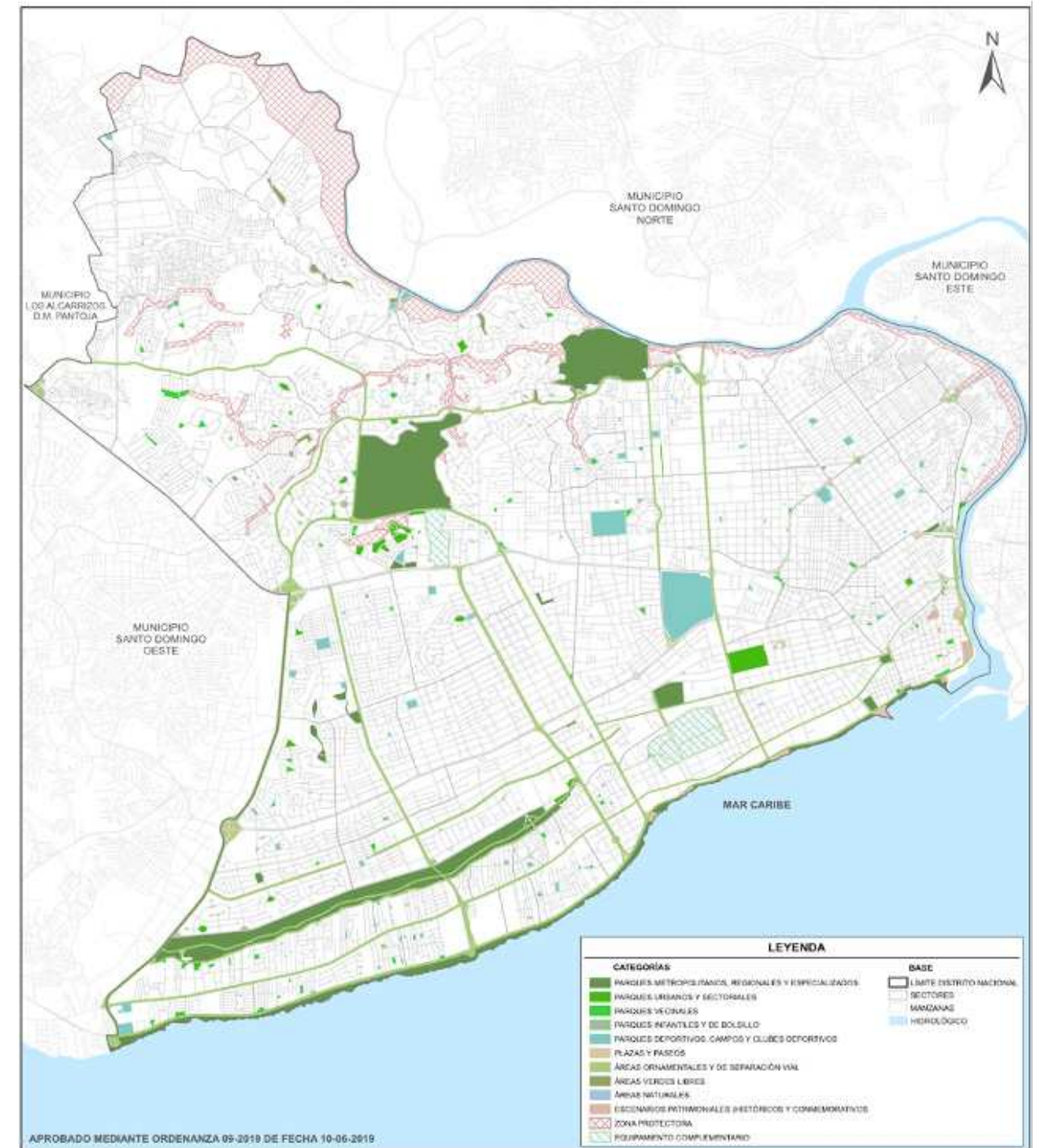
Urban Green System and Environmental Zones of the National District. Source: Plan de Ordenamiento Territorial 2030. POT Capital. Municipality of the National District.

Road network

The road infrastructure of Cristo Rey is composed of 105 roads identified by names, and a total of 72,199.4 linear meters of roads throughout the sector; of which 12.6% are avenues, 33.9% are streets, 42.1% are alleys and 8.7% are pedestrian, among other roads..



Vegetation map in the vicinity of Cristo Rey. Source: Prepared by the students of Group 1.



Open Space System of the National District. Source: Plan de Ordenamiento Territorial 2030. POT Capital. Municipality of the National District.

1-Oficina Nacional de Estadística (2017). Condiciones de la Infraestructura del Sistema Vial Urbano del Distrito Nacional en República Dominicana 2015. Recuperado de: <https://web.one.gob.do/media/n3nnz1b3/atlascondici%C3%B3ndelainfraestructuradelsistemavialurbanodeldistritonacionalrepdom2015.pdf>



Vías troncales y población flotante
 Fuente: Elaboración propia, basado en datos de Volúmenes de Tráfico Vehicular y de Personas en Cordón Externo del DN 2014.

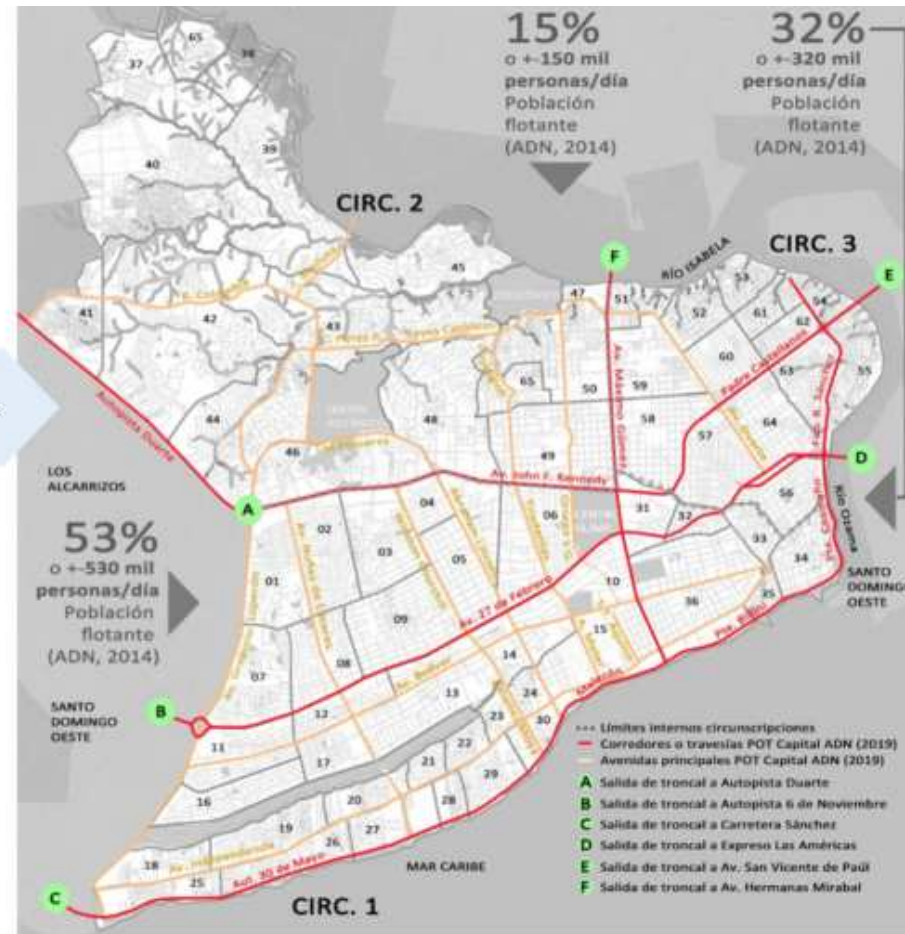
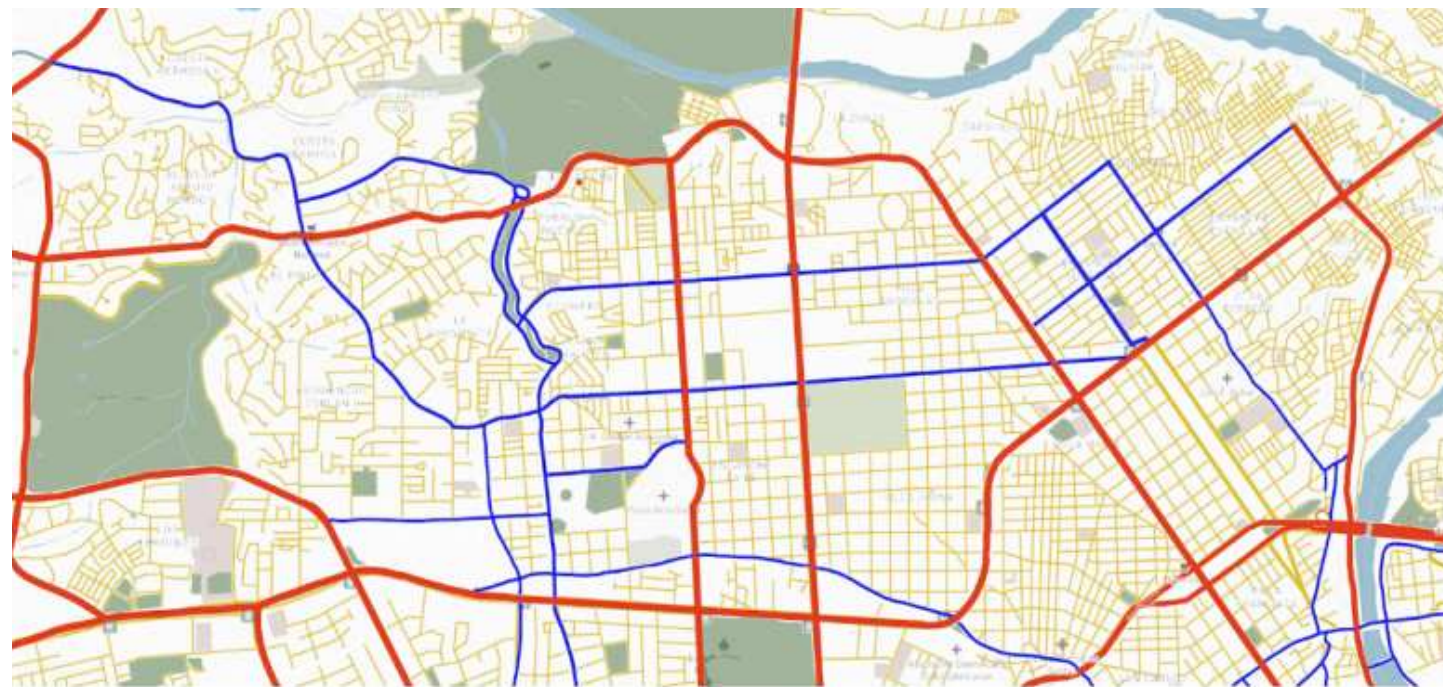


Figure xx. Trunk roads and floating population DN.



LEYENDA
 — Troncales o Primarias
 — Colectoras o Secundarias
 — Locales o Terciarias

Road hierarchy of the surroundings of Cristo Rey. Source: prepared by the students of Group 1.



Road infrastructure of Cristo Rey. Source: National Statistics Office (2016). Infrastructure Conditions of the Urban Road System of the National District in Dominican Republic 2015. Retrieved from: <https://web.one.gob.do/media/n3nnz1b3/atlascondici%C3%B3ndelainfraestructuradelsistemavialurbanodeldistritonacionalrepedom2015.pdf>

PUBLIC TRANSPORTATION

At the urban level, transportation in the National District is structured on the basis of the public system, managed by the State (subway, cable car and OMSA buses, and by the unions of mini and minibuses, public cars and motoconchos.

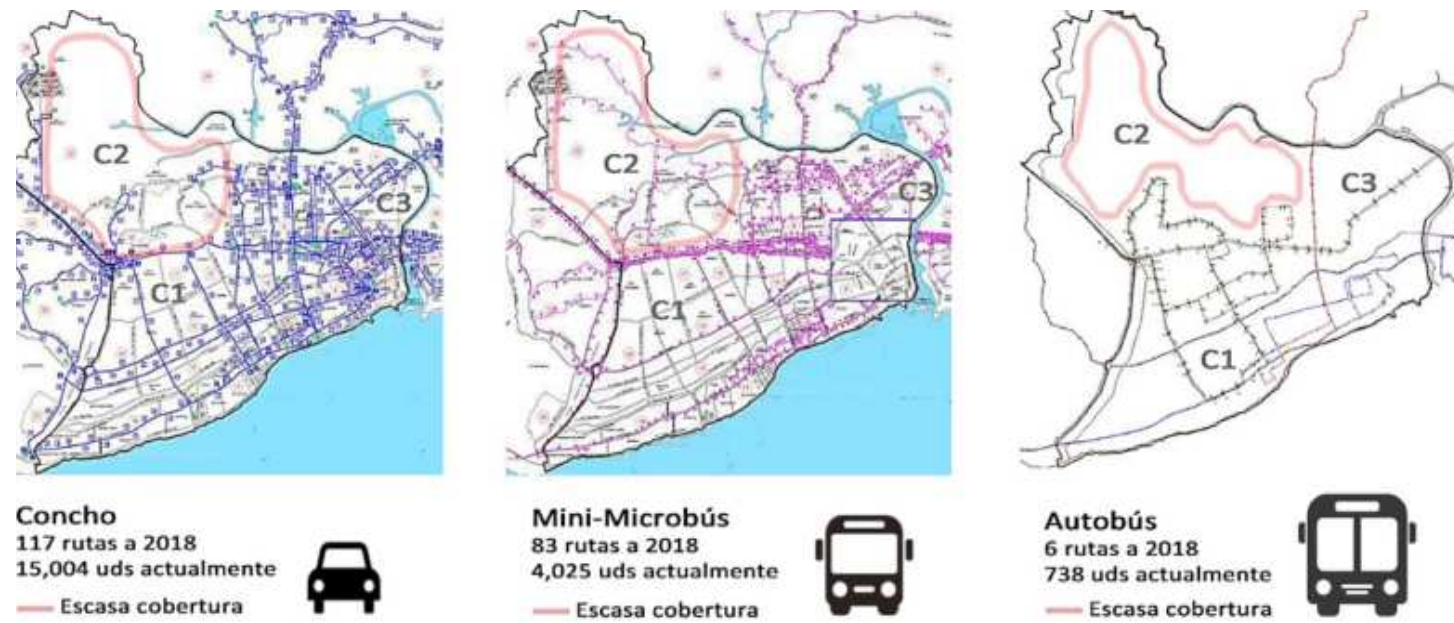


Figure xx. Modal distribution of road transport in the DN. Source: Strategic Plan for the National District 2030. Municipality of the National District.



Public Transportation in the National District. Source: Plan de Ordenamiento Territorial 2030. POT Capital. Municipality of the National

However, Cristo Rey is relatively well connected with public transportation, as it is within the area of influence of the subway line 1 and the Naco Corridor of the OMSA, and is also crossed by 8 minibús and minibús routes.

It is also crossed by 8 minibús and minibús routes

- Line 8A: 39 stops from Prolg. Ovando Prox. C/45 to C/Heroes De Luperon Desp. Av. Independencia.
- Line 19A52: 43 stops from Av. Alma Mater Desp. Av. Dr. Bernardo Correa Y Cidron to Av. John F. Kennedy.
- Line 20B: 102 stops from Av. Penetración to Carr. De Hato Nuevo.
- Line 19B: 16 stops from Av. Nicolás De Ovando Prox. Av. Ortega Y Gasset to Av. Simón Bolívar Prox. Av. Dr. Delgado.
- Line 30: 28 stops from Av. Paseo De Los Reyes Católicos to C/Francisco J. Peynado Esq. Av. Independencia.
- Line 69B: 77 stops from Av. Albert Thomas Prox. C/Federico Velasquez to Carr. Hato Nuevo.
- Line 100B: 71 stops from Av. Albert Thomas Prox. C/Federico Velasquez to Camino A Batey Palavé.

