



# REIMAGINA Puerto Rico

Resilient Puerto Rico Advisory Commission

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## HOUSING SECTOR REPORT



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## **HOUSING** SECTOR REPORT

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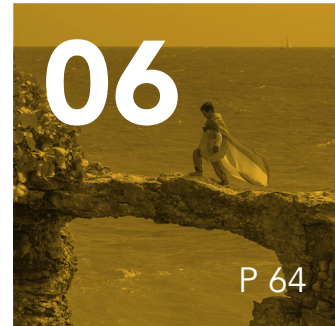
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## Opportunity Actions



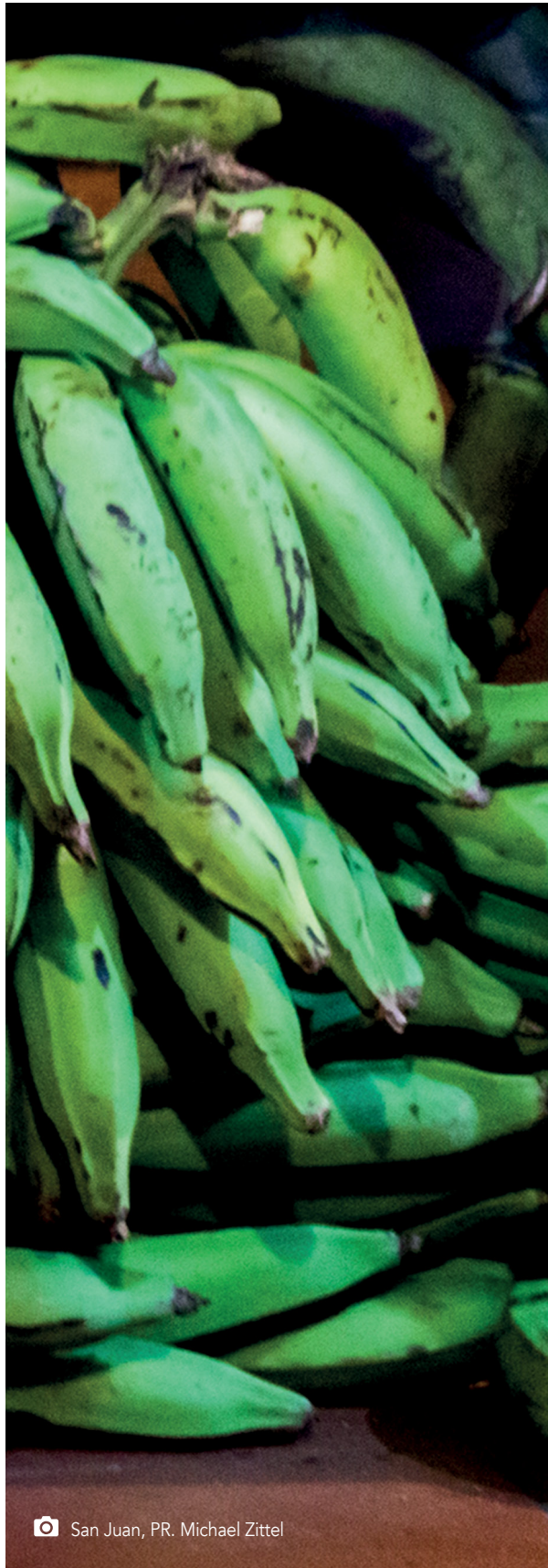
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San Juan, PR. Michael Zittel

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# Acronyms

**100 RC** 100 Resilient Cities

**ACA** Affordable Care Act

**ACS** American Community Survey

**ADUs** Accessory Dwelling Units

**AES** Agricultural Extension Service

**AGC** Associated General Contractors of America

**AIDIS** Inter-American Association of Sanitary and Environmental Engineering

**AMA, by its Spanish acronym** Puerto Rico Metropolitan Bus Authority

**ARRA** American Recovery and Reinvestment Act

**ASSMCA, by its Spanish acronym** Puerto Rico Administration of Mental Health and Anti-Addiction Services

**BLS** United States Bureau of Labor Statistics

**BTOP** Broadband Technology Opportunities Program

**Business PREP** Business Preparedness and Resiliency Program

**CAAPPR, by its Spanish acronym** Puerto Rico College of Architects and Landscape Architects

**CAGR** Compound Annual Growth Rate



**CAIDI** Customer Average Interruption Duration Index

**CBA** Community Benefits Agreements

**CBO** Community-Based Organizations

**CCLC** United States Department of Education - 21<sup>st</sup> Century Community Learning Centers

**CDBG** Community Development Block Grant

**CDBG-DR** Community Development Block Grant Disaster Recovery

**CDBs** Community Development Banks

**CDC** Center for Disease Control and Prevention

**CDCorps** Community Development Corporations

**CDFIs** Community Development Financial Institutions

**CED** Community Economic Development

**CHDOs** Community Housing Development Organizations

**CHIP** Children's Health Insurance Program

**CHP** Combined Heat Power

**CIAPR** Puerto Rico College of Engineers and Land Surveyors

**CNE** Center for a New Economy

**COFECC, by its Spanish acronym** Corporation for Business Financing of Commerce and Communities (now known as "lendreamers")

**COOP** Continuity of Operations Plan

**COR3** Puerto Rico Central Office of Recovery, Reconstruction, and Resilience

**CRA** Community Reinvestment Act

**CRF** City Resilience Framework

**CRIM, by its Spanish acronym** Puerto Rico Municipal Revenue Collection Center

**CSR** Corporate Social Responsibility

**DACO, by its Spanish acronym** Puerto Rico Office of Consumer Affairs

**DEDC** Puerto Rico Department of Economic Development and Commerce

**DHS** United States Department of Homeland Security

**DIRS** Disaster Information Reporting System

**DIY** Do It Yourself

**DNER** Puerto Rico Department of Natural and Environmental Resources

**DOLHR** Puerto Rico Department of Labor and Human Resources

**DOS** United States Department of State

**DTPW** Puerto Rico Department of Transportation and Public Works

**EDA** United States Economic Development Administration

**EOP** Puerto Rico Emergency Operation Plan

**EPA** United States Environmental Protection Agency

**EQB** Puerto Rico Environmental Quality Board

**EQIP** Environmental Quality Incentives Program

**EWP-FPE** Emergency Watershed Protection - Floodplain Easement Program

**FAA** Federal Aviation Administration

**FCC** Federal Communications Commission

**FEMA** Federal Emergency Management Agency

**FHWA** Federal Highway Administration

**FIDEVI, by its Spanish acronym** Puerto Rico Housing and Human Development Fund

**FIRM** Flood Insurance Rate Maps

**FOMB** Financial Oversight and Management Board for Puerto Rico

**FQHCs** Federally Qualified Health Centers

**FTA** Federal Transit Administration

**GAR** Governor's Authorized Representative

**GIS** Geographic Information System

**HHS** United States Department of Health and Human Services

**HiAP** Health in All Policies

**HIPAA** Health Insurance Portability and Accountability Act

**HMGP** FEMA Hazard Mitigation Grant Program

**HMP** Puerto Rico Hazard Mitigation Plan

**HRSA** United States Health Resources and Services Administration

**HUD** United States Department of Housing and Urban Development

**INE** Instituto Nueva Escuela

**IoT** Internet of Things

**IRP** Integrated Resource Plan

**IRS** Internal Revenue Service

**ISWM** Integrated Solid Waste Management

**KPIs** Key Performance Indicators

**KW** Kilowatt

**LIHTC** Low-Income Housing Tax Credits

**LISC** Local Initiatives Support Corporation

**LMI** Low to Moderate Income

**LQ** Location Quotient

**MA** Medicare Advantage

**MBA** Mortgage Bankers Association of Puerto Rico

**MCOs** Managed Care Organizations

**MGD** Million Gallons Per Day

**MIT** Massachusetts Institute of Technology

**MSA** Metropolitan Statistical Area

**MUSV** Movimiento Una Sola Voz

**NAICS** North American Industry Classification System

**NDRF** National Disaster Recovery Framework

**NERC** North American Electric Reliability Corporation

**NFIP** National Flood Insurance Program

**NGOs** Non-governmental Organizations

**NIH** National Institutes of Health

**NOAA** National Oceanic and Atmospheric Administration

**NRCS** Natural Resources Conservation Service

**NTIA** National Telecommunications and Information Administration

**O&M** Operations and Maintenance

**OCIO** Office of the Chief Information Officer of Puerto Rico

**OCPR** Office of the Comptroller of Puerto Rico

**OCS, by its Spanish acronym** Office of the Commissioner of Insurance of Puerto Rico

**ODSEC, by its Spanish acronym** Office for the Community and Socioeconomic Development of Puerto Rico

**OMB** Puerto Rico Office of Management and Budget

**OPPEA, by its Spanish acronym** Puerto Rico Governor's Office for Elderly Affairs

**OSTDS** Onsite Sewage Treatment and Disposal Systems

**P3** Public-private partnership

**PACE** Property Assessed Clean Energy

**PDM** FEMA Pre-Disaster Mitigation Grant Program

**PICA, by its Spanish acronym** Four Year Investment Program

**PMO** Puerto Rico Permits Management Office

**PPA** Power Purchase Agreement

**PR Science Trust** Puerto Rico Science, Technology & Research Trust

**PRASA** Puerto Rico Aqueduct and Sewer Authority

**PRBA** Puerto Rico Bankers Association

**PRBC** Puerto Rico Building Code

**PRCC** Puerto Rico Chamber of Commerce

**PRDA** Puerto Rico Department of Agriculture

**PRDE** Puerto Rico Department of Education

**PRDF** Puerto Rico Department of the Family

**PRDHe** Puerto Rico Department of Health

**PRDHo** Puerto Rico Department of Housing

**PRDOJ** Puerto Rico Department of Justice

**PRDPS** Puerto Rico Department of Public Safety

**PREC** Puerto Rico Energy Commission

**PREMA** Puerto Rico Emergency Management Agency

**PREPA** Puerto Rico Electric Power Authority

**PRFN** Puerto Rico Funders Network

**PRHBA** Puerto Rico Home Builders Association

**PRHFA** Puerto Rico Housing Finance Authority

**PRHIA** Puerto Rico Health Insurance Administration

**PRHTA** Puerto Rico Highways and Transportation Authority

**PRIDCO** Puerto Rico Industrial Development Company

**PRIFA** Puerto Rico Infrastructure Finance Authority

**PRITA** Puerto Rico Integrated Transit Authority

**PRMA** Puerto Rico Manufacturers Association

**PRPA** Puerto Rico Ports Authority

**PRPB** Puerto Rico Planning Board

**PRPBA** Puerto Rico Public Buildings Authority

**PRPS** Puerto Rican Planning Society

**PRTC** Puerto Rico Tourism Company

**PRTD** Puerto Rico Treasury Department

**PRTEC** Puerto Rico Trade and Export Company

**PSHSB** Public Safety and Homeland Security Bureau

**OCEW** Quarterly Census of Employment and Wages

**RFP** Request for Proposal

**RISE** Resiliency Innovations for a Stronger Economy

**RPS** Renewable Portfolio Standard

**SAIDI** System Average Interruption Duration Index

**SAIFI** System Average Interruption Frequency Index

**SBA** Small Business Administration

**SMEs** Small and Mid Size Enterprises

**SOPs** Standard Operating Procedures

**SSI** Supplemental Security Income

**SWMA** Puerto Rico Solid Waste Management Authority

**TIP** Transportation Improvement Program

**TRB** Puerto Rico Telecommunications Regulatory Board

**U.S. Army** United States Department of the Army

**UPR** University of Puerto Rico

**URA** Puerto Rico United Retailers Association

**USAC** Universal Service Administrative Company

**USACE** United States Army Corps of Engineers

**USDA** United States Department of Agriculture

**USDOC** United States Department of Commerce

**USDOED** United States Department of Education

**USDOL** United States Department of Labor

**USDOT** United States Department of Transportation

**USF** Universal Service Fund

**USFS** United States Forest Service

**USFWS** United States Fish and Wildlife Service

**USGS** United States Geological Survey

**WIOA** Workforce Innovation and Opportunity Act

**WPSs** Water Pump Stations

**WTPs** Water Treatment Plants

**WWPSs** Wastewater Pump Stations

**WWTPs** Wastewater Treatment Plants



01

BACKGROUND

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# Puerto Rico Background

Hurricanes Irma and María impacted Puerto Rico on September 2017 and caused nearly complete devastation to the Island. On September 6<sup>th</sup>, Hurricane Irma, a category five storm, skirted the northern part of the Island, causing significant flooding and leaving more than 1 million people without electric power. Two weeks later, on September 20<sup>th</sup>, Hurricane María, the tenth most intense Atlantic hurricane on record, passed east-to-west across the whole Island. Hurricane María left the entire Island without electricity, and it damaged thousands of housing units, as well as telecommunication towers, roads, bridges, schools, and 80% of the Island's crop value. Furthermore, Hurricane María impacted the physical structure of all hospitals and health clinics, affected 70% of Puerto Rico's potable water treatment and distribution system, and caused immense suffering to all Puerto Ricans. The Government of Puerto Rico's damage assessment estimated that the Island would need \$94.4 billion to fully recover<sup>1</sup>. The National Oceanic and Atmospheric Administration estimates the damage from María makes it the third costliest hurricane in U.S. history, behind Katrina (2005) and Harvey (2017)<sup>2</sup>.

