



Columbia World Projects
COLUMBIA UNIVERSITY

EXECUTIVE SUMMARY

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Building Climate-Resilient Communities in the Dominican Republic

DESIGN OF A BLUEPRINT FOR A COMMUNITY RESILIENCE CENTER IN SANTO DOMINGO



Executive Summary



Climate change is one of the preeminent scientific and policy challenges of our time. Recent climate disasters have highlighted the need to improve the resiliency and sustainability of communities globally. The Dominican Republic (DR), a country particularly vulnerable to natural hazards, has been consistently ranked among the countries with the highest natural disaster risk in the western hemisphere. As the Dominican Republic experiences increasing frequency and severity of such threats, with disastrous human and economic consequences, there is an urgent need for novel and practical solutions to achieve climate resiliency.

The Building Climate-Resilient Communities in the Dominican Republic project was conceived as part of the Columbia World Projects 2019 Forum on Disaster Preparedness, Resilience, and Response. The idea of designing and prototyping resilience centers to build communities' capacities to prepare for and respond to natural disasters emerged as a promising concept. The opportunity to design such a resilience center in Santo Domingo, Dominican Republic, was supported by the Mayor's Office in Santo Domingo, Ayuntamiento del Distrito Nacional (ADN), and two Dominican-based universities—the Instituto Tecnológico de Santo Domingo (INTEC) and Universidad Iberoamericana (UNIBE). After a period of collaborative project development, Columbia World Projects (CWP) made the commitment to support the development of a “blueprint” for a model resilience center in Cristo Rey, a dense, mixed-use, semi-industrial neighborhood in



Santo Domingo where there has been strong interest by the community and the municipality to support such an effort.

The proposed site for the resilience center in Cristo Rey is a municipality-owned building that was already designated to accommodate a satellite ADN office and to establish a capacity building center for the community that is focused on youth economic development.

What are community resilience centers?

Resilience centers are physical community spaces developed with the goal of increasing communities' capacities to prepare for and respond to natural and other disasters. Resilience centers are places that **(1)** empower communities through ongoing education, training, and health and social services; **(2)** provide coordinated emergency response in the event of disaster or disruption; and **(3)** enable effective recovery with information dissemination and research during postdisaster recovery.

This report provides background on the project, partners, and characteristics of the resilience center that was designed for implementation in Cristo Rey, Santo Domingo, Dominican Republic. The report includes the description of the consultative design process and consolidates methodologies, findings, and recommendations from the four complementary assessments undertaken (see p.4). Based on this consultative process and the assessment recommendations, a detailed design for the resilience center—including its physical infrastructure, programs, and management—is offered.

Assessments

Different factors need to be considered in designing sustainable resilience solutions—the physical infrastructure, the policy environment, and social and health factors and needs. Therefore, four complementary assessments were undertaken to inform the design of the resilience center. Each assessment was led by a different project partner or team, with different approaches, common methodologies included literature reviews, interviews, site visits, surveys, mapping, and data collection and analysis. Additionally, the project team undertook formative and ongoing work to engage key stakeholders at national, municipal, and community levels, via regular meetings, interviews, and communications. These inputs have informed the methodologies of each assessment and the design of the resilience center.

The **policy assessment** mapped existing institutional structures, laws, policies, plans, and strategies related to resilience, climate change adaptation, disaster risk management, and urban planning in the Dominican Republic using a qualitative approach (including literature review, key informant interviews, and stakeholder meetings). Findings revealed that, in legal and institutional terms, the Dominican Republic has made significant progress in developing its institutional capacities to increase resilience, strengthening disaster risk management, and increasing knowledge of the effects of climate change over the last two decades. Despite these advances, the country faces challenges to incorporate these advances into the development agenda, strengthen links between national institutions and local governments, actively involve the private sector, and access accurate data about the vulnerabilities of each territory. These are crucial to increase resilience among the most vulnerable communities. A number of recommendations illustrate opportunities within ADN to further advance and strengthen the implementation and sustainability of climate-resilience initiatives within the National District and within local communities, such as Cristo Rey.

The **physical and digital infrastructure assessment** included a review of historical data, an on-site assessment of the existing ADN building in Cristo Rey, and an analysis of the energy requirements of the building. The assessment concluded that the building is in a suitable location to serve as a resilience center and is well connected with the community and that, with appropriate retrofitting, it has the potential to provide emergency response services before, during, and after an extreme natural event. The assessment data were used to develop a set of infrastructure recommendations required for the building to function as an effective resilience center.