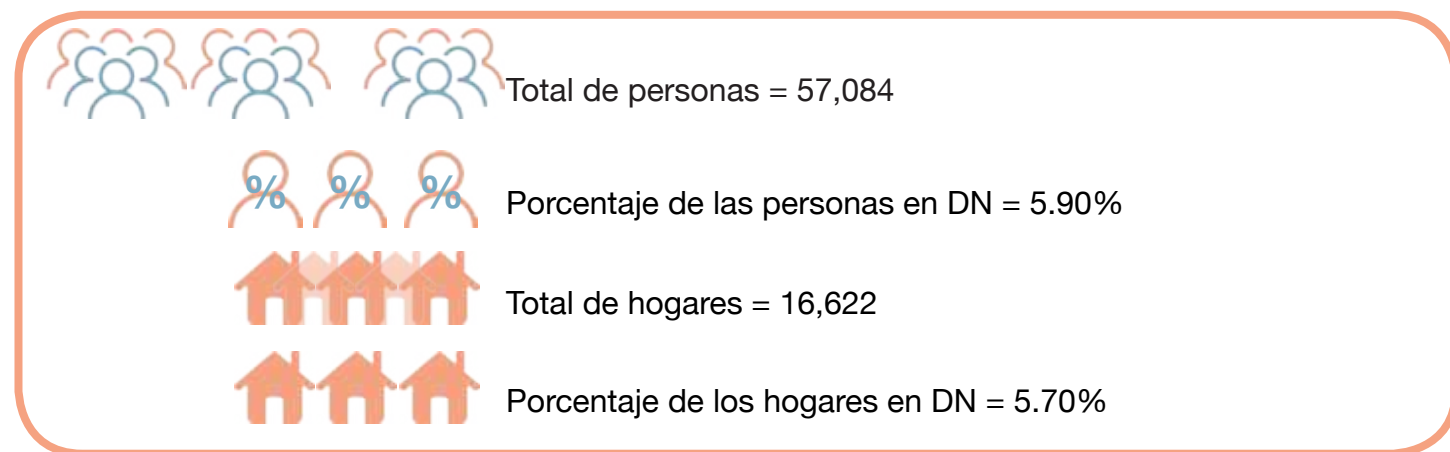


Public Transportation Map of the surroundings of Cristo Rey. Source: prepared by the students of Group 1.

SOCIOECONOMIC PROFILE

Demographic Characteristics.

The population of this geographic demarcation reaches 57,084 people in total. The distribution by sex indicates that 49.3% are men and 50.7% are women. Of the current inhabitants, 32.1% were born in another municipality, indicating that it is a relatively important geographic area of population attraction and that it receives internal migrations from other municipalities, mostly from rural areas with the objective of improving living conditions and sources of work. Only 4% of the inhabitants were born in another country and live there. In the neighborhood, 28.3% of the population is aged 0-14 years, 65.8% is in the productive age bracket, from 15 to 64 years, and only 5.9% is 65 years and older.



Summary of demographic data of the neighborhood of Cristo Rey. Source: ONE, 2010

Labor market

The overall employment rate registered 43.4% in Cristo Rey. Regarding the employment opportunities to which the population of the neighborhood has access, 71.5% reported being employed by companies and 19.5% in the informal sector as self-employed. Of those employed, 30.6% are engaged in economic activities related to service and commerce; 18.7% are employed in elementary occupations, while 14.2% work as operators in mechanical arts, crafts or other trades.

Of young men and women between 18 and 29 years of age, 50.8% are employed, revealing considerable disparities by gender: young women report an employment rate of 39.6%, while the employment rate of young men is 61.7%, exceeding that of young women by more than 20 percentage points. Unemployment among young men and women is 18.2%, slightly higher than the national youth unemployment rate (17.8%).

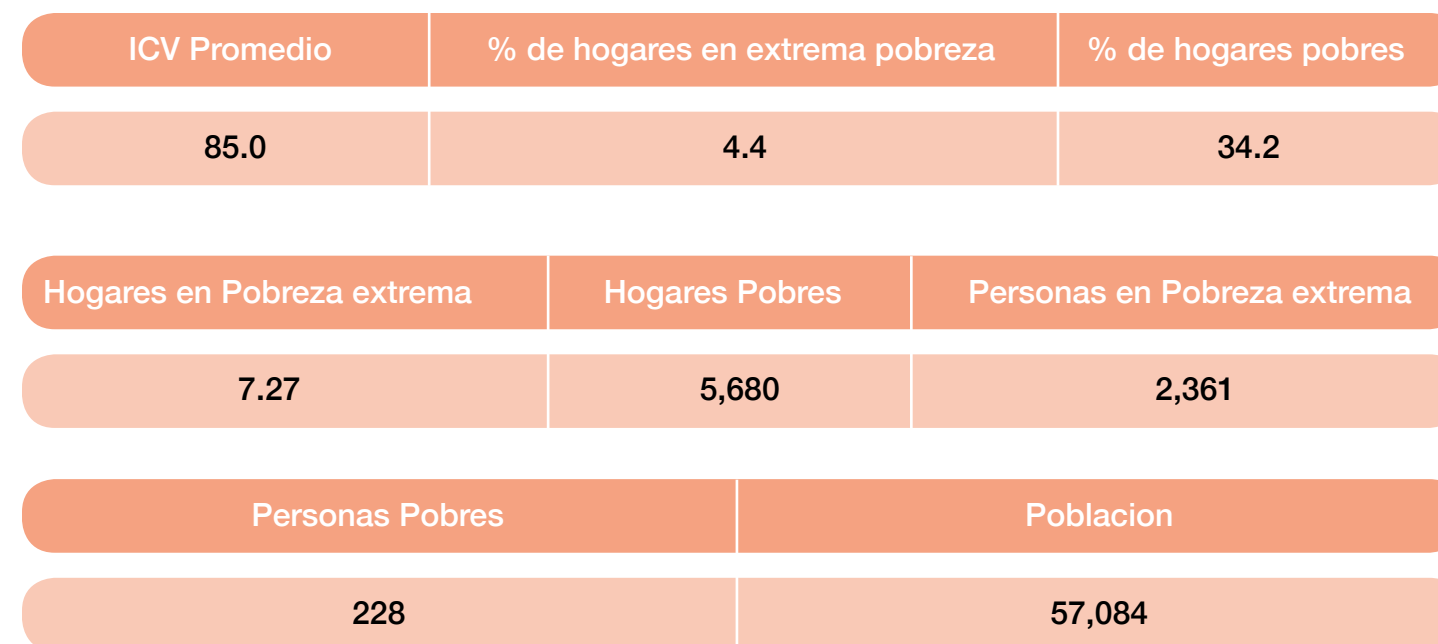
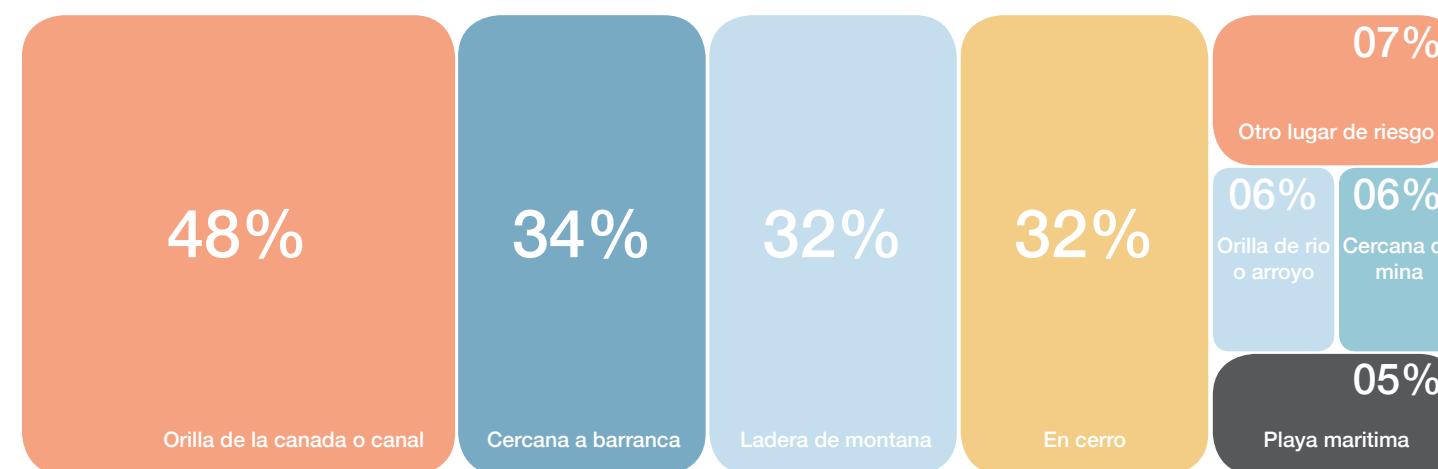


Figure xx. Sociodemographic data of the Cristo Rey neighborhood. Source: NSO, 2010.

Ubicacion de las viviendas (proporcion de Hogares)

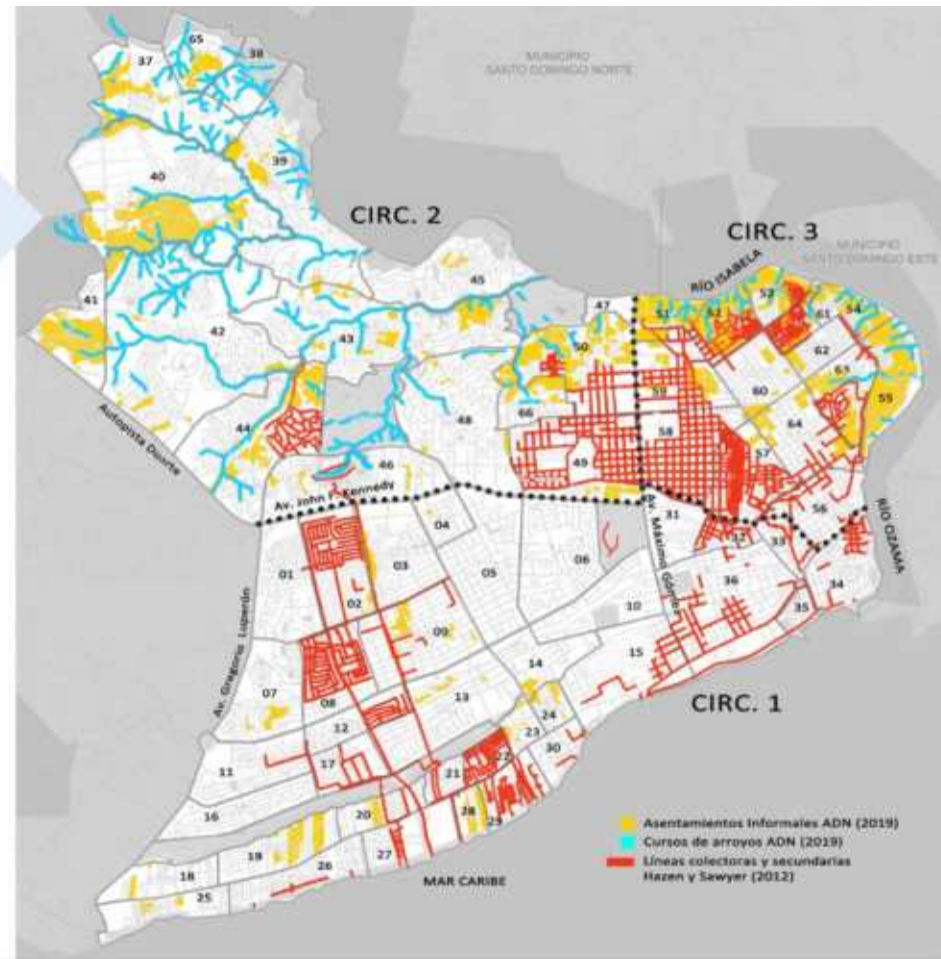


Vulnerability levels of the Cristo Rey neighborhood, evaluated based on the location of homes in vulnerable environments.

The Index of Vulnerability to Climate Shocks (IVACC) records for the neighborhood 51.6% of households with a probability of being affected by natural disasters, which places it well above the average; in addition, there were households with a high probability of being affected by these phenomena (10.8%).

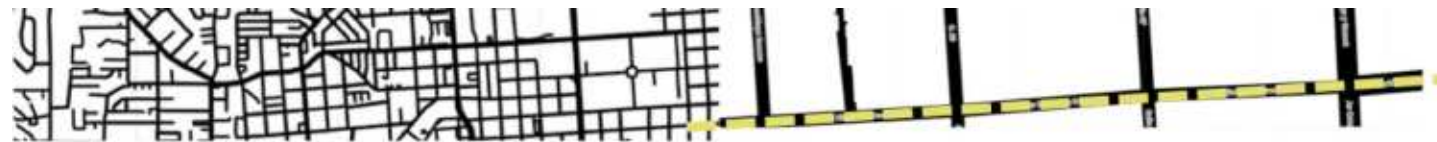
95.8% of the households have a toilet as a sanitary service, which suggests that this is a neighborhood with relatively improved basic services. The water used by household members comes from the aqueduct inside the dwelling for only 56.2% of the households.

Mapa alcantarillado DN
Fuente: Elaboración propia usando datos Hazen & Sawyer (2012), y Planes y Normas ADN.



Map of sewerage service in the DN.

Urban Profile. Photographic survey of the sector.



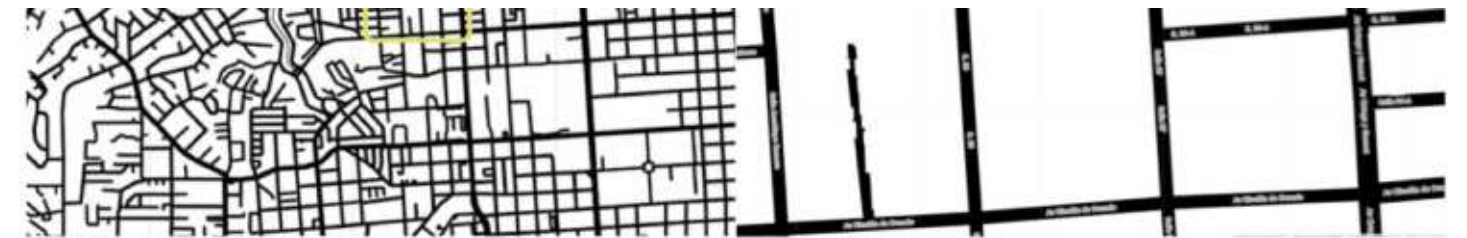
NICOLAS DE OVANDO



Urban profile of Nicolás de Ovando Avenue. Source: prepared by Group 3.

Nicolás de Ovando Street has a high vehicular flow, it is quite busy and cars and motorcycles tend to go at high speed. For this reason, it is necessary to have an optimal space for pedestrian safety, which does not exist as can be seen in the elevation.

The sidewalks are irregular and small, and are occupied by vendors who are located outside their homes, causing unsafe and uncomfortable pedestrian mobility.

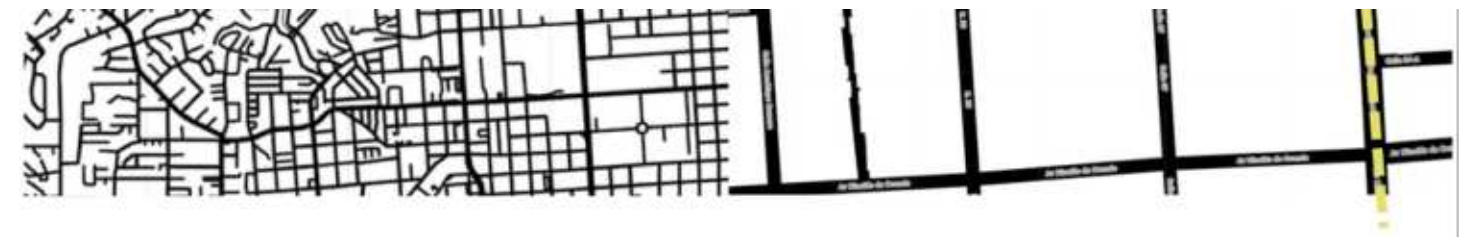


SAN JUAN DE LA MAGUANA



Urban profile of Nicolás de Ovando Avenue. Source: prepared by Group 3.