The severity of the impacts highlighted the Island's physical and natural infrastructure vulnerability to extreme weather events and the need to better prepare for future events. The hurricanes also exposed structural socioeconomic weaknesses that existed prior to the storms and that exacerbated their impacts, among

them a contracting economy, a bankrupt public sector, declining jobs, high inequality, aging infrastructure, and continuous population loss.

The combination of these physical, natural, and socioeconomic factors tested Puerto Rico's resilience. Resilience is understood as the capacity to respond, survive, adapt, and grow in response to shocks and stresses. Shocks are major crisis events that disrupt the normal operation of communities, as well as their institutions and systems. On the other hand, stresses are chronic conditions that progressively reduce the ability of individuals, businesses, institutions, and systems to function effectively.

Hurricanes Irma and María, however, were only the latest of a series of significant events that have severely affected Puerto Rico over the last decade. The Island has faced multiple environmental and socioeconomic shocks that have tested its capacity and eroded its ability to respond resiliently in the past. Tropical cyclones, floods, and wildfires have been common occurrences in the Island's territory of roughly 9,000 square kilometers.

Also, Puerto Rico's economy has been suffering a staggering contraction for over ten years. The outward migration has resulted in a decrease in population of nearly 388,000 residents, or 10%, from April 2010 to July 2017<sup>3</sup>. Changing demographic patterns have resulted in reductions in the Island's<sup>4</sup> overall population, and in an increase in the elderly and the islanders



living below poverty levels. Over 41% of Puerto Rico’s inhabitants are living below the U.S. federal poverty line, proportionally more than triple the U.S. average (11%)<sup>5</sup>. Puerto Rico’s GINI coefficient, an indicator that denotes income inequalities across populations, is the highest in the United States<sup>6</sup>.

Moreover, in May 2017, a fiscal crisis that developed over decades spurred a bankruptcy declaration by the Government of Puerto Rico and several of its public corporations. The bankruptcy declaration<sup>7</sup> prompted a process to restructure Puerto Rico’s debt obligations, placing additional challenges on its public sector operations and services. As such, any recovery measures that require changes to the budget of Puerto Rico government agencies (from either the revenue or expenditures), could be subject to additional restrictions by the U.S. Federal Court and the Financial Oversight and Management Board for Puerto Rico. All these factors constitute stresses affecting Puerto Rico, and they create additional challenges to the overall

management of local government agencies and their policy implementation processes.

Even in the midst of all this turmoil, Puerto Ricans are clear on one thing: The path forward is not to return the Island to its prior state, normality is not the goal. The story of the new Puerto Rico is yet to be written. The Island must use this catastrophe to leverage the investments that will be made to change its growth and development trajectory. The recovery process should not focus solely on replacing outdated infrastructure. Instead, it should aim at building better assets, unleashing innovation, and coordinating among interested stakeholders. By creating these conditions, the path to address multiple challenges, increase social cohesion, strengthen the economy, and eliminate existing underlying socioeconomic weaknesses will be paved. Only then, Puerto Rico will be a better place for its citizens. This is the vision of the Resilient Puerto Rico Advisory Commission and its core project, ReImagina Puerto Rico.

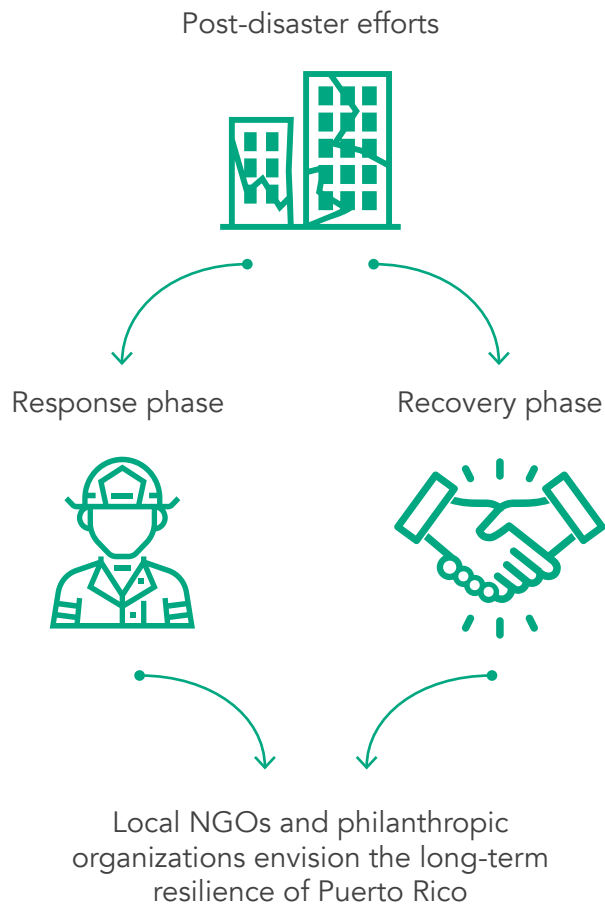


# About the Resilient Puerto Rico Advisory Commission

The Resilient Puerto Rico Advisory Commission (the “Commission”) was created in November 2017 as an independent, inclusive, non-partisan and, non-governmental, body led by Puerto Ricans. It is designed to serve as a unifying force among a diverse group of voices.

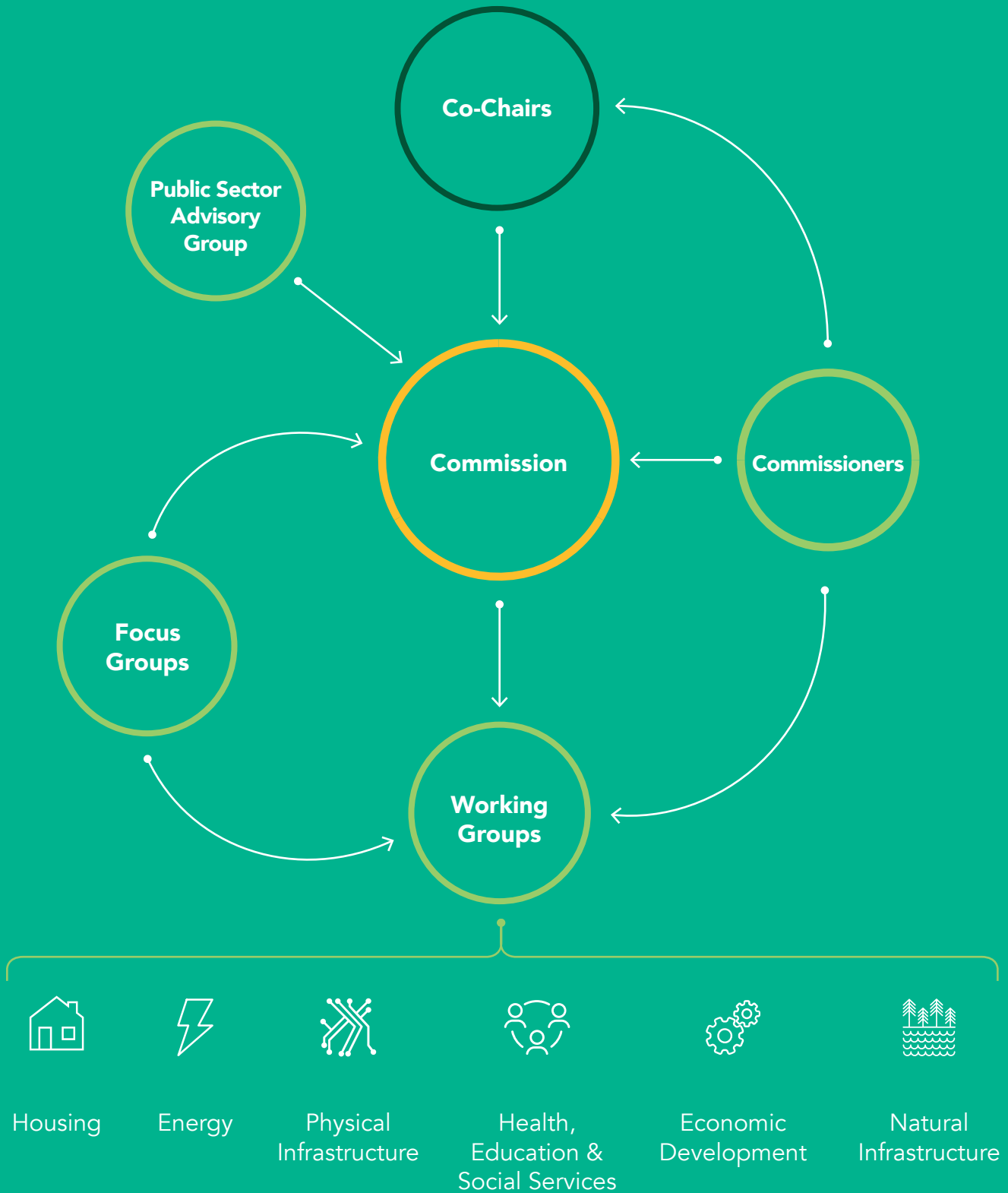
The Commission is chaired by five Co-Chairs and has 22 Commissioners. The Co-Chairs are leaders from Puerto Rican civil society that represent diverse interests and social sectors. They were selected in consultation with local groups to lead the effort and evaluate, endorse, and approve the overarching recommendations of the Commission’s reports. Commissioners are civic, community, and business leaders appointed by the Co-Chairs, and they represent a broad cross-section of NGOs and academic, civic, and professional communities in Puerto Rico. They are the project’s ambassadors, an integral part of the community engagement, and have contributed their knowledge and technical expertise to the development of this report’s recommendations.

The Commission’s goal is to promote a more resilient Puerto Rico as part of a long-term reconstruction process that improves Puerto Ricans’ quality of life. It envisions a more participatory and transparent recovery process where the people of Puerto Rico take an active role in forging the future of the Island.



The Resilient Puerto Rico Advisory Commission emerged as a response to support initiatives that help move Puerto Rico’s recovery and reconstruction efforts in a resilient manner.





The Commission receives no public funding. It is financially supported entirely by **Ford Foundation**, **Open Society Foundations**, and **The Rockefeller Foundation**, with technical support from The Rockefeller Foundation's 100 Resilient Cities, as part of a broad effort to support the resilient recovery of Puerto Rico.

The Commission's core project, ReImagina Puerto Rico, aims to:



**Produce an actionable and timely set of recommendations for how to use philanthropic, local government, and federal recovery funds to help rebuild Puerto Rico in a way that makes the Island stronger –physically, economically, and socially– and better prepared to confront future challenges.**



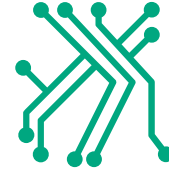
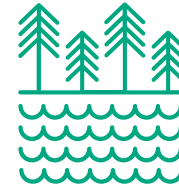
San Juan, PR. Han Kim



HOUSING



ENERGY

PHYSICAL  
INFRASTRUCTUREHEALTH, EDUCATION &  
SOCIAL SERVICESECONOMIC  
DEVELOPMENTNATURAL  
INFRASTRUCTURE

The Commission embarked on a broad, participatory process to achieve this objective, and it focused its analysis on several key sectors, organized under six working groups (see Figure 2).

Working groups met on three different occasions with approximately 15-20 individuals per working group meeting. They included commissioners and other experts and stakeholders with knowledge and expertise within the scope of the working groups. The three working group sessions led to the identification and development of each sector's goal and sector-specific recovery recommendations for Puerto Rico's resilient rebuild (see Methodological Approach on Appendix). Technical discussions within working group meetings were also nourished through a Community Outreach and Engagement Process that was held across Puerto Rican communities to validate and strengthen the identification of unmet needs, sector goals, and recovery actions.

One of the core distinctions of this effort lies

in the broad and participatory outreach approach it has adopted towards Puerto Rico's recovery and reconstruction. The Commission has placed a central focus on enabling a conversation among diverse voices to build consensus and identify opportunities to embed resilience in the rebuilding efforts. As part of the project's Community Outreach and Engagement Process, ReImagina Puerto Rico brought together community members and leaders, grassroots organizations, business leaders, government officials, representatives from professional organizations, and students, among other groups. ReImagina Puerto Rico interacted with more than 750 individuals throughout the engagement process, including representatives from the Puerto Rican diaspora in Central Florida. Furthermore, it provided a common platform to discuss concerns and aspirations regarding a more resilient Puerto Rico. The extensive input gathered throughout this outreach process strongly shaped the development of the recommendations described in this report.