The **community assessment** used complementary, participatory methodologies for the community assessment. The assessment was conducted by faculty and students of architecture, urban sociology, and design at UNIBE and used site analysis and mapping, community interviews, a community vulnerability survey, and community consultation workshops for the assessment. A number of findings and recommendations from the community assessment underscored the critical role of community participation and engagement in resilience center planning and implementation, the importance of collaborating with and strengthening existing local groups involved in risk management, and the desire for improved community awareness about climate change and actionable mitigation.

The **health assessment** included a climate and health vulnerability and resilience rapid assessment to understand what current health and health system resources, assets, and vulnerabilities exist in Cristo Rey. Findings reiterated how climate change presents both acute and slow-onset health impacts. There is health infrastructure in place in Cristo Rey; however, more coordination and capacity building is required, as well as more data to analyze specific vulnerabilities and needs of the community related to health and resilience. Recommendations included that resilience center programs, such as those related to physical and mental health, be organized into three complementary operating levels: everyday resilience-building activities, programs and services during disasters, and post-disaster and recovery programs, with complementary staffing and partnership and community engagement strategies to support the three programmatic levels.

Design of Blueprint for Resilience Center

The proposed design for the resilience center has three primary components:

- **Physical and energy retrofitting and upgrades to the existing ADN building**
- **Design and implementation of proposed activities and programming**
- **Integration of the management, operations, and evaluation strategies**

The following **physical and energy retrofitting and upgrades** are proposed based on INTEC's assessment and recommendations of the existing ADN building:

1. Upgrade/replace the center's roof so that it can withstand the wind forces during hurricanes and other extreme weather events and support the weight of the proposed photovoltaic system.
2. Replace the windows with those that can resist hurricane winds and limit water entry.
3. Install a renewable, photovoltaic energy system that maintains power for three days.
4. Establish a weather station to collect data on weather and geophysical events.
5. Upgrade the digital infrastructure, including installing a satellite information system.

A staged plan for building upgrades is proposed so as not to disrupt continued services and community access.



Based on the community and health assessments, **the design of the health and social programs** at the center includes the elements summarized in Table 1 below.

Table 1:

	EVERYDAY RESILIENCE-BUILDING ACTIVITIES	ACTIVITIES DURING DISASTERS AND DISRUPTIONS	POSTDISASTER AND RECOVERY ACTIVITIES
Framework for Resilience Center Design	Improve baseline knowledge and skills, social cohesion, and disaster preparedness.	Serve as a central point of access to information and basic services.	Support vulnerable families and help the community recover and rebuild.
	<ul style="list-style-type: none"> ■ Safe, open community space and hub ■ Trainings to improve baseline health knowledge, skills, and disaster preparedness ■ Safeguard mental health via community approaches ■ Hub for health and social services resources ■ Support for community research 	<ul style="list-style-type: none"> ■ Centralized information hub for the community ■ Internet and phone services ■ Disseminate key information from local authorities ■ Basic services—first aid, food, hygiene supplies, clean water, shelter capacity, restrooms, showers ■ Space for Centro de Operaciones de Emergencias (COE) satellite operations in the community ■ Support for first responders/emergency workers ■ Trained, volunteer community crisis response team 	<ul style="list-style-type: none"> ■ Continuation of basic services provided during the disaster (first aid, clean food distribution, clean water, restrooms, etc.) ■ Hub for the community to receive information and referrals to needed services and supplies (resources for rebuilding, support to apply for aid, etc.) ■ Community space for local and community organizations to convene, support to reduce duplication of effort ■ Conduct postdisaster analysis with the community and make recommendations

Management, Operations and Scale

The proposed management structure design reflects the collaborative nature of the center’s development. The resilience center can use a hybrid management model, with the center staff colocated within the ADN building, alongside other existing partners, and working in close coordination with the ADN units focused on environmental and risk management. The resilience center staff will be managed by a Dominican nongovernmental or academic institution with expertise in community resilience. As the programming is established, the center could explore continued colocation or the potential of long-term integration into the ADN structure and team. Depending on funding, the center could initially have three full-time staff, an advisory board, and an inclusive and diverse community advisory committee.

A monitoring, evaluation, and learning system will generate output, outcome, and impact data that can be used locally to guide program activities and, eventually, to inform replication and scale of the approach. CWP, UNIBE, INTEC, and other partners are well placed to design and implement such a system, which would include building the capacity of local community leaders and partners.

Community resilience centers, including the one designed for Cristo Rey, offer a promising, decentralized model of urban disaster preparedness and response. Supporting local-level resilience and response can help to achieve national goals on climate resilience in the Dominican Republic and the region.





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