This profile shows several existing problems in the area. Among them is the lack of priority given to pedestrians, the sidewalks are extremely narrow and in very poor condition, making this an unsafe area for pedestrians. Pollution and lack of maintenance are also evident.

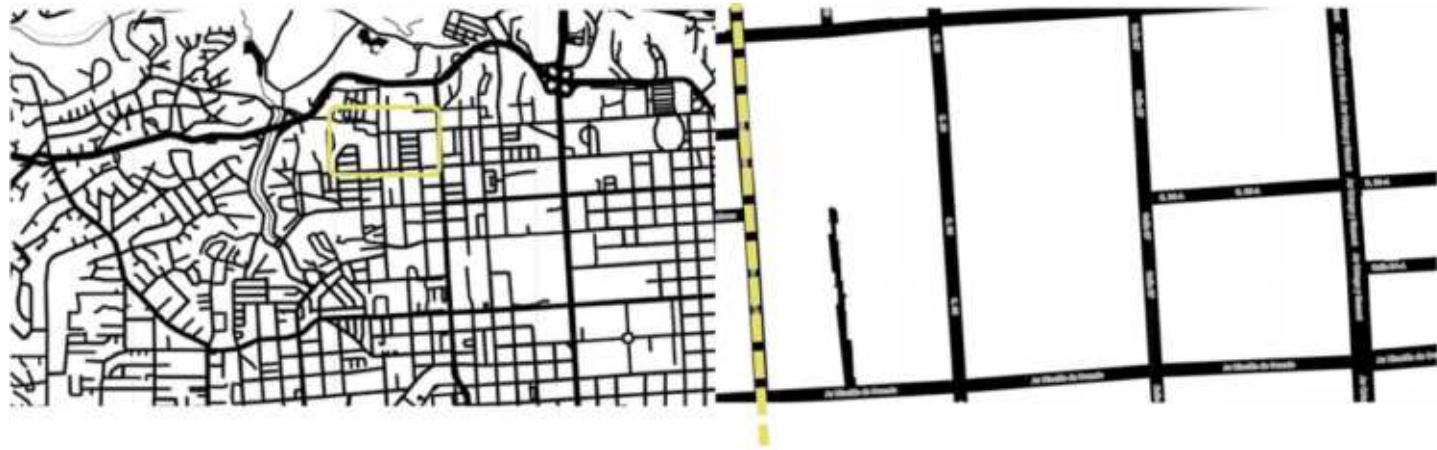


ORTEGA Y GASSET



Urban profile of Av. Ortega y Gasset. Source: prepared by Group 3

The streets are narrow and cars are parked on both sides, causing a disorganized vehicular flow, and again, the quality of the sidewalks causes discomfort for pedestrians.



ARZOBISPO ROMERO



Urban profile of Arzobispo Romero Avenue. Source: prepared by Group 3.

This street is home to a large number of street vendors who stand outside their homes to sell food, clothing and any type of merchandise. It is a visually unpleasant area, and uncomfortable to walk through. All the merchandise is placed on the sidewalks, the food is full of flies and there are strong odors from the food.

ACADEMIC EXERCISE

03

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ACADEMIC EXERCISE

The first phase seeks to understand the urban context in which the project will be inserted, and for this purpose certain analyses of the context are proposed, which have been carried out by the students of the Urban Sociology and New Urbanism course, led by the teacher Victoria De Láncer during the period January-April 2022.

For this purpose, a central exercise is proposed, which would serve as a guiding thread of the contents of the class and of the formative activities and field work involved in the subject.

In this way, an exercise of reflection and urban, socioeconomic and vulnerability analysis is proposed, where from field work, interviews with residents and a survey, the necessary data are collected to make a general profile of the context of the Resilience Center.

The project was entitled: Analysis of urban and socioeconomic vulnerability in support of the project "Building Climate Resilient Communities in the Dominican Republic." Within the framework of the UNIBE-Columbia-ADN agreement.

The objective was to train students to be able to analyze an urban fabric based on the identification of its physical and socioeconomic characteristics, and to identify existing vulnerabilities. Based on the information gathered and analyzed, the cartography and graphics necessary to understand the immediate surroundings of the Cristo Rey neighborhood, the project site, as part of a global urban context, are constructed.



Methodological scheme Phase I



Student analysis photos.

Class structure

The class was structured along three axes:

- **Theoretical content.** Presented by the teacher as part of her curriculum and by invited experts. These lectures were transmitted through the youtube channel UNIBEENLÍNEA, so that the teaching transcends the classroom, becoming a means to communicate important social situations and share the knowledge acquired to the entire community. The entire process of the project and the

intermediate results have also been shared through the social networks of the UNIBE School of Architecture, thus turning education into an innovative and transformative experience, an important element in the university's educational model. Some of the basic concepts covered by the guest speakers were shared as informative capsules in the social networks, as a contribution of the project to the educational community.

- **Field work.** Two visits were made to the neighborhood, in the first one the main physical aspects were surveyed: land use, heights, urban structure, urban morphology, analysis of the natural, climatic and ecological environment, roads, urban image and quality of public spaces (see attached link for a breakdown of the assigned exercises). In the second visit, 28 interviews and 172 surveys were conducted to analyze the degree of vulnerability of the neighborhood and the resilience of the residents.
- **Diagnosis and Urban Proposal.** Based on the work carried out during the four-month period, each team made an urban diagnosis of the problems of the sector deduced from all the previous analyses. Based on this, and related to the site and project associated with the workshop, the teams propose schematic proposals for urban intervention.

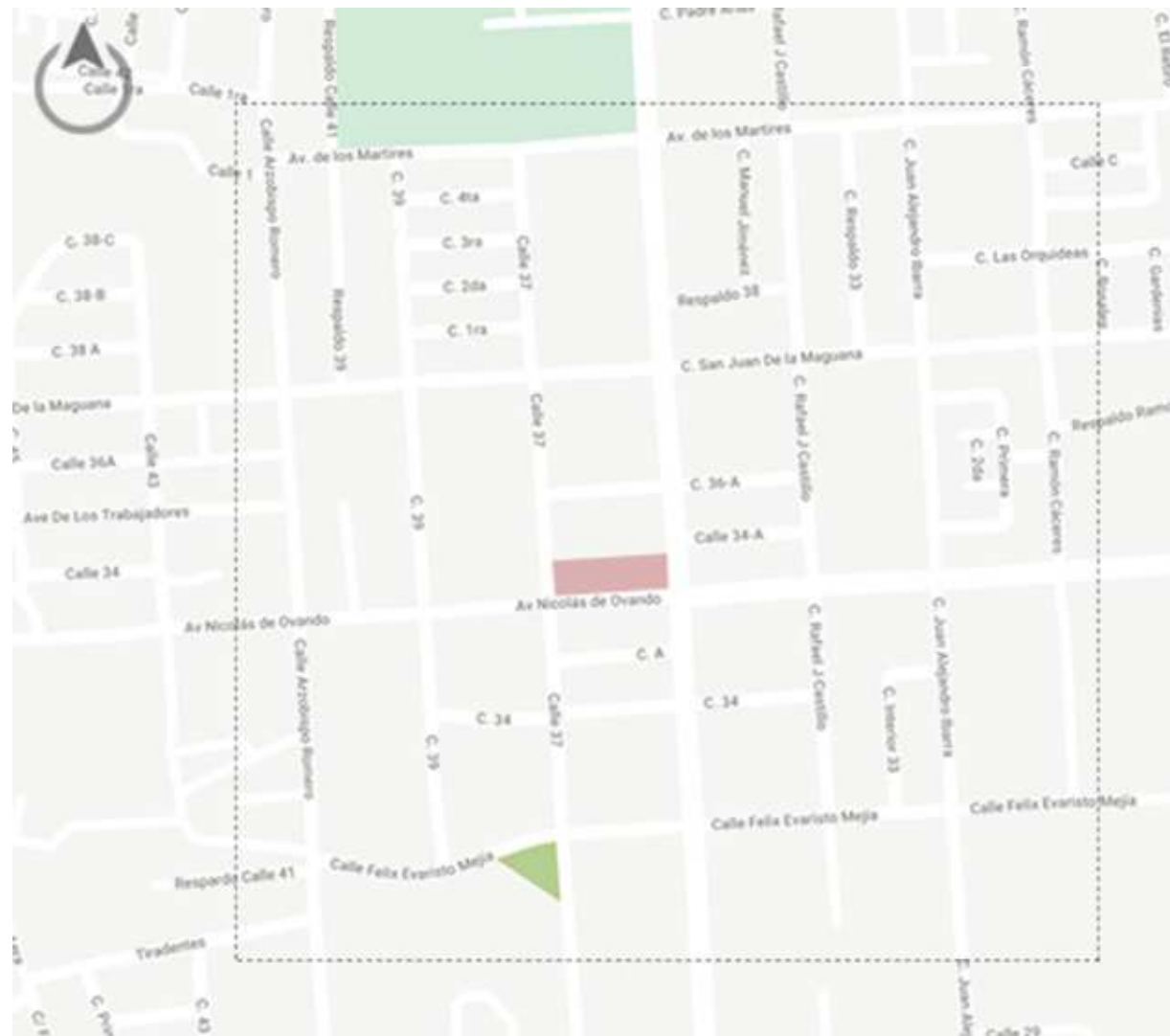


Outline of the class structure.

Field research process. Description of the assigned exercises.

The different analyses were worked on in teams of 5-6 members and throughout the four-month period they collected information from the field work, which was then presented in the form of portfolios and slides. To carry out the work, the teacher divided the neighborhood into six areas, so that each team would survey a part of the study area. However, for the final proposal, both the diagnosis and the vision of interventions should be presented based on the analysis of Cristo Rey as a whole.

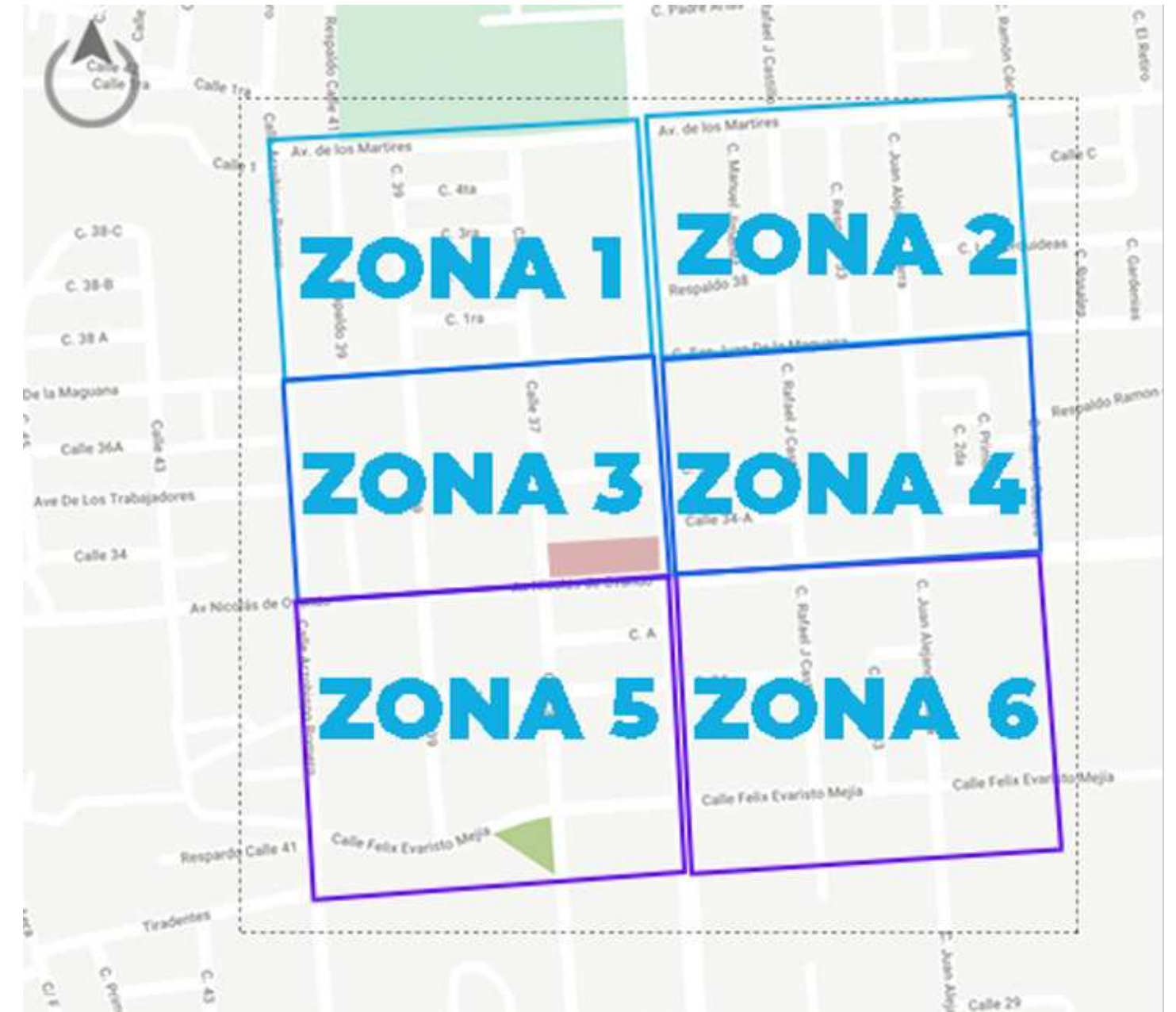
The assigned study area was selected based on a radius of 300 meters from the block where the Resilience Center will be located, with the understanding that this is the desired walking distance, in which ideally the basic needs of daily life should be covered (easy access to work, commerce, housing, public transportation, public space) in order to determine to what extent these needs are covered.



Study area for the urban physical survey

As a contribution to the Project, a cartographic base was generated to contextualize the project, and to make recommendations to the Mayor's Office for complementary interventions to the Resilience Center. This gives strength to the proposal and complements the vision of contribution to the community.

Finally, based on the analysis carried out, proposals are made as a "vision board" of what Cristo Rey would need to be a more resilient and safe neighborhood in the face of a threat, always taking into account that the Resilience Center should be the epicenter.