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# Finding the Path Forward

The Commission’s primary focus was to develop recommended actions with resilience qualities such as being inclusive, integrated, flexible, redundant, reflective, resourceful, and robust and targeting issues of equity, transparency, and sustainability. The process of rebuilding Puerto Rico offers the opportunity to address some of the underlying challenges that have prevented Puerto Rico from overcoming most recent disasters.

Building resilience requires looking at a community holistically and understanding the systems that make up the place, as well as the interdependencies and risks, through precise identification of existing and potential shocks and stresses. Beyond continuing to build its capacity for resilience, Puerto Rico needs to take advantage of the current moment to embark on a unified planning exercise that emanates from a series of consultations and debates with numerous stakeholders and at multiple scales. Such a planning exercise can help strengthen Puerto Rico’s social fabric, as well as help devise and design a more precise set of projects and programs that can improve its development trajectory and the well-being of its citizens. To help jumpstart the required planning efforts, ReImagina Puerto Rico has put forth specific and actionable recommendations that comprehensively, and in a coordinated manner, address unmet needs, ongoing challenges, and mitigate the impact of future disasters.



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# Working Group Mission and Approach

Resilience in the housing sector requires a comprehensive approach, recognizing and capitalizing on the complexities that make up Puerto Rico's society and economy. Tasked with developing cross-cutting actions that achieve multiple benefits while building capacity to face and recover from acute shocks and chronic stresses, the Housing Working Group brought together stakeholders and experts from all parts of Puerto Rico. This group of people represented a broad spectrum of private, public, nonprofit, and community-based organizations. Rooted in deep local experience and practical knowledge of Puerto Rico's housing issues, the working group focused on developing a goal and specific actions aimed at empowering Puerto Ricans to make and implement new housing strategies in their communities.

The Housing Working Group served as an advisory group to the Commission to provide input on issues

related to the resilience, disaster recovery, and rebuilding of Puerto Rico's housing sector. The mission of the working group was to provide technical guidance and advice for the development of actionable and timely recommendations related to repairing and rebuilding housing devastated by Hurricanes Irma and María, as well as strengthening resilience by addressing social inequality, the informality of the housing sector, and the safety of housing stock.

Although there are many short- to long-term challenges for the recovery of homes affected by the hurricanes, group members have confidence in the creativity and entrepreneurial spirit of the Puerto Rican people. The strategic actions proposed by the group are optimistic in that Puerto Rico can transform its housing sector resiliently and coherently with the democratic and inclusive values of Puerto Rican society.



**The Housing Working Group mission was to provide technical guidance and advice for the development of actionable and timely recommendations related to repairing and rebuilding housing devastated by Hurricanes María and Irma, as well as strengthening resilience by addressing social inequality, the informality of the housing sector, and the safety of housing stock.**

# 02

## SECTOR CONTEXT



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# Pre-Disaster Context

The lack of safe, secure, and affordable housing has been a chronic problem since long before Hurricanes Irma and María. Furthermore, the burdensome legal and procedural tangles for acquiring or building a house, paired with the associated excessive soft costs, make it difficult for low-income families to perform real estate transactions formally. The issues above have led to housing that is not compliant with building codes, which increases exposure to risks and limited access to disaster recovery and emergency management resources. These are all issues that must

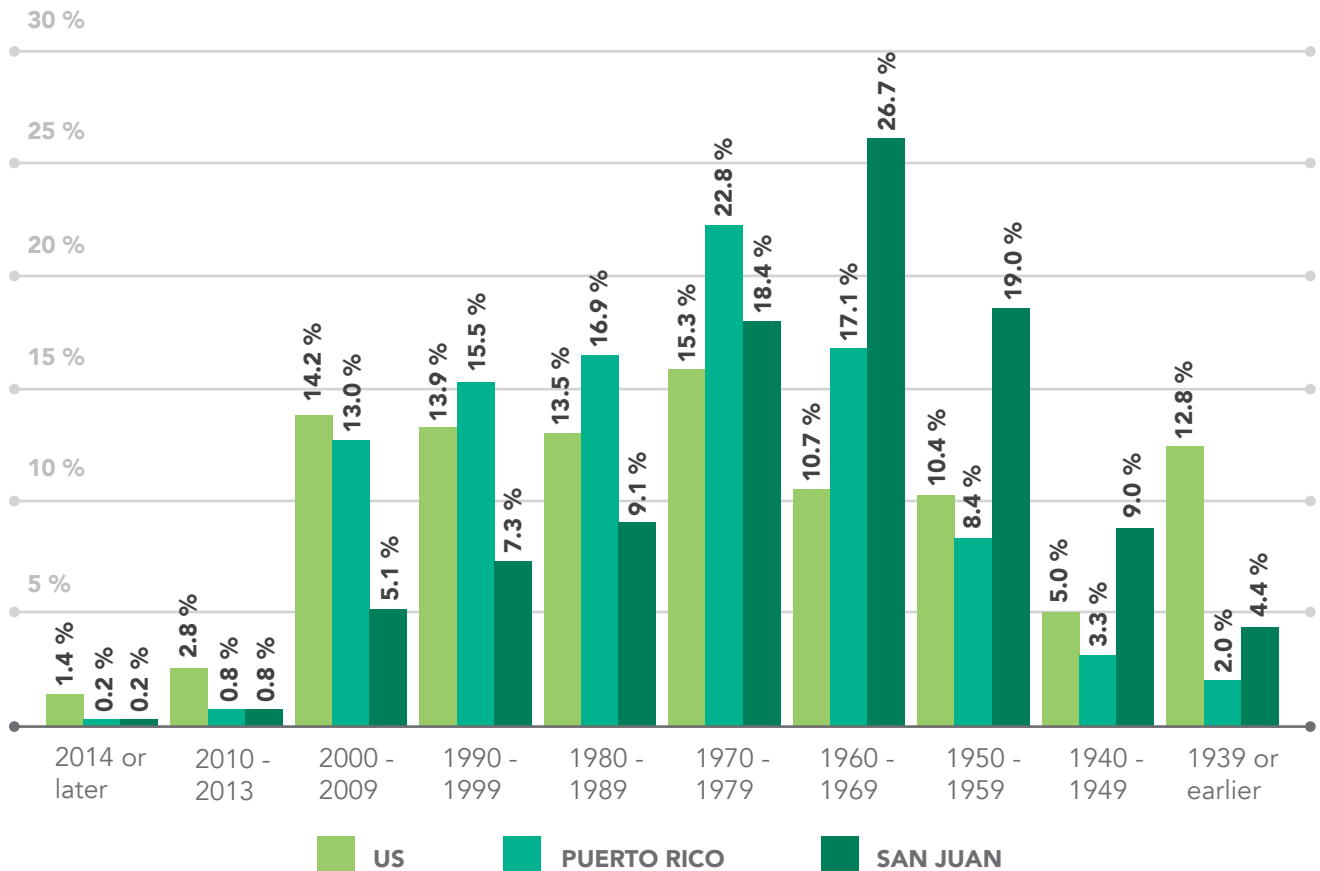
be brought front and center as major contributors to the fragile housing conditions across the Island.

Overall, few housing have been built recently. Puerto Rico's housing stock, as displayed in Figure 3, is relatively old compared to the mainland U.S. Only 1 percent of Puerto Rico's existing housing units were built after 2010, as compared to a 4.2 percent of housing units in the United States. Most of the existing housing stock in Puerto Rico was built 40 to 50 years ago, which highlights the need for the rehabilitation of structures concerning resilience to natural hazard events and energy efficiency.

# Only 1% of Puerto Rico's existing housing units were built after 2010, as compared to a 4.2% of housing units in the United States. Most of the existing housing stock in Puerto Rico was built 40 to 50 years ago.

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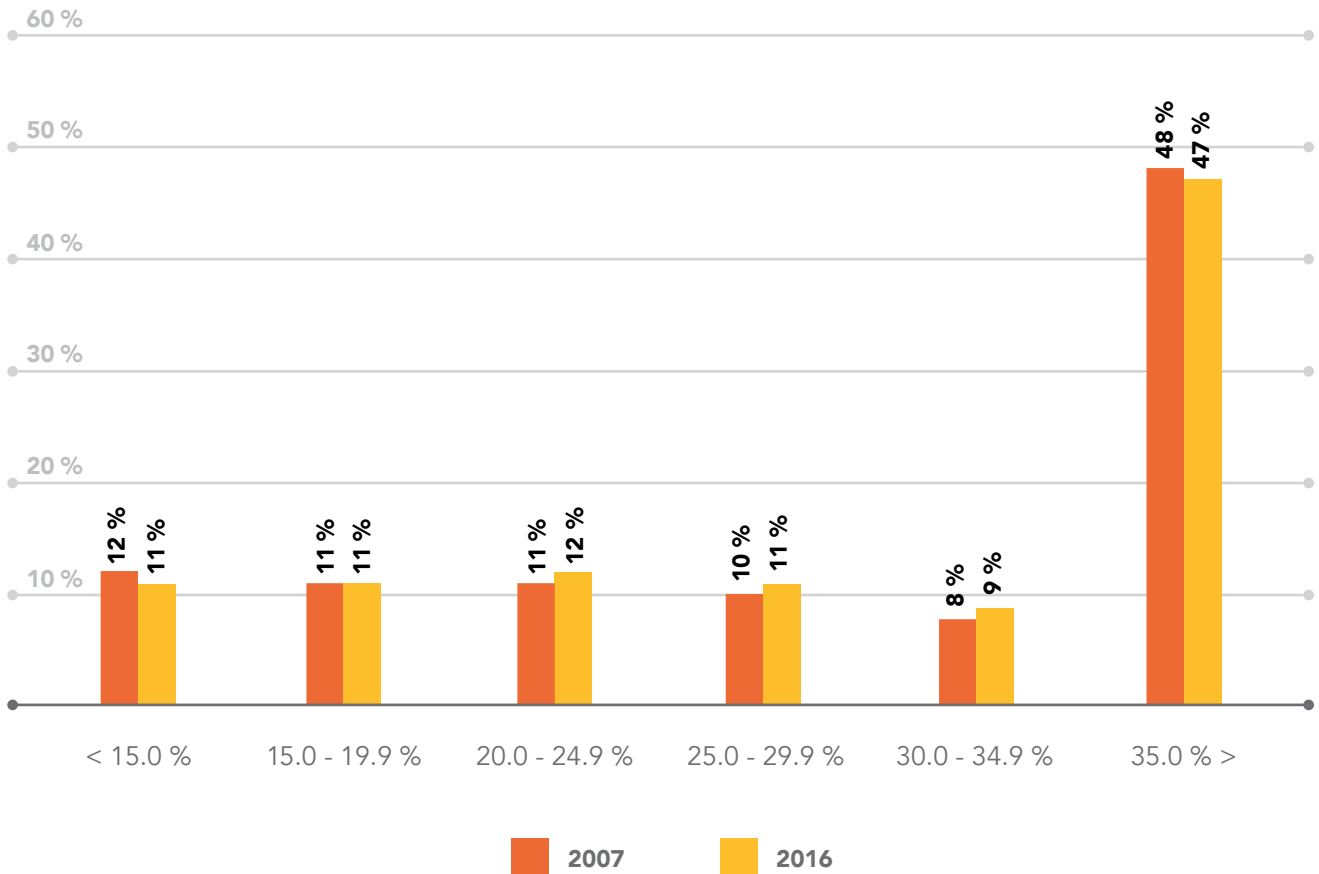
HOUSING UNITS BY YEAR OF CONSTRUCTION, U.S. VS. PUERTO RICO VS. SAN JUAN.  
SOURCE: ACS 2016 1 YEAR ESTIMATE



While relatively little new housing has been developed in Puerto Rico in recent decades, housing affordability, as measured by the percentage of household income, has remained a serious issue particularly for renters. Nearly half of whom spend 35% or more of their gross income on housing (see Figure 4).

Salaries have not kept pace with housing costs across income groups, but especially for the poor and elderly. This imbalance has led to an affordability crisis across the housing sector.

**F4** GROSS RENT AND PERCENTAGE OF HOUSEHOLD INCOME, 2007 VS. 2016.  
SOURCE: US CENSUS ACS 2012-2016



Aging housing stock and the lack of affordable housing are compounded by the lack of security and certainty in land tenure for a substantial portion of Puerto Rican families. Informal housing constitutes a significant amount of Puerto Rico’s housing units. Informal housing can be broadly defined as that which the State does not codify or recognize formally in its construction, form, or tenure. These are dwelling units that have uncertain legal standing. The current Housing Secretary has estimated as many as one in five informal housing units are built on private or

government land<sup>8</sup>. Informal housing communities, many of which are located across the Island’s coastal plains, are historically underserved by the government and face substantial exposure to natural hazards. Informal and uncontrolled electricity connections, widespread among these settlements, create significant fire risks, and the communities’ narrow roads prevent access for emergency vehicles. Additionally, the lack of proper sewage systems in many informal communities leaves them extremely prone to sewage overflow during heavy rainfall events.



San Juan, PR. Lorie Shaull

Housing informality manifests itself in multiple ways, but some of the most common manifestations include:



Unpermitted subdivisions or structural alterations in otherwise occupant-owned land.



Unpermitted structures built on land owned by occupants.



Settlements of households without legal deeds in the third-party land.



Renter-occupied housing without legal contracts due to absentee landlords.



Houses without proof of legal tenure due to inheritance issues or lack of formal documentation (such as utility bills to prove occupancy).

Nonetheless, housing informality is not the only institutional factor that amplifies vulnerability. Many “formal” housing units in Puerto Rico (i.e., housing deemed conformant to code and regulations by the State) are located in risk-prone areas or are, contrary to government-issued permits, non-compliant with building codes and regulations. Such cases have stemmed from inconsistencies in permit issuance and lack of enforcement by federal, central, and local government authorities.

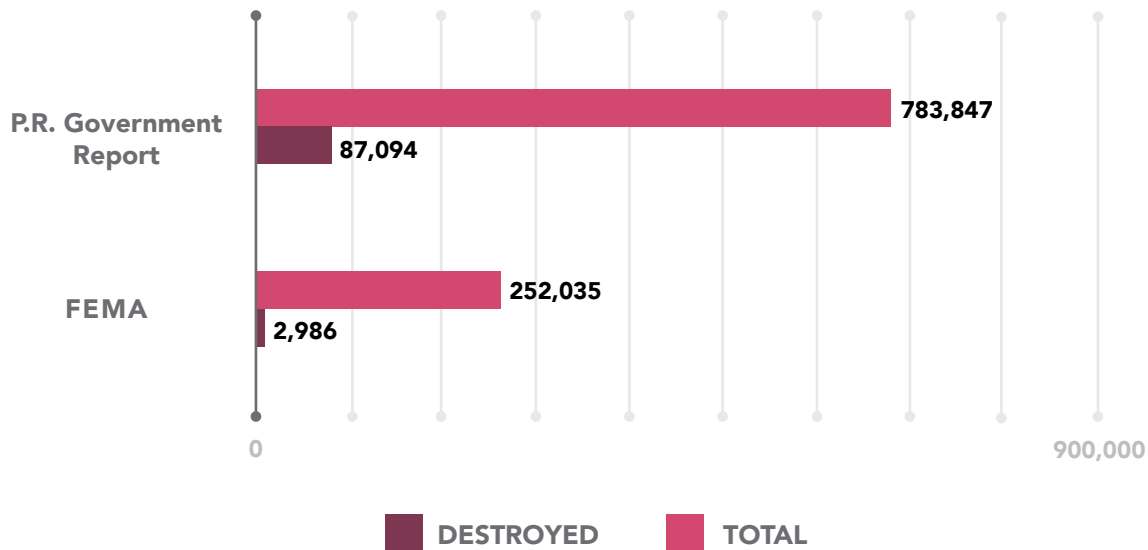
# Post-Disaster Context

Coupling the crisis in housing informality and security, the impacts of Hurricanes María and Irma further decreased the housing supply, resulting in even greater demand. According to the Puerto Rico Association of Homebuilders, 87 percent of the infrastructure damages in Puerto Rico was due to impacts on housing units that need both repair and resilient retrofit. As depicted in

Figure 5 below, estimates of housing units impacted by the hurricanes range from 252,035 (16% of all units) up to 783,847 units (50% of all units). Despite differing estimates, it is apparent that the already limited affordable housing stock in Puerto Rico has been further stressed, resulting in less overall affordable housing available to lower-income Puerto Rican households.

F5

HOUSING IN NEED OF REPAIR DUE TO HURRICANES IRMA AND MARÍA.  
SOURCE: GOVERNMENT OF PUERTO RICO, 2017; FEMA, 2018



Although the exact number of damaged or destroyed units is not yet known<sup>9</sup>, it is clear that a large number of Puerto Rican households are engaged in the process of repairing and rebuilding their housing units to the best of their ability. Much of this was done employing a variety of “self-help” construction techniques and practices, in the absence of more formal assistance from the government or nonprofit entities.

With the outflow of hundreds of thousands of households in the aftermath of the hurricanes, another common issue faced across the Island is that of **“people without houses and houses without people.”** In other words, in many towns and traditional urban centers, there is an existing housing stock which could serve local needs, but it is either in need of repair or needs to be made available to local renters and buyers who are “under-housed”.

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# Shocks and Stresses

Considering the previously described pre- and post-disaster housing conditions in Puerto Rico and based on their combined expertise and in-depth local knowledge, the working group members specifically identified the following major “shocks” and “stresses” for the housing sector in Puerto Rico.

## Key shocks include:



Hurricanes and tropical storms



Earthquakes and tsunamis



Floods



Loss of home and personal property

## Key stresses include:



Lack of access to information and reliable data about housing conditions



Devaluation of housing



Lack of communication between the public-sector agencies and local communities



Overcrowding



Lack of access and mobility



Security issues



Lack of displacement and hazard preventive measures



People without houses and houses without people



Inability of families and individuals to return to disaster-struck communities



Increased energy production costs



Lack of proactive planning and housing policies



Lack of fiscal independence

# Unmet Needs

As previously described, tenure and ownership stand out as critical challenges that have economic and institutional roots and are causing multiple problems, including unmet housing needs throughout the Island. The working group and community members engaged in the outreach process identified the following as unmet needs related to the housing sector:



**TENURE SECURITY** – Thousands of Puerto Rican households lack economic stability and access to federal recovery funds. The set of unmet needs related to “informality” include:

- Lack of government capacity to formalize sustainable and resilient land use planning and permitting processes.
- Lack of meaningful collaboration with communities to regularize informal housing, educate and present other housing options, and relocate families in cases where housing is no longer safe due to environmental conditions.
- Lack of resources to address the diverse needs of unregulated, unorganized, or unrecognized housing that is sometimes misleadingly classified as “informal” even though it is a critical housing resource for a large percentage of Puerto Rico’s population.



**HEALTH AND SAFETY** – Much of the Island’s housing stock needs renovation to protect the health and safety of residents. A concerted effort is needed to help owners, and tenants overcome capital, legal (e.g., tenure security), and social constraints. In addition to these structural issues, owners and tenants may not be aware of how natural hazards impact maintenance needs.





**HOUSING AFFORDABILITY** – There is a gap between the supply and demand of affordable housing units. There is a need for creating housing affordability policies and enforce them, as well as the need of investment in the Island’s existing housing stock, to deliver available housing resources to lower-income Puerto Ricans.



**SPECIAL HOUSING NEEDS** – There is a lack of adequate housing for seniors, children, the disabled, and other vulnerable populations. Housing stock rarely includes disability accessibility provisions, leaving this population with insufficient housing options or dependent on family and friends.



**COMMUNITY EMPOWERMENT** – There need to be meaningful opportunities for community influence over government (federal, State, and local) public policy processes related to housing. The Commission’s community engagement process revealed that average citizens do not feel they have options to address their individual or community housing challenges. This increases distrust in government and leads citizens to disengage from civic processes.



**HOMELESSNESS** – There is a lack of emergency shelters, temporary housing, and permanent housing for households who are made homeless by natural disasters or economic circumstances. Also, schools, churches, and other community buildings are either not built to withstand major impacts or are not adequately equipped to serve as emergency shelters in times of need. The hurricanes laid bare this serious gap that we must address before the next major disaster strikes.

An aerial photograph of a coastal city, likely San Juan, Puerto Rico, showing a mix of residential buildings, a sandy beach, and waves breaking on the shore. The image is overlaid with a white box containing the text '03 SECTOR GOAL'.

03

SECTOR  
GOAL

# Develop a portfolio of strategies that reduce risk exposure and foster community empowerment, addressing the diversity in socioeconomic conditions, housing types, and tenure in Puerto Rico.

The future resilience of Puerto Rico's Housing sector must recognize the intensity and frequency of environmental shocks, such as Hurricane María, and the reoccurring social equity stresses that have permeated Puerto Rico's history. The post-María recovery effort is considered to be a legacy-defining moment to transform Puerto Rico's housing sector toward a more resilient future.

**A resilient Housing sector is one which is designed to limit the impact from both acute shocks, like hurricanes and earthquakes, and chronic stresses, like insecure municipal finances or crime and violence.** By mitigating chronic stresses, such as social inequity and climate change, a resilient Housing sector will provide additional benefits.

In order to build resilience, it is essential to integrate community participation into all housing recovery processes and to empower Puerto Ricans to implement strategies in their communities. We must expressly state that policies designed to manage the aftermath of any disaster must consider those displaced by it. Displaced individuals ought to be able to return to their rebuilt communities, and they ought to be a part of the rebuilding.

Building on empowered communities, a resilient housing sector must grow towards financial independence in its operational phases, avoid areas of environmental sensitivity and risk, reinforce urban centers, bolster home-grown skilled and unskilled employment opportunities, and foster household and environmental health.

# 04

## OPPORTUNITY ACTIONS

# Action Sheet Guideline

Action Number

Action Title

A1

Update the Island's digital land cadaster to include: use and occupancy of structures, land tenure data, housing characteristics in informal housing, and information on insurance coverage.

## Description

A first step towards a safer overall housing sector in Puerto Rico would encompass the creation of a centralized and accessible database related to land tenure, use, and form for the informal housing sector as well as community assets and economic opportunity.

This database would also help to ensure social stability, security, and equity. Specifically, the cadaster should include use and occupancy of structures, inventories, and databases from the Department of Housing and its land title grant plan, data on characteristics in informal housing that have been collected through community-based projects, flood and landslide risk exposure, insured property and an insurance policy from insurance companies. This action would help identify other existing building stock that is suitable for housing development and in doing so help to maintain affordability. The data would be collected, digitized, integrated, shared and regularly updated in a coordinated, transparent and accessible way to create a trusted and accurate evidence base to inform planning and decision-making related to reconstruction and future development. This action establishes an evidence base that can be used for broad planning efforts that not only support resilience in the housing sector but also for physical infrastructure, natural infrastructure, and economic development.

## Potential Lead

Puerto Rico Center for Municipal Revenue Collection

## Potential Co-leads

PRPB; PRDH; PRPMO; Municipalities

## Potential Funding Sources

CDBG-DR

## Unmet Needs



## Crosscutting Benefits



## Timeframe



Short and medium term

**Potential Lead:** Lead organization responsible for execution of the action

**Potential Co-leads:** Partners that will support the development of the action

**Potential Funding Sources:** Federal, local, and philanthropic resources

## Unmet Needs:

- Tenure security
- Health and safety
- Housing affordability
- Special housing needs
- Community empowerment
- Homelessness

## Crosscutting Benefits:

- Housing
- Energy
- Physical Infrastructure
- Health, Education & Social Services
- Economic Development
- Natural Infrastructure

**Description:** The action description will address expected results and questions such as: What? How?

**Timeframe:** Short, medium, and/or long term

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## Goal and Actions

Develop a portfolio of strategies that reduce risk exposure, foster community empowerment, and address the diversity in socioeconomic conditions, housing types, and tenure in Puerto Rico.

A1

Update the Island’s digital land cadastre to include: use and occupancy of structures, land tenure data, housing characteristics in informal settlements, and information on insurance coverage.

A2

Provide technical capacity to implement a place-based and community-driven approach for identifying and planning reconstruction projects through collaborative and deliberative engagement.

A3

Develop feasible models to establish land tenure and/or community ownership in informal housing.

A4

Increase the affordable housing stock for low and moderate-income (LMI) households through a series of strategies, such as: infill development in hazard-free urban centers or adjacent suburban areas, new construction using low-income housing tax credits (LIHTC), creating rental housing cooperatives, project-based Section 8 rental-assistance projects, and up-zoning for mixed-income housing.

A5

Establish an Island-wide housing emergency management protocol that includes a voucher program for temporary housing, temporary rent control, foreclosure moratorium, and monitoring and prevention of predatory lending.

A6

Promote or incentivize community-driven, voluntary relocation of households from high risk and environmentally sensitive areas, using land buyouts and rezoning for land conservation.

A7

Repair, improve and retrofit public housing dwellings and facilities towards more resilient designs, including mitigation projects for public housing projects located in risk-prone areas.

A8

Improve the ability of local, municipal, and non-government agencies to regulate land use and construction through the adoption of improved rules and practices.