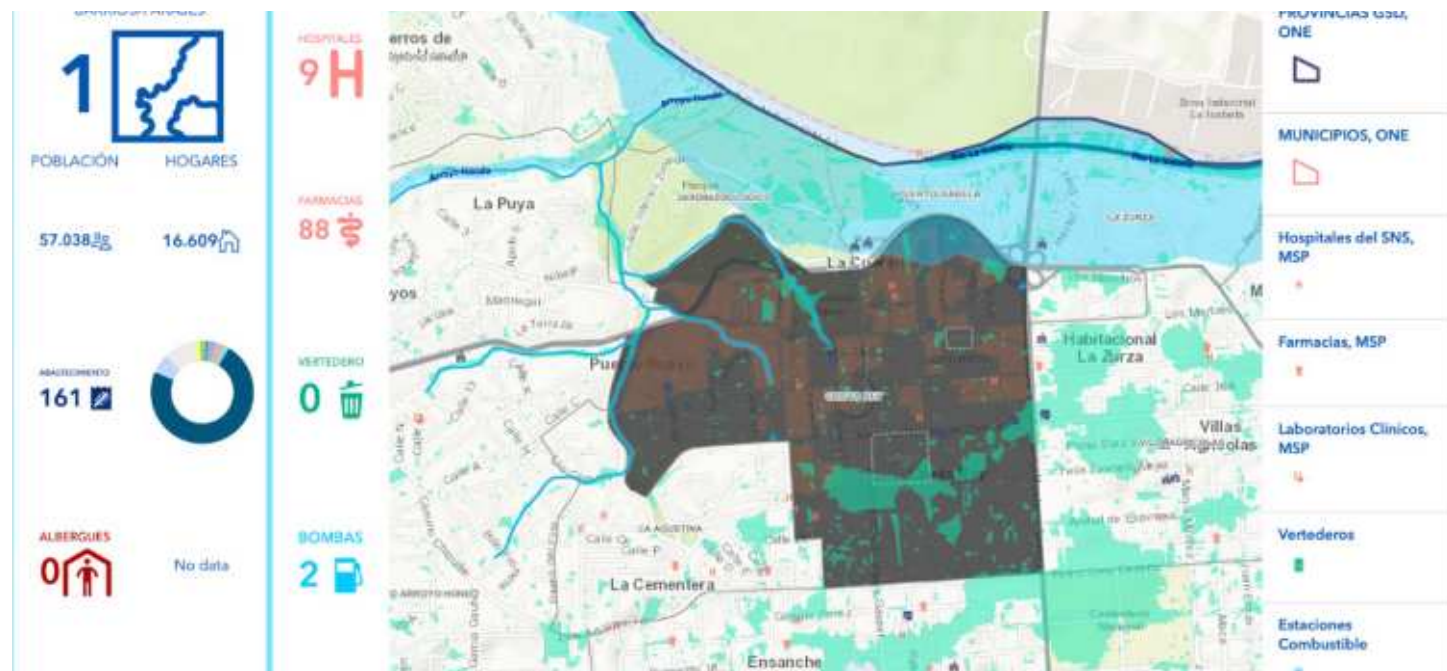
Division of the zones for the physical survey.

The vulnerability survey was carried out with the assistance of Ana Moyano of the NGO Arcoiris, who has a georeferencing platform where 8 types of vulnerabilities and response capacities have been previously marked in the territory of Greater Santo Domingo, as well as the hazards to which the territory is exposed.

The students assessed in situ whether the vulnerabilities mapped on the Arcoiris platform were accurate. In addition, they applied a survey (to be completed via cell phone) to verify the vulnerability status of the dwellings, as well as to establish a scoring criterion according to their socioeconomic and material conditions.



Student proposal



ARCOIRIS graphic and delimitation work.

Both technological tools made it possible to survey and georeference the blocks studied in the sector, in order to better understand the risk of the environment and the preparedness that would be needed in the event of a hazard.

Based on the above, a diagnosis of the vulnerabilities detected in the sector was generated, with a view to making proposals to improve the problems detected, since with better information it will be possible to make better decisions, not only to respond to events, but also to prevent them.

The vision of this part of the exercise was for students to learn how to analyze an urban environment from different perspectives, using different tools, and at the same time learn how to interpret possible solutions.

The survey on resilience and response capacity of Cristo Rey was carried out based on the results gathered by the students, who applied 28 interviews to previously selected community members, to determine the resilience capacity of the neighborhood and its inhabitants. To this were added the interviews conducted by ARCOIRIS in 3 consecutive visits, for a total of 174 surveys.

This exercise was carried out by the project's Social Consultant, Gabriela Read, who elaborated an interview to determine the resilience capacity of the community, asking questions in five thematic areas: Governance, Risk Assessment, Knowledge and Education, Risk Management and Vulnerability Reduction, and Disaster Preparedness and Response. The role of the students was to conduct and transcribe the interviews, so that the consultant could interpret the results. As a deliverable for the class, they conducted a SWOT to diagnose the resilience capacity of the neighborhood.



Student graphs and analysis

- F**
- Es uno de los barrios con más clubes deportivos, escuelas e iglesias, y unas 60 organizaciones comunitarias.
 - Interés por parte de la comunidad para mejorar el área.
 - Es una comunidad numerosa, que cuenta con un gran porcentaje de juventud.
 - Las construcciones de la zona (#6) son construidas con materiales resistentes a amenazas como ciclones.
 - Siempre hay respuesta por parte de la comunidad al momento de afrontar situaciones de riesgo.



El 66% de los encuestados en la visita dijeron haber sido afectados en algún momento por las amenazas mencionadas.



Un 74% de los entrevistados dijeron no tener un plan en caso de enfrentar una situación de riesgo.



Un 90% de los encuestados dijeron estar a favor de ayudar a la comunidad en caso de enfrentar una situación de vulnerabilidad y riesgo.

- O**
- Potenciar la actividad económica del barrio.
 - Crear conexiones óptimas en barrio.
 - Mejorar la comunicación entre zonas de alta densidad y baja densidad.
 - Acomodar centros comunitarios para que sean posibles centros de refugio ante catástrofes.
 - Crear espacios de uso para la comunidad.
 - Incrementar el nivel de mantenimiento y cuidado para el sistema de alcantarillado y manejo de la basura.
 - Aprovechar la disposición de los miembros de la comunidad en mejorar el barrio.

- D**
- Ambiente, viviendas e infraestructuras en estado de deterioro.
 - Débil organización comunitaria.
 - Contaminación ambiental como consecuencia de una mala gestión de las basuras.
 - Vulnerabilidad ante inundaciones por fuertes lluvias.
 - Falta de respuesta o plan ante situaciones de emergencia.
 - No existe una cultura de planificación ni de educación ante problemáticas ambientales o catastróficas.

- A**
- Deterioro de sistema de alcantarillado, significando un peligro a futuro.
 - Polvo provocado por las industrias de la zona.
 - Falta de educación en las escuelas sobre como reaccionar ante problemáticas ambientales o eventos catastróficos.
 - Indiferencia por parte de organizaciones gubernamentales.
 - Nivel de delincuencia alto.
 - Fuertes inundaciones en diferentes zonas cuando ocurren fuertes lluvias.



Student graphs and analysis

Planimetric Identification of Cristo Rey

The field work carried out by the students served to generate an urban cartography that would allow contextualizing the Resilience Center within its surroundings. In this way, a global understanding of the conformation of the neighborhood, its uses, its physical characteristics, and an approach to the urban problems that are present in this area is obtained. The plans, maps and graphics generated have served to complement the work prior to the design of the Resilience Center.

USO DE SUELO GENERAL



LEYENDA

RESIDENCIAL MULTIFAMILIAR	MIXTO (COMERCIO + VIVIENDA)	INDUSTRIAL	ADMINISTRATIVO	CENTRO DE RESILIENCIA
RESIDENCIAL UNIFAMILIAR	COMERCIAL	EQUIPAMIENTO	ESPACIOS PUBLICOS	SOLAR ALEDAÑO: ESCUELA

Land uses in the study area within Cristo Rey. Source: Own elaboration based on the students' survey.

Cristo Rey is a neighborhood with a strong presence of industries, logistic areas (warehouses and product distribution) and large commercial areas. This is only surpassed by the large amount of multi-family and mixed-use housing (housing and commerce).

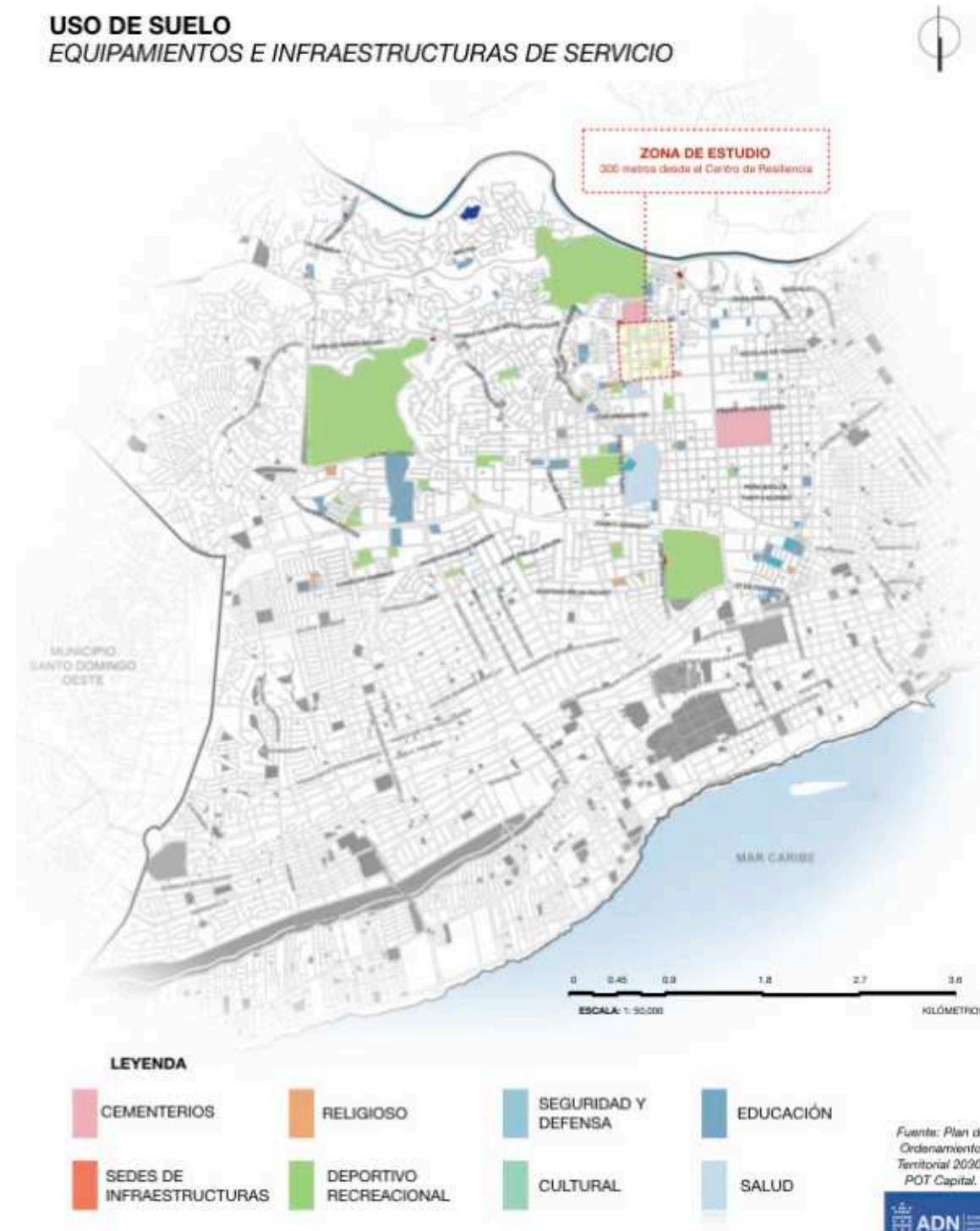
The neighborhood has a residential vocation, but it is a very compact and mixed-use neighborhood. Stores are located mainly along the main avenues (Av. Ortega y Gasset and Av. Nicolás de Ovando).



Land uses in the study area within Cristo Rey. Source: Own elaboration based on the students' survey.

As mentioned above, there are a large number of dwellings that do not have direct access from the street, but communicate through alleys, thus having a facade of residential buildings facing the street, and then a heart of a block riddled with alleys and crowded dwellings.

It is common for residential buildings (especially those facing the street) to have commercial use on the first level, and housing on the upper levels.



Equipment and service infrastructure. Source: Plan de Ordenamiento Territorial 2030, POT Capital. Municipality of the National District.

LAND USE
HEALTH CENTER AND SHELTER FACILITIES

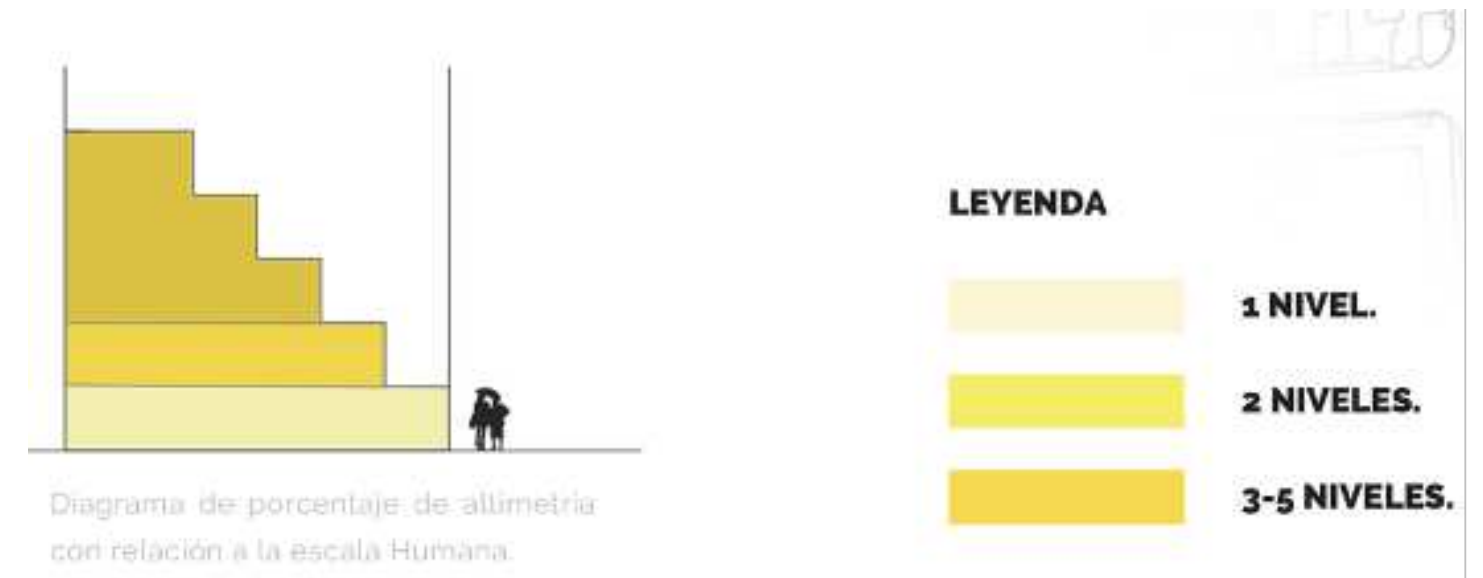


Equipment and service infrastructure Shelters, Hospitals and Health Center. Source: Plan de Ordenamiento Territorial 2030, POT Capital. City Hall of the National District

Altimetry of the complex

The height of the buildings in Cristo Rey goes hand in hand with the uses and idiosyncrasies of working class neighborhoods, with a predominance of houses between 2 and 5 levels. This corresponds to the typical tradition of popular neighborhoods of first building a single-family house and progressively adding levels for rent (as a form of sustenance) or to house family members.

In most cases, these buildings are self-built, so the fact that they have several levels increases their level of vulnerability.



Diagram



Picture Collage, Cristo Rey



Altimetry plan of the study area within Cristo Rey. Source: Own elaboration based on the students' survey.

Urban Morphology

The analysis of full and empty lots in Cristo Rey has allowed us to confirm what the statistical data show: it is a neighborhood with a very high density and compactness. There are no large empty lots, nor vacant plots. The free spaces coincide with the circulation spaces, being very common the alleys in the interior of the blocks. Although its structure is orthogonal, as previously mentioned, the blocks are subdivided in their interior, with buildings facing the street and many others that have access only through alleys or exterior stairways. Wide streets give shape to the urban fabric, dividing the blocks, which then, in their interior, are filled, being these completely built.



Uses of full and empty study area within Cristo Rey. Source: Own elaboration based on the students' survey.