- A9** | Establish municipal and non-governmental land-banks to create: (a) lease buyback programs to prevent mortgage foreclosures and (b) buyout schemes to acquire code-compliant foreclosed or vacant properties for affordable housing in hazard-free areas.
- A10** | Improve the capacity of local Community Housing Development Organizations (CHDOs), Community Development Corporations (CDCorps), and Community Development Financial Institutions (CDFIs) to leverage financing for affordable and mixed-income housing developments, including low-income housing tax credits (LIHTC).
- A11** | Establish community-based emergency response procedures, identify emergency shelters, and train community volunteers.
- A12** | Create a path towards code compliance of the informal housing sector through the development of a Puerto Rico Building Code ‘Applications Document’ that supports simplified, streamlined, and cost-effective design and permitting based on locally-appropriate housing typologies for new homes and retrofits.
- A13** | Create loans, grants, or subsidy programs to incentivize and support improvements on the physical resilience of existing housing.
- A14** | Create training and skills building certification programs, in the construction trades that are focused on locally appropriate housing repairs, retrofitting, and resilient building technologies and techniques.
- A15** | Establish a building retrofit program in selected receptive communities.
- A16** | Develop and disseminate a manual that provides practical guidance for do-it-yourself (DIY) repairs that will improve housing safety.
- A17** | Create insurance pools and build public awareness to expand access to and utilization of disaster insurance.
- A18** | Implement a communications campaign to build a culture of household emergency preparedness and awareness.

Update the Island’s digital land cadaster to include: use and occupancy of structures, land tenure data, housing characteristics in informal settlements, and information on insurance coverage.

**Description**

A first step towards a safer overall housing sector in Puerto Rico should be the creation of a centralized and accessible database that includes (1) land tenure, use, and form for the informal housing sector, (2) community assets and, (3) economic opportunity.

This database would help ensure social stability, security, and equity. More specifically, the cadaster should include use and occupancy of structures, inventories, and databases from the Department of Housing and its proposed land title grant plan. It should also include data on characteristics in informal housing (including insured property and an insurance policy from insurance companies) that have been collected through community-based projects, flood and landslide risk exposure. This action would identify other existing building stock that is suitable for housing development and in doing so help to maintain affordability. The data would be collected, digitized, integrated, shared and regularly updated in a coordinated, transparent and accessible way in order to create a trusted and accurate evidence base to inform planning and decision-making related to reconstruction and future development. This action establishes an evidence base that can be used for broad planning efforts that not only support resilience in the housing sector but also for physical infrastructure, natural infrastructure, and economic development.

**Potential Lead**

Puerto Rico Municipal Revenue Collection Center

**Potential Co-leads**

PRPB; PRDHo; PMO; Municipalities; HUD

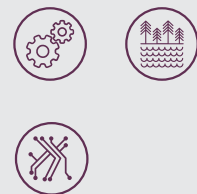
**Potential Funding Sources**

CDBG-DR

**Unmet Needs**



**Crosscutting Benefits**



**Timeframe**



Short and medium term



Provide technical capacity to implement a place-based and community-driven approach for identifying and planning reconstruction projects through collaborative and deliberative engagement.

**Description**

Following the example set forth by the New York Rising Reconstruction Program after hurricane Sandy, Puerto Rico should develop an integrated recovery approach, where funding is allocated towards developing the local/municipal capacity for identifying and planning local reconstruction projects.

This approach consists of a framework procedure where municipalities establish a deliberative process guided towards community participation and accountability in the decision-making processes throughout the reconstruction. This process should include those related to use of any Federal funding associated with Hurricane María recovery. A fundamental reframing of traditional community participation efforts towards community empowerment would assist public agencies and communities to collaborate more efficiently during the recovery process, as well as prepare for the challenges of the future. It is important for the Puerto Rico Department of Housing to maintain oversight and provide ancillary guidance to prevent possible spillover effects. Such initiative should also include a comprehensive community mapping exercise to establish a baseline for understanding the scope of risk exposure and insecurity at the community level. This action would allow a thorough assessment of the quantity and quality of homes and homeowners with legal and physical vulnerability, which can be used to develop appropriate approaches to improve their security and safety.

**Potential Lead**

Puerto Rico Department of Housing

**Potential Co-leads**

Municipalities; PRPB; NGOs; CBOs; COR3

**Potential Funding Sources**

CDBG-DR

**Unmet Needs**



**Crosscutting Benefits**



**Timeframe**



Short term

## Develop feasible models to establish land tenure and/or community ownership in informal housing.

### Description

A great portion of Puerto Rico’s housing stock is considered informal, where a significant portion lacks legal tenure in the form of a land title, a certificate of occupancy, or both. Informality in the housing sector disproportionately expose the Island’s most vulnerable citizens to natural hazard risks and reduce access to basic services. In the aftermath of disasters like Hurricane María, residents are not able to benefit from mitigating measures such as homeowners’ insurance and post-disaster FEMA funding. Given the diversity in form, history, location, and livelihoods across communities in informal settlements, there is no short-term, one-shot solution to address tenure issues in Puerto Rico. Therefore, it is important to research, develop, and pilot feasible tenure models that can chart a pathway towards normalization, while avoiding any undue displacement.

Key aspects of such an effort include:

- Research and recommendations of pathways to land tenure security in informal communities throughout Puerto Rico.
- Diversity and choice in tenure options and housing types (e.g., cooperatives, community land trusts, among others).
- Risk-informed decision-making regarding securing land titles for individuals and communities to ensure mitigation of future damage.
- Changes to existing policies regarding household access to post-disaster funding.
- Policies to protect communities from displacement and promote access to affordable housing.
- Policies to reduce absentee ownership and blighted buildings.
- Education and legal assistance to inform individuals of their rights and options.

### Potential Lead

Puerto Rico Department of Housing

### Potential Co-leads

Property Registry in the PRDOJ; FEMA; Legal clinics at law schools in Puerto Rico; NGOs; CBOs

### Potential Funding Sources

CDBG-DR; Philanthropic funding

### Unmet Needs



### Crosscutting Benefits



### Timeframe



Short and medium term

## A4

Increase the affordable housing stock for low and moderate-income (LMI) households through a series of strategies, such as: infill development in hazard-free urban centers or adjacent suburban areas, new construction using low-income housing tax credits (LIHTC), creating rental housing cooperatives, project-based Section 8 rental-assistance projects, and up-zoning for mixed-income housing.

### Description

Although one of the primary short- and long-term concerns in a post-disaster recovery context is residential displacement due to a lack of safe, affordable, and accessible housing for low and moderate-income (LMI) households. Broadly addressing this need will require a focus on both rental and owned housing in safe areas that provide socioeconomic opportunities.

One-shot solutions, such as rehabilitating vacant housing in historic urban centers, seem appealing and desirable, they will likely fall short of providing the necessary housing units, this is because costs can run too high or because they fail to provide safe housing (many historic urban centers are prone to floods and landslides). Fostering infill development in hazard-free urban centers and adjacent suburban areas, with a focus on providing affordable single- and multifamily options can mobilize households to move in environmentally safer areas that provide greater opportunities. However, this will require public subsidized approaches, either through direct household subsidies programs (such as Section 8 rental assistance vouchers, housing cooperatives, or LIHTC), cost-reducing subsidies for developers and Community Development Housing Organizations (such as land buyouts to rehabilitate vacant buildings and project-based Section 8 rental assistance), or both. It will likely also require local or state authorities to rezone in order to allow denser development and incentivize the construction of affordable housing units, either through density bonuses, inclusionary zoning, development of accessory dwelling units (ADUs), or adaptive re-use of existing buildings to increase residential density. This action should consider ways in which citizens with special needs, including the elderly and those with disabilities, could benefit from efforts to revitalize existing urban centers and enhance density and proximity to infrastructure and community resources.

### Potential Lead

Puerto Rico Department of Housing

### Potential Co-leads

Municipalities; PRPB; PRPMO; NGOs; CBOs; PRHA; PRMBA; Puerto Rico Credit Unions; Habitat for Humanity; FIDEVI

### Potential Funding Sources

CDBG-DR; LIHTC; Section 8 Programs

### Unmet Needs



### Crosscutting Benefits



### Timeframe



Short and medium term

Establish an Island-wide housing emergency management protocol that includes a voucher program for temporary housing, temporary rent control, foreclosure moratorium, and monitoring and prevention of predatory lending.

**Description**

Emergency management during post-disaster recovery presents the most challenging environment to address immediate needs of vulnerable populations. As a result, implementing temporary, strict control policies is important to ease relief.

Natural and human-made disasters will still be more than likely in the future. Because of this it is important to implement strict command and control policies during emergencies in the housing sector in order to avoid displacement, foster safety, and provide basic housing needs while households can recover. Providing temporary housing through a voucher program can provide the necessary shelter for households until they can access permanent housing and can recover economically. Avoiding predatory practices during emergencies, either through temporary rent control measures for low and moderate (LMI) households or monitoring and prevention of predatory lending, can also reduce the possibilities of out-migration and displacement. Implementing a foreclosure ban during emergency management and early recovery periods can provide significant help to vulnerable households.

**Potential Lead**

Puerto Rico Office of Consumer Affairs

**Potential Co-leads**

PRDHo; PRDPS

**Potential Funding Sources**

FEMA

**Unmet Needs**



**Crosscutting Benefits**



**Timeframe**



Short term

Promote or incentivize community-driven, voluntary relocation of households from high risk and environmentally sensitive areas, using land buyouts and rezoning for land conservation.

**Description**

It is likely that in some instances, the relocation of homes is the only viable option to avoid major recurring damage and loss of life during future natural disasters. The first point of intervention should be to identify whether structural mitigation measures are possible at either a community or individual house level in order to allow residents to remain safe in their current communities without the risk of repeated devastation. Having said that, voluntary relocation processes must be implemented as a last resort strategy. This action must include a thorough education process that explains the high-risk exposure scenario, as well as a transparent and participatory process that discusses the feasibility of other measures. The establishment of a relocation program should support the following principles:

- Relocation must consider social cohesion and implications on community tissue following the relocation.
- Affected communities should be engaged in the planning and implementation of a long-term relocation program.
- Decisions must entail an understanding of community assets, social ties, and economic opportunities.
- Proposed relocations must integrate a regional understanding of development with existing urban planning and infrastructure development efforts.
- Housing options must be appealing for those who must relocate, and there must be incentives to promote voluntary relocation, including improved access to opportunities. This may require re-thinking zoning and density regulations.

In these cases, voluntary relocation of families that own a house in risk-prone areas can be performed through buyout and acquisition programs, such as the Safe Home Voucher program proposed by the Puerto Rico Homebuilders Association. In this program, the owner of the risk-prone or destroyed dwelling unit transfers title to the government in exchange for a voucher, with a maximum value of \$120,000 for the purchase of a code compliant dwelling unit, located in a risk-free area, as identified in Action 1. To cover for any excess to the maximum amount on the voucher value, temporary exceptions to Qualified Mortgage regulations may be implemented. Rezoning policies for properties in risk-prone areas must be in place after buyout and acquisition processes are performed.

**Potential Lead**

Puerto Rico Department of Housing

**Potential Co-leads**

Municipalities; PRPB; NGOs; CBOs; PRHBA

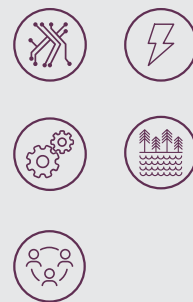
**Potential Funding Sources**

CDBG-DR

**Unmet Needs**



**Crosscutting Benefits**



**Timeframe**



Medium and long term



Repair, improve and retrofit public housing dwellings and facilities towards more resilient designs, including mitigation projects for public housing projects located in risk-prone areas.

**Description**

Public housing projects are one of the primary sources of affordable housing in Puerto Rico. After hurricane María, many of these projects experienced significant damages, either because individual dwellings experienced structural damage, facilities were devastated, or entire complexes experienced flooding.

Tens of thousands of households live in public housing projects, and because of this it is important to ensure safety, affordability, and quality in these facilities to avoid loss of life, displacement, or adverse health outcomes. Federal funding should be directed to repair, improve, and retrofit public housing dwellings and facilities, including mitigation projects, towards more resilient designs that would be better suited for future weather-related events.

**Potential Lead**

Puerto Rico Department of Housing

**Potential Co-leads**

HUD; Municipalities

**Potential Funding Sources**

CDBG-DR; HUD Public Housing Program

**Unmet Needs**



**Crosscutting Benefits**



**Timeframe**



Medium and long term

Improve the ability of local, municipal, and non government agencies to regulate land use and construction through the adoption of improved rules and practices.

**Description**

The lack of sufficient land use and building code enforcement in Puerto Rico is a key issue that emerged both in the Working Group discussions and in the media following the hurricanes.