URBAN ISSUES IDENTIFIED

- **Pollution:** It is very common to see waste accumulated in the streets. In addition to food debris and plastics littering the streets. There is a need for more containers to be distributed throughout the area, so that they are accessible to residents, and they do not have to travel long distances to deposit them.
- The Cristo Rey sector deals with a constant situation of poor garbage and waste management throughout the neighborhood area.
- The solid waste left in the streets is also responsible for other problems such as flooding during heavy rains since it obstructs the sewage and drainage system.
- There is also noise pollution due to the high vehicular traffic flow, loud music in the grocery stores, and air pollution from the industries in the area.
- **Lack of urban planning:** The lack of planning in the structuring and consolidation of the neighborhood is notorious, as there is one life in the front of the block and another in the back. Despite this, the residents have organized themselves to keep the alleys that connect to the block interiors closed and clean. Marginality and lack of planning directly influence the vulnerability of the neighborhood.
- **Vulnerable buildings:** Although the predominant material used in the houses is concrete, the way in which they have been built and the soils on which most of them are constructed make them vulnerable. There are many houses in poor condition, or with recycled materials, on flood-prone soils or with slopes greater than 20% (see vulnerability analysis).
- **Lack of recreational areas:** In Cristo Rey there are only two parks: Cristo Libre and Cruz Jiminián. Both are developed in residual spaces, and have not been contemplated as such from the beginning. Currently, the central ravine of the neighborhood (Arroyo Seco) is being channeled, and there are plans to build a public space over it. However, Cristo Rey is a very dense neighborhood, so it would need to expand the amount of green areas much more than what is currently planned. Within the radius of action of the Resilience Center, the Cruz Jiminián Park and the Los Cachorros Club are the only places of recreation for a community with such a high density of inhabitants, including a large number of young people and children.

- **Public spaces in poor condition:** There are many streets with destroyed and irregular sidewalks, streets with fillers that make the streets difficult to walk on and also with holes that make them just as uncomfortable. For people with disabilities, these streets are dangerous and not very inclusive.
- **Poor accessibility:** The neighborhood of Cristo Rey has two types of streets: it is structured by wide streets of two to four lanes, but inside the blocks, the reality is different: narrow alleys of difficult accessibility, with complex shapes, which weave a whole pedestrian structure inside the neighborhood. These alleys give access to most of the houses, which means that most of the inhabitants of the neighborhood do not have direct access to the streets, nor to emergency services.

Lessons learned from the teacher's point of view

The planning process of the class has been parallel to the consolidation of the project proposal, and for this reason it has been a process of trial and error, in which the greatest learning that has been obtained is that if you want to apply this methodology for the following Resilience Centers, it should be raised in a previous phase, so that you have all the inputs to start with the project.

Doing the urban survey with architecture students is a very useful tool for them to begin to understand the urban problems of their environment, but since it is also a social and vulnerability survey, it may be a good idea to invite other schools to participate (such as the medical school) to carry out the social surveys.

It is also recommended that prior work be done with the community to explain what a Resilience Center is and the advantages that its construction would bring to the community. Likewise, the process of gathering information (urban, social and physical) should be explained to them so that they do not feel invaded and are willing to participate when the students go to carry out the survey.

When the students were told that they were going to work in a poor neighborhood with a high level of informality, they felt frightened and skeptical about going to do the necessary studies, so the project had to organize two days of work, in which they were taken by bus from the university to the meeting point in Cristo Rey. This is somewhat atypical, but it ensured that most of the students went to the work site and did much of what they were assigned to do.

We propose that for a next opportunity, workshops be organized with the community and the students, so that they interact at a neutral point, do some kind of visioning activity of what they would like to

have or improve about their neighborhood, and from there the journey begins. Ideally, there should be a workshop in situ where the students share with the residents, and the latter should be the ones to accompany them to begin the information gathering. Several days are necessary, perhaps on consecutive days, to collect all the information, and then do some desk work.

A workshop is also proposed after the survey, where the findings can be presented and possibilities for intervention can begin to be envisioned.

The final proposals can be presented to the community and invited specialists, so that the process is given more visibility and the students feel committed to doing quality work.

VULNERABILITY ANALYSIS

Methodology

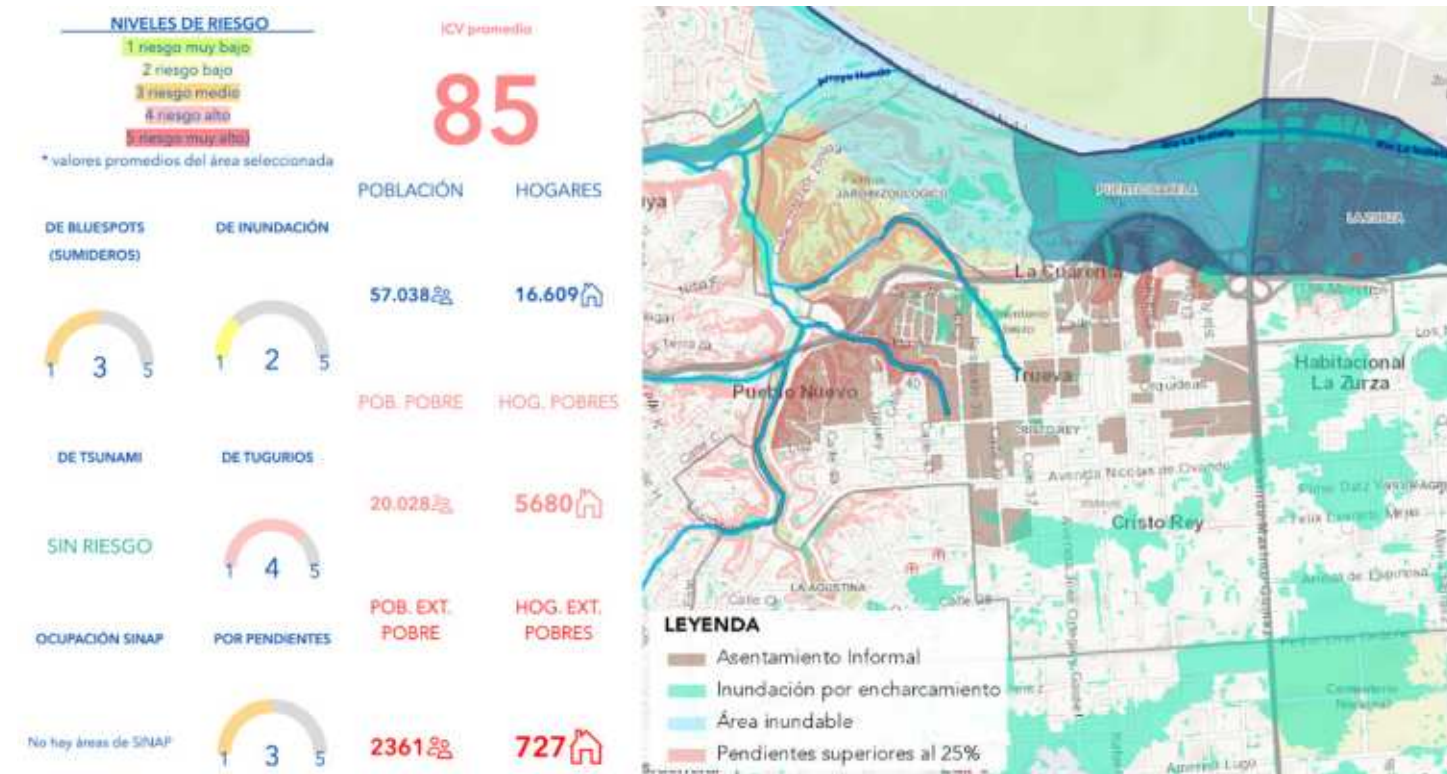
The ARCOIRIS methodology focuses on four important milestones.

- **Future risk.** It aims at prevention. Limit the development of disaster risk factors in the Society through an adequate territorial-environmental management.
- **Current risk.** It has two phases, the first one of mitigation and reduction and the other one of preparation.
- **Disaster.** Or the risk management phase. Its main objective is to attend in a timely manner to the responses and/or basic and immediate needs of the populations and the other point is rehabilitation, i.e. how to reestablish acceptable and sustainable conditions for the basic and immediate needs of the threatened populations.
- **Effects or Recovery.** The idea is to reestablish acceptable and sustainable conditions for the economic and social development of the affected community, reducing the risk to a lower level.



Work methodology. ARCOIRIS

Level of vulnerability in Cristo Rey



Physical and social vulnerability of Cristo Rey. Source: platform developed by Arcoiris through the consultancy “Open data technology tools for risk understanding and hazard preparedness”, in the framework of the “Closing Gaps” project. ARCOIRIS



Physical and social vulnerability of Cristo Rey. Source: platform developed by Arcoiris through the consultancy “Open data technology tools for risk understanding and hazard preparedness”, in the framework of the project “Closing Gaps” + data updated by survey conducted by students and staff of. ARCOIRIS



Physical and social vulnerability of Cristo Rey. Source: platform developed by Arcoiris through consulting “ data updated by survey conducted by students and staff of. ARCOIRIS



Physical and social vulnerability of Cristo Rey. Source: platform developed by Arcoiris through consulting “ data updated by survey conducted by students and staff of. ARCOIRIS

Lessons learned and recommendations from the perspective of ARCOIRIS accompaniment.

ARCOIRIS work together with the student body of the course aimed to achieve an acceptable sample for a starting point to make the data obtained meaningful for decision making. ARCOIRIS has these recommendations for future action.

- Preliminary meetings with neighborhood stakeholders, and a subsequent information day with neighborhood residents, thus achieving their input.
- The surveys should be carried out together with community leaders of relevance in the community and who have knowledge of the project. Therefore, a previous information session with them is recommended.
- Sufficient measures should be taken to guarantee the participation of the residents and neighborhood leaders.
- Prior planned and procedural social work is needed to inform the inhabitants of the importance of the preliminary studies of the project.
- Support is needed not only from DNA, but it is also advisable to work with all the neighborhood actors involved in risk management (neighborhood councils, Civil Defense, Red Cross, community networks, etc.).
- It is essential to design the social processes to guarantee the sustainability of the actions to be achieved.

COMMUNITY RESILIENCE ANALYSIS OF THE NEIGHBORHOOD OF CRISTO REY.

Methodology applied

A questionnaire was applied with the objective of gathering information on the resilience capacity of the community of Cristo Rey, asking questions around five thematic areas: Governance, Risk Assessment, Knowledge and Education, Risk Management and Vulnerability Reduction, and Disaster Preparedness and Response.

The concept of resilience that is addressed in this questionnaire has to do with “the ability of communities and households to anticipate and adapt to risks and to absorb, respond to and recover from shocks and stresses in a timely and effective manner without compromising their long-term potential “.

The document collects information on community leadership, knowledge on citizenship rights and duties, inclusion of women and vulnerable groups, knowledge and transmission of knowledge, risk perception and local capacities to face an emergency situation based on 34 interviews with community residents in 6 blocks of Cristo Rey, previously identified as vulnerable spaces within the community.

The questionnaire is an adaptation of the “Tool for measuring community resilience to disasters”, developed by GOAL in 2015, with a local approach and adjusted to the needs and resources of this project, taking into account that the interviewers were first year architecture students who had no previous experience in this type of survey. Therefore, the document presented below is a systematization of the findings and not a measurement of the resilience of the neighborhood according to the indicators proposed by GOAL. We suggest that based on this preliminary information, some more in-depth analysis can be done with a team of interviewers who have more experience in the field.

Findings

Governance

Most of the people interviewed recognized the presence of leadership in the community, represented fundamentally through the neighborhood council. This leadership intervenes in the problems of the neighborhood, but its main action, according to the responses received, has to do with solid waste management and ornamentation, and in second place, citizen security and peaceful coexistence.

Although they point out that there is leadership, it is not characterized as participatory. They make decisions, but do not necessarily inform the rest of the community; rather, they learn about them when they see the actions of these groups materialize.

The interviewees recognize who the state authorities linked to risk management are and understand that it is a right to turn to them in case of an event (this being the only right they identify in this matter).

On the other hand, they do not identify these as issues proper to neighborhood councils, although they attribute to them the right to intervene in solidarity in the event of a phenomenon (mainly flooding in low-lying areas) and occasionally with preventive actions such as the cleaning of scuppers. The church was also mentioned as a great ally in emergency situations.

In general, the interviewees were recurrent in pointing out the supportive nature of the neighbors and their timely intervention in emergencies, particularly to protect and safeguard the lives and property of the most vulnerable people (either because of their socioeconomic or health condition).

It is worth noting that the community recognizes as highly vulnerable in particular the elderly, and in second and third place people with disabilities and infants.

There were no references to the violation of the rights of vulnerable people during emergency situations.

The absence of memory on this issue is attributed by the neighbors themselves to the fact that recently they have not had major events where they had to force relocations and displacements, but rather floods that have been managed by the community through their own mechanisms.

According to what was found, in general, women are active and informed and participate in meetings that have to do with issues affecting the neighborhood, but they are not taken into account in decision making, unless they are leaders of the neighborhood councils.

“Many times decisions are made and vulnerable groups are not consulted, unfortunately. Sometimes they build a field and what they need is to repair a street or correct a gully system that affects them the most”. Community.

“Look what a setback. We participate more but they don’t take us into account in decision making.” Community.

Risk Assessment. Threats and Vulnerabilities

Half of the people interviewed said that surveys have been carried out to learn about possible threats in the neighborhood or that they have participated in these surveys. However, although when asked about the possible threats and dangers to which the community could be exposed (floods, cyclones,

earthquakes, the explosion of a bomb or a factory...), in general the main threats and dangers that were pointed out were citizen security and garbage, which do not constitute elements of disaster risk, which shows how little recognition this topic has, even when it is specified.

As to whether the results of these surveys had been socialized with the community, they replied that they did not know. If, indeed, surveys on hazards and vulnerabilities in the face of disasters have been carried out, then there is an opportunity to strengthen the socialization of these issues, open spaces for dialogue and decision making, and create spaces for community participation to recognize the risk of disasters and take preventive actions instead of reactive actions.

Finally, when asked what the community does to reduce the hazards to which it is exposed, the most recurrent answer was that it is a united community in which they help each other as much as possible. This, on the one hand, may reveal a strong, united and supportive social fabric, but on the other hand it is indicative of the absence of public policies to prevent risk and mitigate situations that may arise, which forces the community to take charge of preventive, reactive or mitigation measures that correspond to the State.

One of the interviewees, a member of a neighborhood council, said that his group usually gives talks to vulnerable people on topics such as dengue fever and solid waste management, which are risks of anthropogenic and sanitary origin.

“What has the community traditionally done to reduce the dangers to which it is exposed? This is what we do when something happens, otherwise not.” Response from a community member.

“Neighbors help each other in case there is a need to draw water, reinforce roofs and prevent as much as possible in emergency situations.” Response from a community member.

Knowledge and education

Nature, the Bible and God's will are the main causes of the dangers and threats that exist in the community, according to the majority of those interviewed.

Only a few cited the responsibility of the state in disaster prevention. This idea, that disaster is inevitable or beyond human capacity, is a point to be strengthened in future interventions. Some of the interviewees reported that meetings are held two to three times a year in the community to discuss problems and solutions related to different hazards. However, as explained in the previous point, despite the fact that these threats are mentioned, public safety and garbage continue to emerge as the main issues. However, if the community holds large meetings three times a year to discuss the problems that affect them, these spaces for dialogue could be used to raise awareness about these issues.

Some people referred to meetings in which hazards such as floods (which they refer to as more or less frequent in the neighborhood) and also fires are discussed. Some community members also referred to stories of fires and explosions in the community, as it is a working class neighborhood where many factories operate.

Most of the people interviewed assume that their sons and daughters are taught in school about how to protect themselves against hazards such as floods, earthquakes, cyclones, etc. (but particularly earthquakes), although they acknowledge that they do not know exactly what they are taught. At the family level, they explained that they instruct their children to stand under a doorway or not to run away in the event of an earthquake, or that they tell them where to go in case of flooding if there is no adult at home, these being the only references obtained during the interviews on how to act in the event of hazards.

The creation of early warning systems within the neighborhood emerged as a need among some of the community members. Evidently, there is also the need to educate on these issues in articulation with the school and other spaces.