While other actions support the development of technical resources related to risk awareness, improved land use and construction practices, they will not be effective unless paired with improvements in the capacity of local agencies to better monitor and regulate land use and construction. One approach is to use federal support dollars and resources in order to capacitate external staff to create new building regulatory capacity and train local building professionals to support local government building regulators. Opportunities to integrate mobile technologies in order to simplify and streamline compliance should be explored. In addition to increasing the capacity of building and land use regulation in Puerto Rico, this action should address policies and practices that disincentivize conformance to regulations. This includes: (a) the liability placed on licensed architects and engineers in Puerto Rico for defects in design, while contractors are not required to be licensed; and (b) the perceived lack of transparency and fairness in land use and land allocation by the government.

**Potential Lead**

Puerto Rico Planning Board

**Potential Co-leads**

Municipalities; PRDHo; PMO; NGOs; CBOs; PRHA; CIAPR; PRPS; CAAPPR

**Potential Funding Sources**

CDBG-DR; HMGP; Foundations

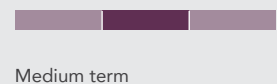
**Unmet Needs**



**Crosscutting Benefits**



**Timeframe**





Establish municipal and non governmental land-banks to create: (a) lease buyback programs to prevent mortgage foreclosures and (b) buyout schemes to acquire code-compliant foreclosed or vacant properties for affordable housing in hazard-free areas.

## Description

Municipalities should have the tools that would help households avoid foreclosure and simultaneously avoid residential displacement during post-disaster recovery. This should also increase the housing stock available for affordable housing. Federal recovery funding can be used to build local municipal capacity to manage land banks.

Land-banking has been used in distressed communities in Detroit and Albany to create lease buyback programs, where local entities buy delinquent household debt to eliminate the risk of foreclosure. Likewise, NGOs and CBOs can also leverage philanthropic and federal funding to create their land banks.

## Potential Lead

Puerto Rico Department of Housing

## Potential Co-leads

Municipalities; PRBA

## Potential Funding Sources

CDBG-DR; Foundations

## Unmet Needs



## Crosscutting Benefits



## Timeframe



Short term

Improve the capacity of local Community Housing Development Organizations (CHDOs), Community Development Corporations (CDCorps), and Community Development Financial Institutions (CDFIs) to leverage financing for affordable and mixed-income housing developments, including low-income housing tax credits (LIHTC).

**Description**

Throughout the US, CDCorps and CDFIs are primary drivers of new affordable housing, renovations of existing buildings for affordable housing and other uses. Many CDCorps also conduct long-term operations of affordable housing units. As Puerto Rico’s housing sector recovers, mission-driven CDCorps/CDFIs will be critical partners in financing housing, executing new construction, and renovating existing buildings.

In Puerto Rico, there are several important affordable housing financing tools available that remain underutilized. While the deployment of these tools is not limited to CDCorps/CDFIs, many cities nationwide rely on partnerships with the CDCorps/CDFI community due to their mission-driven orientation. There is a significant need in Puerto Rico for an expanded CDC/CDFI community that partners with the government in order to build and maintain the island’s affordable housing stock. This action should provide particular attention to the homeless population.

**Potential Lead**

Private or philanthropic organizations

**Potential Co-leads**

FIDEVI; Habitat for Humanity; Enterprise Community Partners; LISC

**Potential Funding Sources**

Philanthropic organizations

**Unmet Needs**



**Crosscutting Benefits**



**Timeframe**



Short term

**NI GENTE  
SIN TECHO  
NI CASAS  
SIN GENTE**

Establish community-based emergency response procedures, identify emergency shelters, and train community volunteers.

**Description**

This action calls for the development of comprehensive community-driven emergency response procedures, the identification of emergency shelters (most importantly of underutilized public buildings in existing city and town centers), and the creation of training programs for community leaders and volunteers.

Implementing such an approach would increase household and community capacity to recover from shocks, as well as foster a culture of preparedness among households and home-building organizations.

**Potential Lead**

Puerto Rico Department of Housing

**Potential Co-leads**

Municipalities; NGOs; CBOs

**Potential Funding Sources**

FEMA; CDBG-DR; Philanthropic organizations

**Unmet Needs**



**Crosscutting Benefits**



**Timeframe**



Short and medium term

Create a path towards code compliance of the informal housing sector through the development of a Puerto Rico Building Code 'Applications Document' that supports simplified, streamlined, and cost-effective design and [as well as] permitting based on locally-appropriate housing typologies for new homes and retrofits.

## Description

It is important for the reconstruction efforts in Puerto Rico to move towards the normalization of construction practices in the housing sector for both individual homes and rental units.

This action requires an approach that not only encourages homeowners, building owners and landlords to comply with building codes, but also acknowledges that changes to the way codes are developed and enforced may be necessary to recognize local conditions. One of the advantages of creating a path towards code-compliance of the informal housing sector is that it allows homeowners, building owners and landlords to access financial resources and tools, insurance, and post-disaster funds that were previously off-limits. The Puerto Rico Building Code should be updated to produce simplified guidelines and pre-approved plans that allow the informal housing sector to obtain code-compliant and cost-effective homes, as well as retrofit guidelines for certain types of structures. The permitting regulations should also be updated to streamline and ease future works for retrofitting and safe housing development going forward. Create a pro bono recruitment program for engineers and architects, in which their volunteer work is used for accreditation of continuing education, to provide services to communities in need and to educate and legalize processes.

## Potential Lead

Puerto Rico Department of Housing

## Potential Co-leads

PMO; CIAPR; CAAPPR

## Potential Funding Sources

CDBG-DR

## Unmet Needs



## Crosscutting Benefits



## Timeframe



Short and medium term

Create loans, grants, or subsidy programs to incentivize and support improvements on the physical resilience of existing housing.

**Description**

This action would expand financing opportunities to property owners seeking to incorporate physical resilience into their structures and move in the direction of code-compliance.

There are multiple examples of similar incentives programs in the US, and others in cities around the world customized for local markets. New York City has an easy-to-understand website called FloodHelpNY with consolidated information on a variety of loan products and other resources specifically targeted to homeowners within flood zones. While not yet authorized in Puerto Rico, the Property Assessed Clean Energy (PACE) program has a proven track record of financing such improvements on residential and commercial properties. Several locations incorporate geographically-specific needs into their PACE programs, such as wind resilience in Palm Beach County, Florida’s PACE program.

**Potential Lead**

Puerto Rico Department of Housing

**Potential Co-leads**

Municipalities; NGOs; CBOs; Credit unions; PRHFA

**Potential Funding Sources**

CDBG-DR; Foundations; Community Development Financial Institutions

**Unmet Needs**



**Crosscutting Benefits**



**Timeframe**



Short term

Create training and skills building certification programs, in the construction trades, that are focused on locally appropriate housing repairs, retrofitting, and resilient building technologies and techniques.

**Description**

One of the primary opportunities that emerge from a natural disaster is the opportunity to leverage the massive scale of reconstruction required and funding directed towards the impacted areas for economic growth.

This opportunity can only be leveraged if there is sufficient local skilled workforce to implement the work that is required. In the housing sector, the development of approved guidelines for housing construction should be complemented by a program that trains local builders in the wind-, flood- and seismic-resistant building techniques promulgated by the code as well as locally-appropriate sustainable building materials and technologies. Such a program should not only train local workforce, but also include a volunteer mobilization and a certification program to establish a national registry of contractors who are qualified to build housing, including small-scale builders. Ensuring through training and education, that licensed architects and engineers are hired as part of the rebuilding efforts as required by law.

**Potential Lead**

Puerto Rico Department of Housing

**Potential Co-leads**

Municipalities; PRPB; CBOs; COR3

**Potential Funding Sources**

Municipalities; PRPB; NGOs; CBOs; CHDOs; CIAPR; CAAPPR

**Unmet Needs**



**Crosscutting Benefits**



**Timeframe**



Short term

**Establish a building retrofit program in selected receptive communities.**

**Description**

Based on the characteristics of the selected community (regarding housing typologies, site-specific hazards, and environmental sensitivities identified through the mapping exercise), the program could include a combination of new code-compliant construction and retrofits.

It should also involve legal and financial assistance to homeowners in order to secure the legal title of land where appropriate, assistance to support document compliance with approved building standards, mobilization of the local work force, and financial programs to support implementation and incentivize building improvements. If necessary, the program could also address the need for relocation or repositioning of homes within a community, as well as explore creative options for creating new and diverse housing options, densification of homes in safe areas through Accessory Dwelling Units (ADUs) or rental units, adaptive-reuse of existing buildings, and new multi-family structures. Above all, the pilot program should have direct involvement.

**Potential Lead**

Municipalities

**Potential Co-leads**

PRDHo; NGOs; CBOs

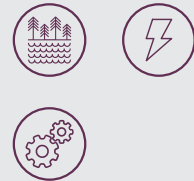
**Potential Funding Sources**

CDBG-DR

**Unmet Needs**



**Crosscutting Benefits**



**Timeframe**



Medium and long term



Develop and disseminate a manual that provides practical guidance for do-it-yourself (DIY) repairs that will improve housing safety.

### Description

Between one-third and one-half of all homes in Puerto Rico were significantly damaged or destroyed because of Hurricanes Irma and María.

Due to the high amount of informality in the housing sector in Puerto Rico, many of these homes do not qualify for federal disaster recovery funds. As a result, many homeowners are taking rebuilding efforts into their own hands, funding and implementing repairs on their own or with the help of local builders. This phenomenon has created the need for knowledge in communities on how to design and build safe homes, including how to make the most of limited funds. Enterprise Community Partners, in collaboration with a diverse team of stakeholders and experts, is developing an easy-to-use manual with prescriptive approaches, structural details and graphics geared towards single- or multi-family homeowners, wishing to make their own homes more resilient to natural hazards. The manual will allow homeowners, landlords, and building owners to make informed decisions when choosing approaches to repair, reconstruct, and purchase supplies. Professional training on retrofitting design and construction for architects and engineers should also be included in the manual. Following the development and distribution of the manual, training will be conducted through local universities, community partners, and organizations.

### Potential Lead

Enterprise  
Community Partners

### Potential Co-leads

PRHA; UPR; PRDHo; MIT-  
Urban Risk Lab; Architectural  
firms; Puerto Rico Sea Grant  
College Program; NGOs

### Potential Funding Sources

Private and Philanthropic  
funding; FEMA

### Unmet Needs



### Crosscutting Benefits



### Timeframe



Short term

Create insurance pools and build public awareness to expand access to, and utilization of, disaster insurance.

**Description**

This opportunity extends to creating awareness about all types of insurance, including policies that would protect residents from the variety of shocks present in Puerto Rico.

Special emphasis should be placed on improving access to affordable insurance programs. Many residents continue to be under the mistaken impression that FEMA's National Flood Insurance Program will provide sufficient coverage. Ultimately, efforts should result in improved ratings in FEMA's Community Rating System. This program could involve the creation of an insurance pool to provide enhanced access to recovery funds for households and communities. Such a program could be created through partnerships between banks and insurance companies, potentially utilizing funds from the Community Reinvestment Act (CRA) or other sources. It should also be paired with a thoughtful marketing and education strategy, such as the City for NYC Neighborhoods' FloodHelpNY website. This action could include community-based organizations authorized to administer micro-loans programs. Using these partners would increase their deposits and lending capacities.

**Potential Lead**

Office of the Commissioner of Insurance of Puerto Rico

**Potential Co-leads**

FEMA; PRPB; DNER; PRDHo; Municipalities

**Potential Funding Sources**

CDBG-DR

**Unmet Needs**



**Crosscutting Benefits**



**Timeframe**



Short term

Implement a communications campaign to build a culture of household emergency preparedness and awareness.

## Description

This action could consist of two distinct components that could be executed together:

- A communications campaign designed to build consistent preparedness and awareness on a variety of issues to better prepare for emergencies.
- A program that would encourage special purpose household savings accounts that help lower- and moderate-income households better prepare for, and bounce back from, shocks.

This will allow households to stock-up on supplies and fortify their houses before emergencies, such as storms.

## Potential Lead

Puerto Rico Department of Public Safety

## Potential Co-leads

FEMA; PRPB; DNER; PRDHo; Municipalities

## Potential Funding Sources

CDBG-DR

## Unmet Needs



## Crosscutting Benefits



## Timeframe



Short term



05

RESOURCES

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# Glossary

## **Absentee**

A person who is expected or required to be present at a place or event but is not.

## **Base flood elevations (BFE)**

Regulatory requirement for the elevation or floodproofing of structures based on the computed elevation to which floodwater is anticipated to rise during the base flood. BFE are shown on Flood Insurance Rate Maps (FIRMs) and on the flood profiles.