When asked who is the main responsible for helping the community to recover after a disaster, the answer that the community itself is responsible for its recovery was very frequent. As explained in the previous point, this vision can be a point to work on from advocacy plans with a view to generating public policies for disaster risk management.

“It is necessary to inform the population of the neighborhood about any possible event in the community, and also to inform people about the nearest shelters to protect themselves”.

**“I think we all have to get involved, although the greatest commitment falls on the institutions that I told you that are the ones that are there to watch over that.”
Community.**

Disaster Preparedness and Response

The last point of this survey attempts to determine the existing capacities of the community both to prepare for a hazard and to respond to it once it occurs. The only response to the existence of a plan to mitigate the effects of an emergency situation was negative on the part of the people interviewed.

Regarding the existence of an emergency committee, the majority also responded that the community does not have one, but some people identified the neighborhood council as the collective that responds when an event occurs. Also for this same reason, they recognized that they are not sufficiently trained, although they provide timely response.

A few people said that evacuation routes exist in the neighborhood or that drills have been carried out, but in general the people interviewed are unaware that such routes exist.

The threats that most concern the community members are floods, followed by cyclones and contamination from factories or fire hazards.

On the other hand, the majority said that in case of an emergency they stay at home. It would be necessary to investigate whether the reason for staying is the lack of adequate space and equipment for the time needed to recover from a disaster; whether the reasons are socioeconomic (fear of losing their belongings or having their homes vandalized) or cultural; whether they have not been exposed to serious enough threats or whether their homes are sufficiently safe in the face of the most common events in the neighborhood.

As in most of the country, Cristo Rey does not have specialized shelter facilities, but in times of emergency they make use of churches, schools and a convent. In addition, particularly in times of floods, some people living in very vulnerable houses move to higher areas to neighbor's houses.



Almost all of the interviewees responded that in an emergency the community mobilizes before waiting for external help. Only a few of them said that they resort to the intervention of the government, companies or organizations to solve extreme situations. They also highlighted the role of local leadership in this regard.

“Is there an emergency committee in the neighborhood? The neighborhood committee is the one that reacts to an emergency.” Community response.

Conclusions and Recommendations related to Community Resilience

Cristo Rey is a place with strong community leadership, as can be deduced from the present survey and taking into account the social history of this sector of the capital. However, some responses suggest that this leadership may be highly politicized and that aid, in terms of disaster risk management, is very often not channeled through institutional channels, but through political leaders. In this sense, it would be interesting to have a rights-based approach to the issues worked on in the neighborhood.

The people interviewed identified three main concerns regarding possible threats in the sector: floods, earthquakes and the occurrence of fires, since it is an industrial zone. There are permanent threats such as the presence of a chemical laboratory, there is also a local memory of a fire that was repeated in several interviews, while others cited contamination problems due to industries.

The case of flooding was mentioned more in relation to the experience of other community members who live in areas adjacent to ravines. On occasions, they said, they have had to come to their aid or provide their houses as shelter.

According to the responses of the interviewees, it is possible to infer that the community perceives itself as resilient and supportive in the face of threats. In their own experience, it is the community that mobilizes to come to the rescue when floods and other disasters occur, helping itself before other actors intervene. When asked to identify on whom the responsibility to come to the rescue falls, the vast majority answered that it is the community first and then identified government actors. Very few cited external institutions and organizations.

Someone mentioned that women are very active and participate in community meetings, but they are not usually the decision makers. None of the interviewees in this sample could recall any female or vulnerable group leadership.

Suggestions from the social survey

Work on the rights approach and public policies in risk management. Work on threats of anthropic origin. Explore with the citizens themselves, and from their experience, what to do, how to approach it, what options they have, mechanisms for citizen environmental control. Identify female leaderships and explore with the citizens themselves how they can be strengthened so that they can become decision makers as well.

It is worth thinking about how, from a resilience center, assistance can be offered to the community on issues of anthropogenic hazards. Work on what a local emergency committee consists of, how it would work, what expectations they have about it, how it could be operationalized. Explore with the community what kind of training the neighborhood councils, constituted as emergency committees within the neighborhood, would need.

CREATIVE WORKSHOP

04

CONTENT

Context National District Districts Neighborhoods	2.1
Relationship of Cristo Rey with the rest of the city	2.2
Socioeconomic Profile	2.3
Urban Profile. Photographic survey of the sector.	2.4

Parallel to the survey phase, a space was organized in which the families of the community creatively expressed their perceptions of the environment where they live and proposed ideas for the Resilience Center. This was done through a workshop with interaction dynamics that provoked individual and collective expressions, using fun and creative means.

This activity was divided into two days:

1. A creative workshop led by Ico Abreu, Marcos Barinas, Esteban Gonzalez and with the assistance of five students from the UNIBE School of Architecture.



CREATIVE WORKSHOP. Source. Adolfo Sesto

2. A community celebration was organized by the Fun Science Company.



CREATIVE WORKSHOP. Source. Adolfo Sesto

FIRST DAY. KICK OFF ACTIVITY AND CREATIVE WORKSHOP.

The workshop was divided into three parts:

1. Interaction dynamics or “icebreakers,” which created empathy among families and a sense of community collaboration.
2. Comprehensive interpretation exercises that created awareness of the concept of community resilience.
3. Creative exercises that gave families a sense of ownership of the Community Resilience Center by programming the activities that they want to be carried out in the center.



CREATIVE WORKSHOP. Source. Adolfo Sesto



CREATIVE WORKSHOP. Source. Adolfo Sesto

Part 1. Interaction dynamics or “icebreakers”.

A group dynamic designed to break the ice and create connections at an interpersonal level among the participants was carried out. The promotion of empathy as a prior activity facilitates the understanding and appreciation of others’ ideas.

General Objectives

- Eliminate tensions among participants.
- Establish links between participants.
- Facilitate mutual understanding.
- Facilitate teamwork.

DYNAMIC 1

Introduce your partner

Specific Objectives

- Overcoming stage fright
- Motivate verbal interaction
- Motivate personal expression



CREATIVE WORKSHOP. Source. Adolfo Sesto



CREATIVE WORKSHOP. Source. Adolfo Sesto

Basic Steps

1. Participants were organized in a circle.
2. Participants were instructed to interview the person to their left (ask basic questions such as address, age, school and course attended, likes and hobbies, etc.).
3. A time limit was set for each interview.
4. Each participant was asked to introduce the interviewee to the others.

DYNAMIC 2

“The one that has...”

Specific Objectives

- Understand the value of diversity.
- Identify things in common with someone who is considered different.
- Motivate physical interaction.
-

Basic Steps

- Foot participants were organized into a single group.
- Participants were instructed to regroup according to characteristics or particularities they had in common (dress, gender, size, average age, tastes, etc.).



CREATIVE WORKSHOP. Source. Adolfo Sesto



CREATIVE WORKSHOP. Source. Adolfo Sesto

Part 2. Comprehensive interpretation.

In this activity, participants recognized the term “Community Resilience” and contributed ideas to improve their environment based on their own interests and priorities. Positive and negative aspects were learned from the perspective of the community, who contributed individual ideas that were later ordered and grouped according to the coordination criteria.



CREATIVE WORKSHOP. Source. Adolfo Sesto

General Objectives

- To become familiar with the term resilience as a function of the needs of the participants.
- To motivate the free expression of participants.
- To get to know yearnings, aspirations and fears.
- To create intra-family relationships and negotiations.

ACTIVITY 1

Puzzles

Specific objectives:

- Train families to relate concepts and images.
- Encourage negotiation between families.
- Organize the family team by tasks.

The families identified and understood in a practical way the need to organize themselves as a collective, and to work according to their strengths and capabilities to achieve common goals. The spirit of the activity was characterized by the participation of all family members and collaboration among the different tables.



CREATIVE WORKSHOP. Source. Adolfo Sesto



CREATIVE WORKSHOP. Source. Adolfo Sesto

Part 3. Creative Empowerment Exercises

This activity sought to have the families design a logo for the Cristo Rey Resilience Center, based on the concepts and the image they identified in the comprehensive interpretation exercise. For this, they used tools, sheets and magazine clippings with which they made collages and constructions that identified their interpretations. Then, with the support of students and facilitators, the families identified visually and in writing the uses that each group identified as adequate and inadequate for implementation in the Center.



CREATIVE WORKSHOP. Source. Adolfo Sesto

General Objectives

- Empower families regarding the use of the Resiliency Center.
- Create a sense of belonging by identifying their tastes and preferences.

ACTIVITY 1

Design a logo for the Resilience Center and diagram of uses.

Specific objectives:

- Identify strengths and weaknesses of the environment in which they live.
- Discriminate uses and activities that families consider appropriate or not.
- To visually express the aspects described in the diagram of uses.



CREATIVE WORKSHOP. Source. Adolfo Sesto



CREATIVE WORKSHOP. Source. Adolfo Sesto

ACTIVITY 2

Collective presentation



CREATIVE WORKSHOP. Source. Adolfo Sesto



CREATIVE WORKSHOP. Source. Adolfo Sesto

Accompanied by the coordinators, the groups captured their ideas on a panel using mixed techniques, coloring, drawing and collages, and then presented their findings to the rest of the room. Following an open and intuitive process, each individual was encouraged to express themselves according to their skills.

Specific objectives:

- Motivate free oral expression.
- Empower the leadership of children and adolescents in family groups.
- To value the proposals and ideas of others.

SECOND DAY. GREAT CLOSING. FUN SCIENCE.

This activity was conducted by Fun Science, a team of actors and actresses who carry out science outreach work in a playful way and provide information on various topics to children. On this occasion, the event revolved around the theme of resilience, the threats of climate change and the need for the planet to manage it intelligently and appropriately. This closure introduces participants to a different perception of the environment they inhabit, carrying out activities adapted to the reality of their environmental context.

General Objectives

- To give the day a festive closing.
- Generate an educational, playful and emotional environment for the participating children.
- Consolidate their sense of empowerment.

ACTIVITY

Artistic and scientific day on risk and climate change



CREATIVE WORKSHOP. Source. Adolfo Sesto



CREATIVE WORKSHOP. Source. Adolfo Sesto



CREATIVE WORKSHOP. Source. Adolfo Sesto

Specific objectives

- Identify positive and negative actions regarding the environment.
- Emulate positive behaviors and reject negative behaviors in their environment.
- Link the day's learning to a fun activity.

CONCLUSIONS AND RECOMMENDATIONS FROM THE COMMUNITY PERSPECTIVE

The activity attracted very diverse families, involving boys, girls, teenagers, fathers, mothers, grandmothers and grandfathers ranging in age from 3 to 91 years old. The “icebreaker” activity generated good enthusiasm as the families who came as very integral nuclei were able to relate to each other based on those aspects that made them very diverse, age, gender, appearance, etc. This led to a level of trust and interpersonal connection that fostered a sense of community in the environment.

The term Resilience was presented as “The capacity of the social system to respond to adversities that affect the collective, and to reorganize itself while developing and strengthening the resources available to the community”. In the beginning, the presentation of the concept was taken with disinterest by some of the participants, but once the puzzle dynamics began, a synergy was created that allowed the families to understand the essential objective of the term, the capacity to organize themselves as a collective and work according to their strengths and capacities to achieve a common objective.

The logo activity was a bit confusing for some families, because not everyone has the ability to abstract ideas and generate symbols and graphic images. In this activity the children and adolescents had an unexpected leadership, as they were able to transform theory into action because the materials on the tables were very familiar to them. We were able to see a table where the image of the logo came from a girl of only three years old and others where pre-adolescents changed the two-dimensional essence of the construction of a logo and generated mobile and interactive objects. This was very positive as it counteracted the rational intention of the adults by directing the leadership to an unexpected situation, which is very much in line with the concept of resilience.

Initially, it had been planned that the families would make a façade proposal for the resilience center, identifying shapes and colors and applying them to the photo that was presented to them on the panel. This activity was eliminated as the logo showed us solutions that went in the same direction and we did not want to repeat another activity with the same level of attraction.

For the activity of the diagram of uses, the families were first asked to place on one side the uses and activities that they wanted to occur in the center and on the other side the uses that they considered undesirable. They were encouraged to be creative in the uses and possibilities of the center. The ideas were as varied and dynamic as the families themselves, ranging from recreational and educational proposals to micro-enterprise proposals.



CREATIVE WORKSHOP. Source. Adolfo Sesto

What uses and activities do families want from the center?

- Center for student services.
- Technical training center.
- Medical assistance center and popular pharmacy.
- Spaces for recycling and waste management training.
- Play areas for infants.
- Technology-related play areas for teenagers.
- Sports areas (e-sports and board games could be considered).
- Productive spaces for the community to generate income for common services.
- Green spaces.

What uses and activities do families NOT want from the center?

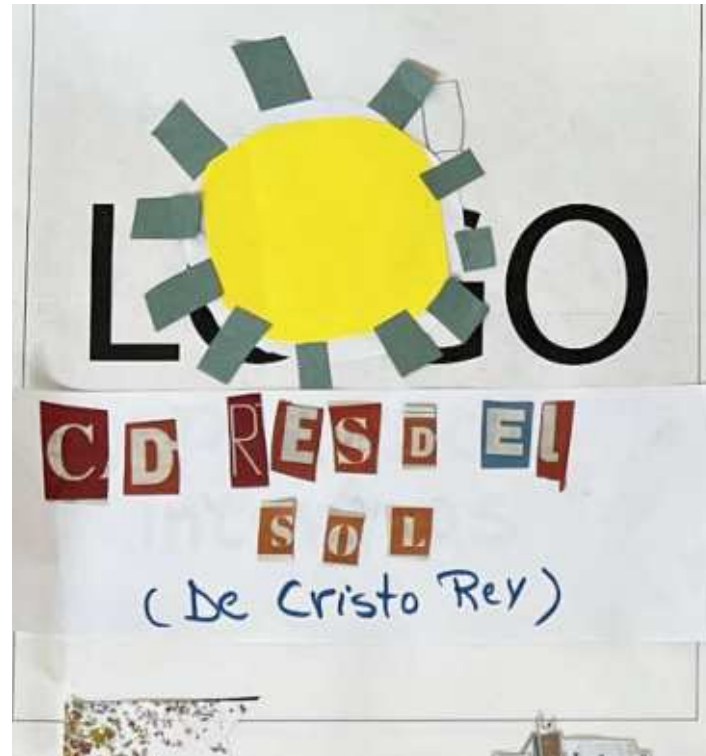
- Activities that generate noise and pollution.
- Spaces that encourage crime.
- Private commercial spaces.
- Religious or political activities.

Some conclusions regarding the images they generated:

- All the panels included vegetation, being these in public but also private spaces, indicating a lack of green spaces in the area.
- The children and adolescents drew and used images that promote diversity, despite the fact that in written form the adults indicated conflicting positions on the issue of gender diversity.
- In several images there are aspirations for decent and quality housing.
- In all of them there are expressions about pollution and excess of garbage and there is a call for new ways of waste management.
- Many indicate and emphasize the idea of the family as the basis of the community.
- There are also productive community activities.
- There are several panels with sports activities.
- The provision of fresh fruit is also visible.
- In some panels the children introduced concerns about animals, perhaps from the street or pets.
- There is a very evident appreciation for open, shady and quiet spaces.



CREATIVE WORKSHOP. Source. Adolfo Sesto



CREATIVE WORKSHOP. Source. Adolfo Sesto

- **Families need the center to function as a public space and not as a municipal office building or technical training center.**

1. We recommend that it can be understood as a center that offers some services 24 hours a day, possibly medical emergencies, security or useful services for students.
2. We recommend the construction of a green roof or wall that complements the lack of soft spaces in the sector and that this is linked to the technological systems that are designed in the project.
3. We also recommend the expansion of the front public space to provide night lighting and limit and regulate the use of fast food carts in a sanitary manner.