## **Blighted structures**

A structure that exhibits objectively determinable signs of deterioration sufficient to constitute a threat to human health, safety, and public welfare.

## **Buyout programs**

Buyout occurs when a public agency negotiates the purchase of homes from private homeowners. There are many different reasons for buyouts: the homes may be blocking a public construction project, or lying in a hazardous area, such as a floodplain, where there is a strong risk of costly damage.

## **Cadastre**

A register of property showing the extent, value, and ownership of land for taxation.

## **Critical systems**

Those where a failure can cause significant economic losses, physical damage or, in the worst cases, threats to human life.

## **Disaster**

Severe alterations in the normal functioning of a community or a society due to hazardous physical events interacting with vulnerable social conditions, leading to widespread adverse human, material, economic, or environmental effects that require immediate emergency response to satisfy critical human needs and that may require external support for recovery.

## **Effectiveness**

The degree to which something is successful in producing an intended or expected result, success or purpose.

## **Efficiency**

Performing or functioning in the best possible manner with the least waste of time and effort.

## **Exposure**

The presence of people, livelihoods, environmental services and resources, infrastructure, or economic, social, or cultural assets in places that could be adversely affected.

## **Flexibility**

Flexibility implies that systems can change, evolve and adapt in response to changing circumstances. This may favor decentralized and modular approaches to infrastructure or ecosystem management. Flexibility can be achieved through the introduction of new knowledge and technologies, as needed. It also means considering and incorporating indigenous or traditional knowledge and practices in new ways.

### **Flood risk management**

Processes for designing, implementing, and evaluating strategies, policies, and measures to improve the understanding of flood risk, foster flood risk reduction and transfer, and promote continuous improvement in flood preparedness, response, and recovery practices, with the explicit purpose of reducing the likelihood and/or the impact of floods, to prevent the loss of properties, assets and life caused by floods.

### **Floodplains**

Flat or semi-flat land, normally dry and susceptible to flooding by water from a natural source.

### **Geographic Information System (GIS)**

A framework for gathering, managing, and analyzing data and spatial location, it uses maps to organize layers of information into visualizations. Rooted in the science of geography, GIS integrates many types of data.

### **Governance**

As society or groups together, they organize themselves to make decisions.

### **Grant Programs**

Programs that provide a sum of money given by a government or other organization for a particular purpose. These programs are discretionary or formula grants and/or cooperative agreements administered by a federal agency.

### **Household**

The family and live-in aide, if applicable.

**Inclusive** Emphasizes the need for consultation and commitment of communities, including the most vulnerable groups. An inclusive approach contributes to a sense of shared ownership or a joint vision to build resilience.

### **Infill development**

The American Planning Association defines infill development as redevelopment of vacant parcels within previously built areas to optimize prior infrastructure investments and consume less land that is otherwise

available. These areas are already served by public infrastructure, such as transportation, water, wastewater, and other utilities.

### **Informal housing**

Housing which the State does not codify or recognize formally in its construction, form, or tenure.

### **Infrastructure**

Set of works and services that are considered fundamental and necessary for the establishment and operation of an activity. These include communication systems, aqueducts and sewers, electricity, telephone and health facilities, education, and recreation.

### **Insurance pool**

A multiple-member, risk-sharing arrangement where communities, government, or other organizations pool their funds together to finance an exposure, liability, risk or some combination of the three.

### **Integrated**

Integration and alignment between systems promotes consistency in decision-making and ensures that all investments are mutually supportive to a common outcome. Integration is evident within and between resilient systems and across different scales of their operations. Exchange of information between systems enables them to function collectively and respond rapidly through shorter feedback loops throughout society.

### **Land Bank**

A governmental or non-governmental nonprofit entity established to hold title to land (at least in part) in order to assemble, temporarily manage, and dispose of vacant land for the purpose of stabilizing neighborhoods and encouraging re-use or redevelopment of urban property.

### **Land tenure**

Land tenure is the relationship, whether legally or customarily defined, among people, as individuals or groups, with respect to land. Rules of tenure define how property rights to land are to be allocated within societies. They also define how access is granted to

rights to use, control, and transfer land, as well as associated responsibilities and restraints. (UN Food and Agriculture Organization (FAO)) <http://www.fao.org/about/en/>.

### **Landslide**

A mass of material that has moved downhill by gravity, often assisted by water when the material is saturated. The movement of soil, rock, or debris down a slope can occur rapidly, or may involve slow, gradual failure.

### **Lease Buyback programs**

A transaction in which the owner of a property sells an asset, typically real estate, and then leases it back from the buyer.

### **Low-Income Measure Households**

A fixed percentage of median adjusted household income, where “adjusted” reflects the fact that a household’s needs increase as the number of household members increases. A household is considered to be low income if its after-tax income is less than the fixed percentage of the median after-tax income of all households.

### **Low-Income Housing Tax Credit (LIHTC)**

A tax incentive intended to increase the availability of low-income housing. The program provides an income tax credit to owners of newly constructed or substantially rehabilitated low-income rental housing projects.

### **Mitigation (for risk)**

The lessening of the potential adverse impacts of physical hazards (including those that are human-induced) through actions that reduce hazard, exposure, and vulnerability. (for Climate Change) A human intervention to reduce the sources or enhance the sinks of greenhouse gases.

### **Non-governmental Organization (NGO)**

An entity with an association that is based on interests of its members, individuals, or institutions. It is not created by a government, but it may work cooperatively with government. Such organizations serve a public purpose, not a private benefit.



### **Nonprofit Organization**

A tax-exempt organization that serves the public interest. In general, the purpose of this type of organization must be charitable, educational, scientific, religious, or literary. It does not declare a profit and utilizes all revenue, available after normal operating expenses, in service to the public interest. This organization is a 501(c)(3) or a 501(c)(4) designate.

### **Open spaces**

Any open piece of land that is undeveloped (has no buildings or other built structures) and is accessible to the public.

### **Predatory lending**

The fraudulent, deceptive, and unfair tactics some people use to dupe people into mortgage loans that they cannot afford.

### **Public-Private Partnerships**

A cooperative arrangement between two or more public and private entities, typically of a long-term nature. These partnerships between a government agency and private-sector company can be used to finance, build and operate projects, such as public transportation networks, parks, and convention centers.

### **Reconstruction**

The reconstruction or replacement of permanent residential, commercial, or industrial facilities damaged or destroyed in a major disaster, as well as the construction of public or private infrastructure at a large scale, the addition of community improvements, and/or the restoration of a healthy economy.

### **Recovery**

Disaster recovery is the phase of the emergency management cycle that begins with the stabilization of the incident and ends when the community has recovered from the impacts of the disaster.

### **Redundant**

Refers to spare capacity purposely created within systems so that they can accommodate disruption, extreme pressures, or surges in demand. It includes

diversity: the presence of multiple ways to achieve a given need or fulfil a particular function. Examples include distributed infrastructure networks and resource reserves. Redundancies should be intentional, cost-effective, and prioritized at a society scale.

### **Reflective**

Accepts the inherent and ever-increasing uncertainty and change in today's world. Reflective systems have mechanisms to continuously evolve and modify standards or norms based on emerging evidence, rather than seeking permanent solutions based on the status quo. As a result, people and institutions examine and systematically learn from their past experiences and leverage this learning to inform future decision-making.

### **Resilience**

The capacity of individuals, communities, institutions, businesses and systems to survive, adapt and thrive no matter what stresses or shocks they encounter.

### **Resourceful**

Implies that people and institutions are able to rapidly find different ways to achieve their goals or meet their needs during a shock or under stress. This may include investing in capacity to anticipate future conditions, set priorities, and respond, for example, by mobilizing and coordinating wider human, financial and physical resources. Resourcefulness is instrumental to a society's ability to restore functionality of critical systems, potentially under severely constrained conditions.

### **Retrofitting**

Reinforcement of structures to become more resistant and resilient to the forces of natural hazards.

### **Risk**

Potential consequences in which something of value is in danger with an uncertain outcome, recognizing the diversity of values. Often, risk is represented as the probability of occurrence of dangerous events or trends multiplied by the impacts in case such events or trends occur. Risks result from the interaction of vulnerability, exposure, and danger.



**Robust**

Robust systems include well-conceived, constructed and managed physical assets, that can withstand the impacts of hazard events without significant damage or loss of function. Robust design anticipate potential system failures and ensure failure is predictable, safe, and not disproportionate to the cause.

**Sea level rise**

An increase in global mean sea level as a result of an increase in the volume of water in the world's oceans. The two major causes of global sea level rise are thermal expansion caused by warming of the ocean (since water expands as it warms) and increased melting of land-based ice, such as glaciers and ice sheets.

**Shock**

Sudden, sharp events that threaten a society including earthquakes, floods, disease outbreaks, and terrorist attacks.

**Social Cohesion**

Tendency of a group to be in unity while working toward a goal or to meet the emotional needs of its members (Carron and Brawley, 2000).

**Subsidy**

A sum of money granted by the state or a public body to help an industry or business keep the price of a commodity or service low.

**Susceptibility**

Society's and ecosystems' predisposition to suffer as a result of intrinsic and contextual conditions that make it plausible for such systems to collapse or experience damage due to the influence of a dangerous event.

**Sustainable development**

Development that meets the needs of the present without compromising the ability of future generations to meet their own needs. Sustainability has emerged as the guiding principle for long-term global development. Consisting of three pillars, sustainable development seeks to achieve, in a balanced manner, economic development, social development, and environmental protection.

**Tenure**

A housing unit that is owner occupied (including a cooperative or condominium unit) if someone whose name is on the deed, mortgage, or contract to purchase lives in the unit.

**Unmet needs**

The needs of communities or families that have not been attended by federal government institutions as a result of a disaster.

**Vulnerability**

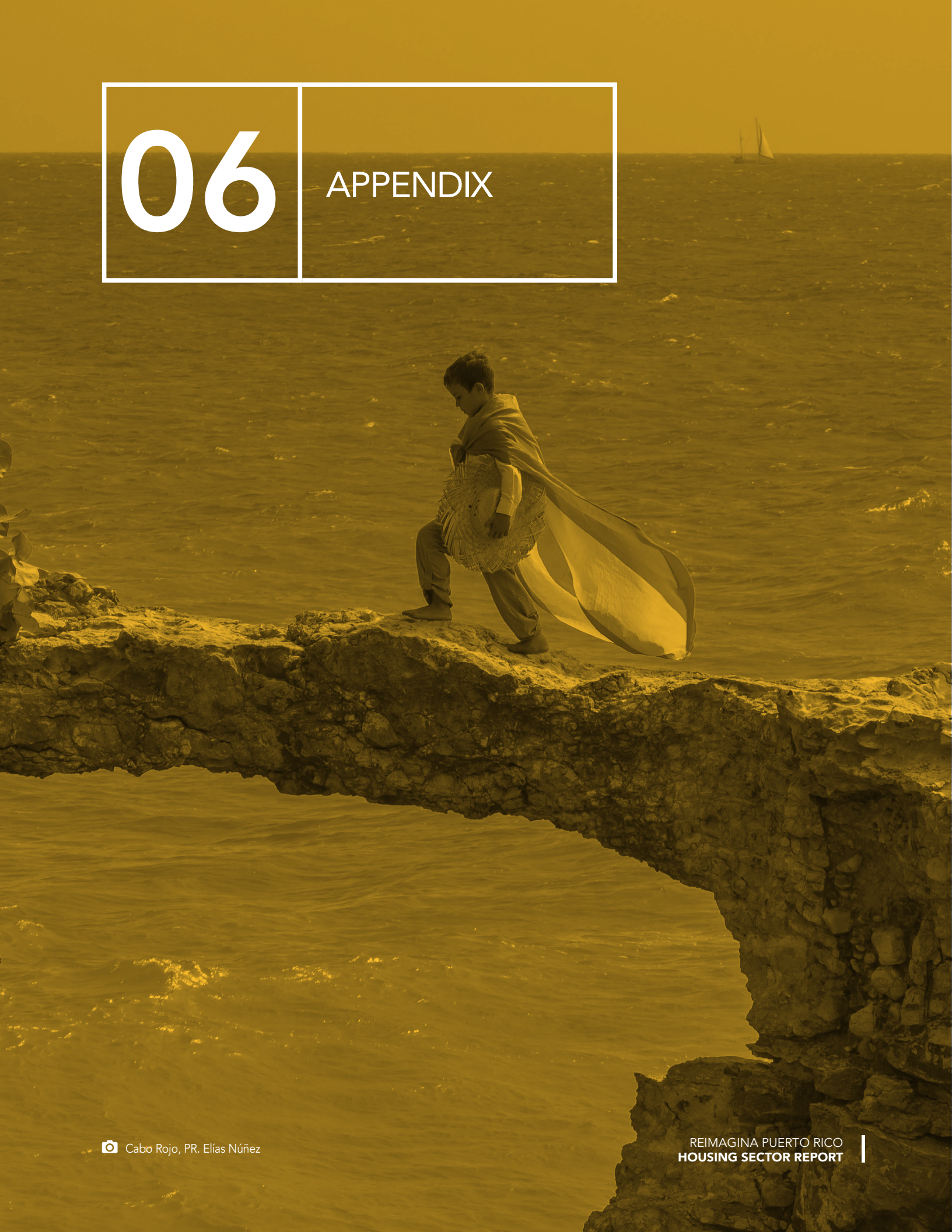
The propensity or predisposition to be adversely affected. Vulnerability comprises a variety of concepts and elements, that include sensitivity or susceptibility to harm, and lack of responsiveness and adaptation.