- **Families need to feel empowered regarding the use and management of the Center.**

1. We recommend that there be an administrative model that includes non-political representatives of the community.
2. We recommend that there be a space where adolescents can have meetings with municipal authorities and feel useful. For this, it is important to train adolescents in the use of digital GIS tools so that they can be agents for monitoring risk events and the response of the authorities.
3. We recommend that there be a space where adolescents can have meetings with municipal authorities and feel useful. For this, it is important to train adolescents in the use of digital GIS tools so that they can be agents for monitoring risk events and the response of the authorities.

- **Families want spaces for technical training.**

1. It is recommended that the links with the school be strengthened by generating options for organizing a model of academic collaboration between the Municipality, INFOTEP and the community.
2. It is recommended that the center function as a technology space where adolescents and young adults can participate in technological entrepreneurship tasks, both community and personal, and not only as a learning space.
3. It is recommended that parametric printing and modeling technologies be included, as a FAB LAB.

- **Families want recreational and sports spaces.**

1. We recommend that these activities be very diverse in age range. Provide a space for Yoga, Pilates, Tai Chi for adults and adequate space for e-sports for the younger ones. Encourage exchange between these age groups.

- **Families have quality of life concerns.**

1. We recommend that the space could have an office that advises and accompanies the community on issues of pollution prevention, noise and safety.
2. We recommend that the center could advise new families on the location and valuation of rental housing and advice and follow up with families on contracts.
3. We recommend that there be a gender-based abuse center to provide support and safety for issues of discrimination, harassment or abuse against abused children, adolescents and women.

- **Families want the center to be productive and generate income for services in the community.**

1. We recommend exploring angel investment options, linked to technology and entrepreneurship in urban services and that the center function as an incubator for small community businesses.



CREATIVE WORKSHOP. Source. Adolfo Sesto



CREATIVE WORKSHOP. Source. Adolfo Sesto

RECOMMENDATIONS OF THE SOCIAL COMPONENT FOR POSSIBLE USES OF THE CENTER BASED ON THE URBAN DIAGNOSIS, THE SURVEY AND THE CREATIVE WORKSHOP.

Cristo Rey is a neighborhood with a strong presence of industries, logistics areas (warehouses and product distribution) and large commercial areas. However, in this central neighborhood of Greater Santo Domingo, a large number of multi-family and mixed-use housing (housing and commerce) cohabit with these industries. It can be concluded that it is a sector with a residential vocation, but in reality it is a very compact neighborhood with mixed uses. Stores are located mainly along the main avenues (Av. Ortega y Gasset and Av. Nicolás de Ovando).

A large number of dwellings do not have direct access from the street, they communicate with each other and with the formal road network through alleys, thus having a facade of residential buildings facing the street, and then a heart of the block with informal alleys and overcrowded dwellings. It is common for the residential buildings (especially those facing the street) to have commercial use on the first level, and housing on the upper levels.

Both the neighborhood of Cristo Rey and its surroundings present a mixed urban fabric, which combines the orthogonal structure of square blocks characteristic of the widening model, as well as an orthogonal structure of rectangular blocks and organic structure. The latter appears both in the formal part (responding to the topography and the terrain) and in the informal fabric, where the formal structure of the blocks and streets has been adulterated to build informal housing and businesses.

Irregular organic blocks are located in Cristo Rey, La Agustina, Los Caminos and Ensanche Capotillo. The square blocks are located in Villa Juana, Villa Fontana, Villa María, Ensanche La Fé and El Ensanchito. The rectangular blocks are located in Ensanche Luperón, Ensanche Espailat, Libertad and Villa Consuelo.

The height of the buildings in Cristo Rey goes hand in hand with the uses and idiosyncrasy of the popular neighborhoods, being predominantly houses of between 2 and 5 levels. This corresponds to the typical tradition of popular neighborhoods of first building a single-family house and progressively adding levels for rent (as a form of sustenance) or to house family members.

In most cases, these buildings are self-constructed, so the fact that they have several levels increases their level of vulnerability.

The analysis of full and empty lots in Cristo Rey has allowed us to confirm what the statistical data show: it is a neighborhood with a very high density and compactness. There are no large empty lots, nor vacant plots. The free spaces coincide with the circulation spaces, being very common the alleys in the interior of the blocks. Although its structure is orthogonal, as previously mentioned, the blocks are subdivided in their interior, with buildings facing the street and many others that have access only through alleys or exterior stairways. Wide streets give shape to the urban fabric, dividing the blocks, which then, in their interior, are filled in, being completely built.

Summary of urban problems and conclusions of the urban diagnosis process

- **Contamination**

It is very common to see waste accumulated in the streets. In addition to food scraps and plastics littering the streets. There is a need for more containers to be distributed throughout the area, so that they are accessible to residents, and they do not have to travel long distances to deposit them.

The Cristo Rey sector deals with a constant situation of poor garbage and waste management throughout the neighborhood area.

The solid waste left in the streets is also responsible for other problems such as flooding during heavy rains since it obstructs the sewage and drainage system.

There is also noise pollution due to the high vehicular traffic flow, loud music in the neighborhood and air pollution from the industries in the area.

- **Lack of planning**

The lack of planning in the structuring and consolidation of the neighborhood is notorious, as there is one life in the front of the block and another in the back. In spite of this, residents have organized themselves to keep the alleys that connect to the block interiors closed and clean. Marginality and lack of planning directly influence the vulnerability of the neighborhood.

- **Public spaces in poor condition**

You can find many streets with destroyed and irregular sidewalks, streets with fillers that make the street difficult to walk on and also with holes that make it just as uncomfortable. For people with

disabilities, these streets are dangerous and not very inclusive.

- **Lack of recreational facilities**

In Cristo Rey there are only two parks: Cristo Libre and Cruz Jiminián. Both are developed in residual spaces, and have not been contemplated as such from the beginning. Currently, the central gully of the neighborhood (Arroyo Seco) is being channeled, and a public space is planned to be built over it. However, Cristo Rey is a very dense neighborhood, so it would need to expand the amount of green areas much more than what is currently planned. Within the radius of action of the Resilience Center, the Cruz Jiminián Park and the Los Cachorros Club are the only places of recreation for a community with such a high density of inhabitants, including a large number of young people and children.

- **Vulnerable buildings**

Although the predominant material used in the houses is concrete, the way in which they have been built and the soils on which most of them are constructed make them vulnerable. There are many houses in poor condition, or with recycled materials, on flood-prone soils or with slopes greater than 20% (see vulnerability analysis).

- **Poor accessibility**

The neighborhood of Cristo Rey has two types of streets: it is structured by wide streets of two to four lanes, but inside the blocks, the reality is different: narrow alleys of difficult accessibility, with complex shapes, which weave a whole pedestrian structure inside the neighborhood. These alleys give access to most of the houses, which means that most of the inhabitants of the neighborhood do not have direct access to the streets or to emergency services.

This points to a high vulnerability, especially for people with reduced mobility, because in the event of an emergency or disaster, it would be very difficult to access them or to leave their homes.

On the other hand, these residents are poorly connected to mobility networks, transportation, public facilities and public spaces.

Summary of community needs as reflected in the social work questionnaire.

Cristo Rey is a place with strong community leadership, something that can be deduced from the results of the questionnaire and the social history of this sector of Santo Domingo. However, some responses suggest that these leaderships may be highly politicized and that aid, in terms of disaster

risk management, is very often not channeled through institutional channels, but through political leaders.

In this sense, it would be interesting to have a rights-based approach to the issues that are worked on in the neighborhood. The people interviewed identified three main concerns regarding possible threats in the sector: floods, earthquakes and the occurrence of fires. Since it is an industrial zone, there are permanent threats such as the presence of chemical waste, fires, which was repeated in several interviews, as well as air and noise pollution problems. The case of flooding is very present in the community members who live in areas adjacent to canyons. On occasions, they expressed that they have had to come to their aid or provide their houses as shelter.

According to the responses of those interviewed, it is possible to infer that the community perceives itself as resilient and supportive in the face of threats. In their own experience, it is the community that mobilizes to come to the rescue when floods and other disasters occur, helping itself before other actors intervene. When asked to identify on whom the responsibility for relief lies, the vast majority answered that it is the community first and then identified government actors. Very few cited external institutions and organizations.

Someone mentioned that women are very active and participate in community meetings, but they are not usually the decision makers. None of the interviewees in this sample could recall any female leadership or leadership of a vulnerable group. There are opportunities to work with male and female leaders on risk management issues, usually focused on street and garbage improvement or storm drainage solutions. The creation of an early warning system also emerged as a desire of some community members. Except for one person, all agreed that there is no emergency committee, being the neighborhood councils the ones that fulfill that function. All agreed that the people who intervene in times of emergency also need more training, since at the moment they only respond to their good will.

Summary of the proposals and community vision for the Resilience Center that resulted from the creative workshop process.

Cristo Rey has a diverse and collaborative family structure. The activity attracted very diverse families, involving boys, girls, teenagers, fathers, mothers, grandmothers and grandfathers with ages ranging from 3 to 91 years old. The “icebreaker” activity generated good enthusiasm as the families who came

as very integral nuclei were able to relate to each other based on those aspects that made them very diverse, age, gender, appearance, etc. This led to a level of trust and interpersonal connection that fostered a sense of community in the environment.

At first, the presentation of the concept of “resilience” was taken with disinterest by some of the participants, but once the puzzle dynamics began, a synergy was created that allowed the families to understand the essential objective of the term, the ability to organize themselves as a collective and work according to their strengths and capabilities to achieve a common goal.

In the logo activity, the children and adolescents had an unexpected leadership, as they were able to transform theory into action because the materials on the tables were very familiar to them. We were able to see a table where the image of the logo came from a three-year-old girl and others where pre-adolescents changed the two-dimensional essence of the construction of a logo and generated mobile and interactive objects. This was very positive as it counteracted the rational intention of the adults by directing the leadership to an unexpected situation, which is very much in line with the concept of resilience.

Some conclusions regarding the images they generated

- All the panels included vegetation, being these in public but also private spaces, indicating a lack of green spaces in the area.
- Children and adolescents drew and used images that promote diversity, despite the fact that in written form the adults indicated conflicting positions on the issue of gender diversity.
- In several images there are aspirations for decent and quality housing.
- In all there are expressions about pollution and excess garbage and there is a call for new modes of waste management.
- Many indicate and hierarchize the idea of the family as the basis of the community.
- Community productive activities are also observed.
- Several panels with sports activities are observed.
- The provision of fresh fruits is also visible.
- In some panels children introduced concerns for animals, perhaps street or pet animals.
- There is a very evident appreciation for open, shaded, and quiet spaces.

For the use diagram activity, families were first asked to place on one side the uses and activities they wanted to occur at the center and on the other side the uses they considered undesirable. They were encouraged to be creative in the uses and possibilities of the center. The ideas were as varied and

dynamic as the families themselves, ranging from recreational and educational proposals to micro-enterprise proposals.

What uses and activities do families want from the center?

- Center for student services.
- Technical training center.
- Center for medical assistance and popular pharmacy.
- Spaces for recycling and waste management training.
- Children’s play areas.
- Play areas for adolescents linked to technology.
- Sports areas (could consider e-sports and board games).
- Productive spaces for the community, generating income for common services.
- Green spaces.

¿Qué usos y actividades no quieren las familias del centro?

- Actividades que generen ruido y contaminación.
- Espacios que fomenten la delincuencia.
- Espacios comerciales privados.
- Actividades religiosa o políticas.

UNA COMUNIDAD RESILIENTE...

CARACTERÍSTICAS IDENTIFICADAS EN EL MARCO SOBRE RESILIENCIA COMUNITARIA

está bien informada, saludable y puede satisfacer sus necesidades básicas



... está socialmente cohesionada

... tiene oportunidades económicas



... tiene infraestructuras y servicios bien mantenidos y accesibles



... puede gestionar sus activos naturales



... está conectada



COMMUNITY OUTREACH PLAN

05

CONTENT

Site Analysis	5.1
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SITE ANALYSIS

The purpose of this section of the COP is to describe how the physical and social survey phase reveals vulnerability issues and how they relate to community social infrastructure improvement initiatives.

Summary of the existing conditions of the community based on the study conducted by UNIBE students and the ARCOIRIS group.

Cristo Rey is a neighborhood with a strong presence of industries, logistics areas (warehouses and product distribution) and large commercial areas. However, in this central neighborhood of Greater Santo Domingo, a large number of multi-family and mixed-use housing (housing and commerce) cohabit with these industries. It can be concluded that it is a sector with a residential vocation, but in reality it is a very compact neighborhood with mixed uses. Stores are located mainly along the main avenues (Av. Ortega y Gasset and Av. Nicolás de Ovando).

A large number of dwellings do not have direct access from the street, they communicate with each other and with the formal road network through alleys, thus having a facade of residential buildings facing the street, and then a heart of the block with informal alleys and overcrowded housing. It is common for residential buildings (especially those facing the street) to have commercial use on the first level, and housing on the upper levels.

Both the neighborhood of Cristo Rey and its surroundings present a mixed urban fabric, which combines the orthogonal structure of square blocks characteristic of the widening model, as well as an orthogonal structure of rectangular blocks and organic structure. The latter appears both in the formal part (responding to the topography and the terrain) and in the informal fabric, where the formal structure of the blocks and streets has been adulterated to build informal housing and businesses.

Irregular organic blocks are located in Cristo Rey, La Agustina, Los Caminos and Ensanche Capotillo. The square blocks are located in Villa Juana, Villa Fontana, Villa María, Ensanche La Fé and El Ensanchito. The rectangular blocks are located in Ensanche Luperón, Ensanche Espailat, Libertad and Villa Consuelo.

The height of the buildings in Cristo Rey goes hand in hand with the uses and idiosyncrasies of working class neighborhoods, with a predominance of houses between 2 and 5 levels. This corresponds to the

typical tradition of popular neighborhoods of first building a single-family house and progressively adding levels for rent (as a form of sustenance) or to house family members.

In most cases, these buildings are self-constructed, so the fact that they have several levels increases their level of vulnerability.

The analysis of full and empty lots in Cristo Rey has allowed us to confirm what the statistical data show: it is a neighborhood with a very high density and compactness. There are no large empty lots, nor vacant plots. The free spaces coincide with the circulation spaces, being very common the alleys in the interior of the blocks. Although its structure is orthogonal, as previously mentioned, the blocks are subdivided in their interior, with buildings facing the street and many others that have access only through alleys or exterior stairways. Wide streets give shape to the urban fabric, dividing the blocks, which then, in their interior, are filled in, being completely built.

Summary of urban issues and conclusions of the urban diagnosis process

Contamination

It is very common to see waste accumulated in the streets. In addition to food scraps and plastics littering the streets. There is a need for more containers to be distributed throughout the area, so that they are accessible to residents, and they do not have to travel long distances to deposit them.

The Cristo Rey sector deals with a constant situation of poor garbage and waste management throughout the neighborhood area.

The solid waste left in the streets is also responsible for other problems such as flooding during heavy rains since it obstructs the sewage and drainage system.

There is also noise pollution due to the high vehicular traffic flow, loud music in the neighborhood and air pollution from the industries in the area.

Lack of planning

The lack of planning in the structuring and consolidation of the neighborhood is notorious, as there is one life in the front of the block and another in the back. In spite of this, residents have organized themselves to keep the alleys that connect to the block interiors closed and clean. Marginality and lack of planning directly influence the vulnerability of the neighborhood.

Public spaces in poor condition

Many streets contain destroyed and irregular sidewalks, streets with fillers that make the street difficult to walk on and also with holes that make it just as uncomfortable. For people with disabilities, these streets are dangerous and not very inclusive.

Lack of recreational facilities

En Cristo Rey sólo hay dos parques: Cristo Libre y Cruz Jiminián. Ambos se desarrollan en espacios residuales, y no han sido contemplados como tales desde el principio. Actualmente, se está canalizando el barranco central del barrio (Arroyo Seco), y está previsto construir un espacio público sobre él. Sin embargo, Cristo Rey es un barrio muy denso, por lo que habría que ampliar la cantidad de zonas verdes mucho más de lo que está previsto actualmente. En el radio de acción del Centro de Resiliencia, el Parque Cruz Jiminián y el Club Los Cachorros son los únicos lugares de esparcimiento para una comunidad con tan alta densidad de habitantes, incluyendo un gran número de jóvenes y niños.

Vulnerable buildings

Although the predominant material used in the houses is concrete, the way in which they have been built and the soils on which most of them are constructed make them vulnerable. There are many houses in poor condition, or with recycled materials, on flood-prone soils or with slopes greater than 20% (see vulnerability analysis).

Poor accessibility

The neighborhood of Cristo Rey has two types of streets: it is structured by wide streets of two to four lanes, but inside the blocks, the reality is different: narrow alleys of difficult accessibility, with complex shapes, which weave a whole pedestrian structure inside the neighborhood. These alleys give access to most of the houses, which means that most of the inhabitants of the neighborhood do not have direct access to the streets or to emergency services.

This points to a high vulnerability, especially for people with reduced mobility, because in the event of an emergency or disaster, it would be very difficult to access them or leave their homes.

On the other hand, these residents are poorly connected to mobility networks, transportation, public facilities and public spaces.

Summary of community needs as reflected in the social work questionnaire.

Cristo Rey is a place with strong community leadership, something that can be deduced from the results of the questionnaire and the social history of this sector of Santo Domingo. However, some responses suggest that this leadership may be highly politicized and that disaster risk management aid is often not channeled through institutional channels, but through political leaders.

In this sense, it would be interesting to have a rights-based approach to the issues that are worked on in the neighborhood. The people interviewed identified three main concerns regarding possible threats in the sector: floods, earthquakes and the occurrence of fires. Since it is an industrial zone, there are permanent threats such as the presence of chemical waste, fires, which was repeated in several interviews, as well as air and noise pollution problems. The case of flooding is very present in the community members who live in areas adjacent to canyons. On occasions, they expressed that they have had to come to their aid or provide their houses as shelter.

According to the responses of the interviewees, it is possible to infer that the community perceives itself as resilient and supportive in the face of hazards. In their own experience, it is the community that mobilizes to come to the rescue when floods and other disasters occur, helping itself before other actors intervene. When asked to identify on whom the responsibility for relief lies, the vast majority answered that it is the community first and then identified government actors. Very few cited external institutions and organizations.

Someone mentioned that women are very active and participate in community meetings, but they are not usually the decision makers. None of the interviewees in this sample could recall any female leadership or leadership of a vulnerable group. There are opportunities to work with male and female leaders on risk management issues, usually focused on street and garbage improvement or storm drainage solutions. The creation of an early warning system also emerged as a desire of some community members. Except for one person, all agreed that there is no emergency committee, being the neighborhood councils the ones that fulfill that function. All agreed that the people who intervene in times of emergency also need more training, since at the moment they only respond to their good will.

Summary of the proposals and community vision for the Resilience Center that resulted from the creative workshop process.

Cristo Rey has a diverse and collaborative family structure. The activity attracted very diverse families, involving boys, girls, teenagers, fathers, mothers, grandmothers and grandfathers with ages ranging from 3 to 91 years old. The “icebreaker” activity generated good enthusiasm as the families who came as very integral nuclei were able to relate to each other based on those aspects that made them very diverse, age, gender, appearance, etc. This led to a level of trust and interpersonal connection that fostered a sense of community in the environment.

At the beginning, the presentation of the concept of “resilience” was taken with disinterest by some of the participants, but once the puzzle dynamics began, a synergy was created that allowed the families to understand the essential objective of the term, the ability to organize themselves as a collective and work according to their strengths and capabilities to achieve a common goal.

In the logo activity, children and adolescents had an unexpected leadership, as they were able to transform theory into action because the materials on the tables were very familiar to them. We were able to see a table where the image of the logo came from a three-year-old girl and others where pre-adolescents changed the two-dimensional essence of the construction of a logo and generated mobile and interactive objects. This was very positive as it counteracted the rational intention of the adults by directing the leadership to an unexpected situation, which is very much in line with the concept of resilience.

Some conclusions regarding the images they generated

- All the panels included vegetation, both in public and private spaces, indicating a lack of green spaces in the area.
- The children and adolescents drew and used images that promote diversity, despite the fact that in written form the adults indicated conflicting positions on the issue of gender diversity.
- In several images there are aspirations for decent and quality housing.
- In all of them there are expressions about pollution and excess of garbage and there is a call for new ways of waste management.
- Many indicate and emphasize the idea of the family as the basis of the community.
- There are also productive community activities.

- There are several panels with sports activities.
- The provision of fresh fruit is also visible.
- In some panels the children introduced concerns about animals, perhaps street animals or pets.
- There is a very evident appreciation for open, shaded and quiet spaces.

For the use diagram activity, families were asked to first place on one side the uses and activities they wanted to occur at the center and on the other side the uses they considered undesirable. They were encouraged to be creative in the uses and possibilities of the center. The ideas were as varied and dynamic as the families themselves, ranging from recreational and educational proposals to micro-enterprise proposals.

What uses and activities do families want from the center?

- Center for student services.
- Technical training center.
- Medical assistance center and popular pharmacy.
- Spaces for recycling and waste management training.
- Play areas for infants.
- Technology-related play areas for teenagers.
- Sports areas (e-sports and board games could be considered).
- Productive spaces for the community to generate income for common services.
- Green spaces.

What uses and activities do families not want from the center?

- Activities that generate noise and pollution.
- Spaces that encourage crime.
- Private commercial spaces.
- Religious or political activities.

MAP OF STAKEHOLDERS AND ACTION OBJECTIVES OF THE PLAN

The purpose of this section of the COP is to describe the stakeholder map, key action objectives and communication opportunities that exist to orient community members, stakeholders and society at large to the importance of mitigating natural and man-made disaster risks. Local strategies/initiatives that could inform the community outreach plan should be described; hot button issues that are

particularly problematic for the community; desired outcomes/problems that will be addressed/resolved as a result of Plan implementation; the community's ability to proactively communicate risk to constituents.

Roles and responsibilities

- **Richard Plunz, Project Leader, CWP**
- **Vanesa Espailat, Project Manager, Special Advisor. CWP**
- **Jesus D'Alessandro, Institucional Leader. ADN**
- **Esteban Gonzalez, Academic Leader. UNIBE**
- **Marcos Barinas, Technical Consultant. ReCUA / UNIBE**
- **Victoria Delancer, Academic Consultant/ UNIBE**
- **Claudia Sarante, Community Development Director, ADN**
- **Monika Sanchez, Public policy consultant, CWP**
- **Melisa Vargas, Municipality consultant., ADN**
- **Kalil Erazo, Academic leader/ INTEC**
- **Juan Manuel Mendez, Director, Tecnicos, COE**
- **Juan Cesario Salas Rosario Director, Defensa Civil**
- **Director of Fire Department**
- **Ivan Gomez Carrasco, Director, Municipal Police**
- **Jorge Ramirez, Community Leaders, ADN**
- **Santos Maria, Comunity Leaders, Club Los Cachorros.**

Important communication objectives of the plan

To characterize the community outreach plan, this section describes the objectives and actions needed to address the findings of the social infrastructure plan studies. All implementation and follow-up activities should follow one or more of these objectives.

1- Families need to feel empowered regarding the use and administration of the Center. This would require:

- a) Training and education
- b) Formalized social organization.

2- The families want the center to be productive and generate income for services in the community. This requires:

- a) Business and Management Plan for the center.
- b) Analysis of marketing and potential services for the center.

3- The families need the center to function as a public space and not as a municipal office building or technical training center. This requires:

- a) Funds that allow for 24-hour employment and attention
- b) Guarantees of use of the space with community control.

4- Damage assessment before and after natural disasters. This implies:

- a) Prioritization and delimitation of risk areas;
- b) Formation of rapid assistance groups for evaluation and prioritization of interventions;
- c) Updating of computerized evaluation systems, GIS;
- d) Involvement and training of community youth in technological tasks;
- e) Training of young people in the use of technology.

5- Operational activation of a contingency plan. This involves:

- a) Facilitating the operation of the National System for Disaster Prevention, Mitigation and Response;
- b) Identifying the incident command system to protect lives and property
- c) Involving community leaders in these operations.

6- Carry out simulation exercises of the contingency plan.

7- Implement a citizen oversight mechanism for anthropogenic hazards. This implies:

- a) Working with the community training them on the rights approach and public policies in risk management;
- b) Identifying female leadership and empowering youth groups;
- c) Training on technological tools for the communication of early warnings and to be binding to public authorities.

8- Increase awareness about climate change, its threats of flooding due to excess rainfall, the radical rise in temperatures and the mitigation actions that the community can carry out in accompaniment of the authorities.

9- Define a network of safe housing and temporary shelters. Promote neighborhood solidarity.

10- Identificación de grupos más vulnerables (personas envejecientes o con discapacidades).

11- Diversification of community organizations. Ensure a system where political organizations do not control the community groups.

Key Stakeholders

Primary stakeholders

List of primary stakeholders who will receive specific actions within the context of the plan. These are the stakeholders who are in a position to effect substantial changes in official implementation processes, fundraising or lobbying for the community. Numbering refers to key objectives and actions.

- Ayuntamiento del Distrito Nacional; INFOTEP; Cruz Roja o COE
- Ministerio de Industria y Comercio; Gabinete de Innovación; Procompetencia
- Ayuntamiento del Distrito Nacional; Junta de vecinos; Institución del área de energía alternativa
- Ayuntamiento del Distrito Nacional, MOPC, COE, ONESVIE, Junta de Vecinos,
- MEPYD, COE, Policía municipal, Junta de vecinos
- Ayuntamiento del Distrito Nacional, COE, Junta de vecinos, liceos y colegios.
- Junta de vecinos, Club Los Cachorros, Empresas comunicadoras;
- Consejo Nacional de Cambio Climático; Marena; Mepyd
- MIVHED, COE, ADN, Juntas de Vecinos.

Secondary stakeholders

List of secondary stakeholders who will have specific actions but at a lower level of involvement. These are usually professional groups that will contribute their knowledge on a fee or volunteer basis.

- EDUCA
- INICIA; Academia (UNIBE-INTEC); Centros privados de adiestramiento y capacitación.
- Academia (UNIBE- INTEC); influencers del área política;
- Fundación Arcoiris, laboratorio de percepción remota INTEC.

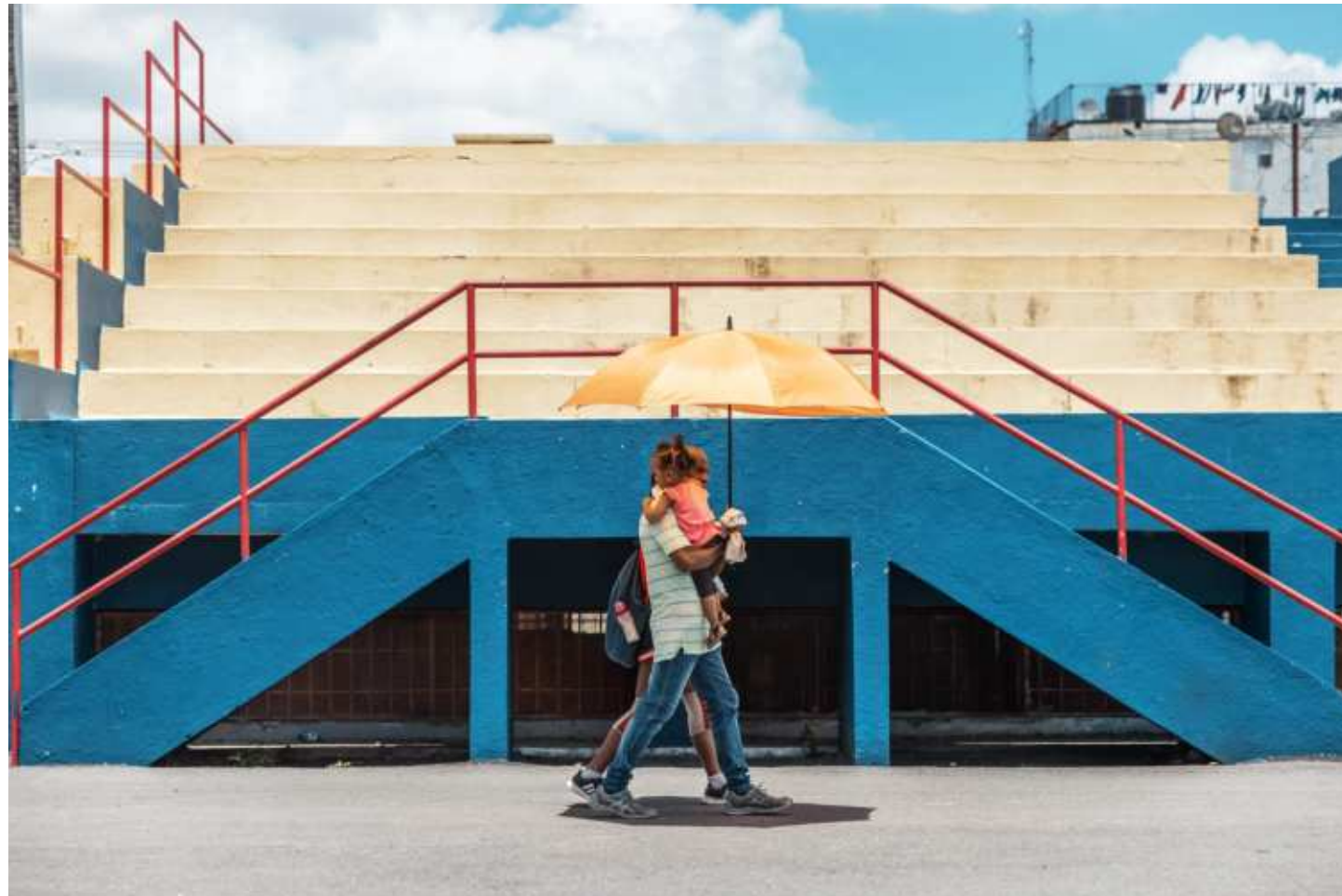
CONCLUSION

The methodology applied to analyze, diagnose and determine the problems related to vulnerabilities and resilience in the neighborhood of Cristo Rey, have resulted in possible approaches in terms of activities, uses and infrastructure that can be integrated into the Resilience Center.

Recommendations have been made to address certain existing gaps in the neighborhood both from its urban context, as well as in terms of how prepared the neighborhood is to face an emergency.

These suggestions allow rethinking the methodology and processes applied in this phase, and complement it, so that it can be applied in other contexts.

It is proposed that UNIBE becomes an Operational Partner of the CRCR, where the center serves as a venue to propose various activities, becoming the space to understand the needs of the community (social, health, socioeconomic), so that from these can be proposed programs, projects and indicators to measure the way in which the objectives set by the first and second phase are being achieved.



Cristo Rey Citizens. Source. Adolfo Sesto

In this sense, the community of Cristo Rey through a collaboration between UNIBE, partners and the Resilience Center can join together to detect, treat and mitigate precarious health conditions. In principle this could be done by taking advantage of the research that is in process at UNIBE.

In addition, from the School of Architecture, recurrent programs in which students serve as active researchers of the territory can be proposed as part of certain subjects related to the topic. Since the Community Resilience Center of Cristo Rey is the pilot of this type of centers, it is possible that future scenarios where it could be applied do not have the capacity to carry out the necessary surveys for its implementation, and in this sense, UNIBE can guarantee that this will be available.

One of the main tools for reducing social gaps and helping community members to have opportunities for insertion in the labor market is the possibility of complementing basic school education with programs of different kinds.

In this sense, the Cristo Rey Community Resilience Center can be a space for collaboration and innovation, where it is possible to implement a training program based on the needs of the community.

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