**Vulnerable populations**

Groups and communities at higher risk as a result of barriers they experience to social, economic, political and environmental resources, as well as limitations due to illness or disability.

# 06

## APPENDIX



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# Methodological Approach

The Commission's main objective is to produce an actionable and time-sensitive set of recommendations to guide the use of philanthropic, local government, and federal recovery funds to repair and rebuild the critical systems devastated by Hurricane María and build back an Island more physically, economically, and socially resilient. To achieve this, the Commission applied two primary conceptual frameworks to guide the process of reimagining Puerto Rico's recovery and reconstruction: FEMA's National Disaster Recovery Framework<sup>10</sup> and The Rockefeller Foundation's City Resilience Framework<sup>11</sup>.

FEMA's National Disaster Recovery Framework (NDRF) establishes a common platform and forum for a comprehensive approach to how a community builds, sustains, and coordinates the delivery of recovery efforts. Under this framework, the concept of recovery under this framework includes the restoration and strengthening of key systems and resources that are critical to the economic stability, vitality, and long-term sustainability of communities. These recovery elements are organized and coordinated under six Recovery Support Functions: 1) community planning and capacity building; 2) economic recovery; 3) health and social services; 4) housing; 5) infrastructure systems; and 6) natural and cultural resources. In the aftermath of Hurricanes Irma and María in 2017, this framework

will guide all federal disaster recovery actions coordinated by FEMA, in close coordination with other federal and Puerto Rican agencies.

The NDRF advances the concept that recovery extends beyond merely repairing damaged structures. It also includes the continuation or restoration of services critical to supporting the physical, emotional, and financial well-being of impacted community members. Among these are: health (including behavioral health) and human services capabilities and networks, public and private disability support and service systems, educational systems, community social networks, natural and cultural resources, affordable and accessible housing, infrastructure systems, and local and regional economic drivers. In turn, these elements contribute to rebuilding resilient communities equipped with the physical, social, cultural, economic, and natural infrastructure required to address future needs.

Arup and The Rockefeller Foundation's City Resilience Framework (CRF) provide a more comprehensive vision of how resilience can be integrated into Puerto Rico's post-disaster recovery process. The CRF, while focused on a city scale, provides a conceptual framework of resilience that is applicable across different geographical scales, including small island nations. This framework identifies seven resilience qualities: inclusive, integrated, flexible, redundant, reflective, resourceful,



and robust. In addition to these qualities, it suggests that resilience can be enhanced by addressing a combination of 12 factors categorized under four broad dimensions: I) health and well-being of individuals, II) economy and society, III) infrastructure and ecosystems, and IV) leadership and strategy. The 12 factors include: 1) effective safeguards to human health and life; 2) diverse livelihoods and employment; 3) minimal human vulnerability; 4) reliable mobility and communications; 5) effective provision of critical services; 6) reduced exposure and fragility; 7) sustainable economy; 8) comprehensive security and rule of law; 9) collective identity and community support; 10) effective leadership and management; 11) empowered stakeholders; and 12) integrated development planning (see Figure 6).

The NDRF served as the main framework to guide the planning of implementation, execution, and monitoring of recovery and reconstruction actions. To reinforce this approach, we employed a modified version of the CRF to analyze and prioritize the recovery and reconstruction actions with the highest resilience impact.

As described in Section I, the Commission embarked on an ambitious participatory process in

order to achieve the primary goals and objectives set forth for ReImagina Puerto Rico. This process consisted of four sets of group meetings: the Public Sector Advisory Group, Sector-focused Working Groups, Community Focus Groups, and Youth Participatory Photography sessions. This process sought to bring the broadest and most diverse set of voices together, facilitating an essential conversation between students, community groups, business sector representatives, high-level government officials, academics, and other Puerto Rican leaders to reimagine a more resilient Puerto Rico.

High-level officials from key local government agencies and several rural and urban municipalities representing the main political parties within the Island comprised the Public Sector Advisory Group. Participants included representatives from the Puerto Rico Planning Board, the Puerto Rico Department of Housing, the Puerto Rico Central Office of Recovery, Reconstruction, and Resilience, the Puerto Rico representative to the Financial and Oversight Management Board, and the mayors of Bayamón, Carolina, Cidra, and Villalba, among other active participants.

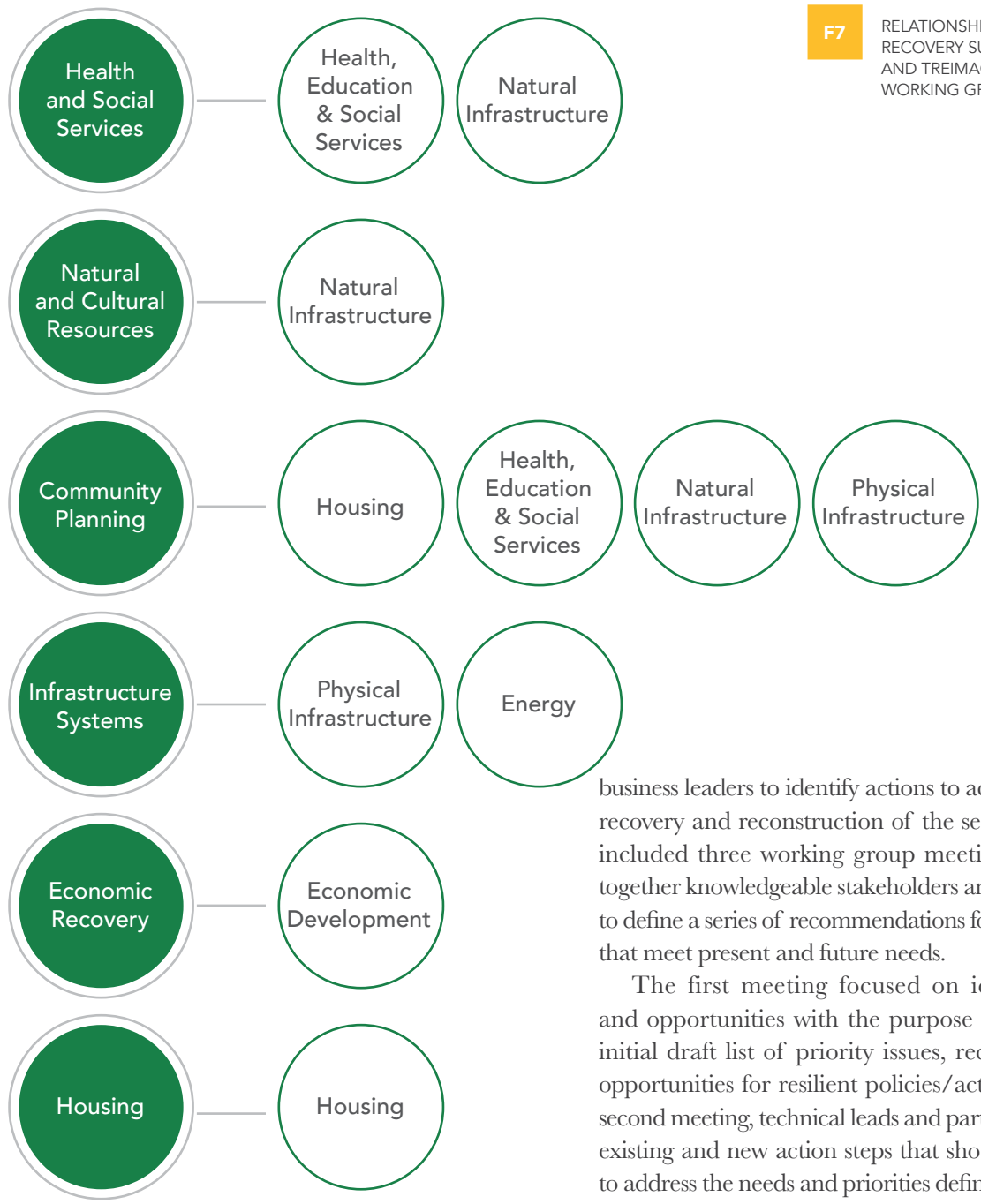
- 1. Effective leadership & management
- 2. Empowered stakeholders
- 3. Integrated development planning

- 4. Minimal human vulnerability
- 5. Diverse livelihoods & employment
- 6. Effective safeguards to human health & life



- 10. Reduced exposure and fragility
- 11. Effective provision of critical services
- 12. Reliable mobility & communications

- 7. Collective identity & community support
- 8. Comprehensive security & rule of law
- 9. Sustainable economy



The Commission divided working groups into the following six key sectors: 1) Housing, 2) Energy, 3) Physical Infrastructure, 4) Health, Education & Social Services, 5) Economic Development, and 6) Natural Infrastructure. These sectors have direct linkages to all the Recovery Support Functions under the NDRE, as described in Figure 7.

The purpose of the working groups was to facilitate a technical discussion among Puerto Rico experts and

business leaders to identify actions to achieve the resilient recovery and reconstruction of the sector. This process included three working group meetings that brought together knowledgeable stakeholders and thought leaders to define a series of recommendations for recovery actions that meet present and future needs.

The first meeting focused on identifying needs and opportunities with the purpose of generating an initial draft list of priority issues, recovery goals, and opportunities for resilient policies/actions. Prior to the second meeting, technical leads and participants presented existing and new action steps that should be considered to address the needs and priorities defined during the first meeting. The second meeting focused on the developing and distinguishing actions that were identified s having the highest potential for impact within each working group, taking into consideration possible interdependencies. During the third meeting, participants refined the proposed recommendations and applied the resilience lens to those actions in order to guide the final recommendations.

The process of developing recommendations for the resilient recovery of Puerto Rico entailed the following analysis criteria of the Island's unique context:



The urban/rural divide on the Island, recognizing that resilient economic development opportunities for rural communities are as essential as the opportunities in the Island's urban centers.



How recommended actions reflect on resilience qualities (e.g., inclusive, integrated, flexible, redundant, reflective, resourceful, robust).



Issues of equity, transparency, and sustainability.



The variety of ecosystems present in the Island and the challenges and opportunities they each present. It is imperative, for example, to consider the state of adaptive capacity of coastal and inland forest ecosystems to continue to provide ecosystem services in a changing climate.



The social, economic, and geographical realities of Puerto Rico (e.g., Is the recommendation fundable? Is it culturally acceptable? Is it politically feasible?).



A recognition that Puerto Rico is bounded by water, and its associated exposure to climate hazards, its dependency on a specialized industry, its overreliance on importing of goods and limited natural resources, and the high cost of infrastructure.

## February

### PUBLIC SECTOR ADVISORY GROUP

1st Public Sector  
Advisory Group  
Meeting

### WORKING GROUPS

1st Working  
Group  
Meetings:  
Identification of  
Opportunities

### OUTREACH & ENGAGEMENT

1st Youth  
Participatory  
Photography  
Session

2nd Youth  
Participatory  
Photography  
Session

F8

REIMAGINA PUERTO RICO'S PARTICIPATORY PROCESS. THE DIVERSE SET OF MEETINGS AND DISCUSSIONS HELD BETWEEN THE PUBLIC SECTOR ADVISORY GROUP, THE WORKING GROUPS, AND THE COMMUNITY FOCUS GROUPS HELPED CREATE AND VALIDATE THE INFORMATION PRESENTED IN THIS REPORT.

The Community Outreach and Engagement Process was divided into two sets of activities held in six distinct regions of the Island. These regions were strategically selected to cover all areas of the Island, including the urban/rural divide and other geographical, social, and cultural regional characteristics.

The first activity was the Youth Participatory Photography, which was held in six distinct schools across the Island (one in each region). During this activity, students had the opportunity to identify assets they believe are essential to maintain and improve their

communities. The objective of the Youth Participatory Photography activities was to allow students to identify, through photography, remarkable resilience and recovery challenges in their communities. This process included a forum where students could display and present their photos. During this forum family members and other residents commented and elaborated on the importance of changing or improving specific aspects of their communities after the hurricanes.

The second Community Outreach and Engagement activity of community engagement consisted of





Community Focus Groups in each of the six regions. Two additional Focus Group Sessions were conducted, one for philanthropic and non-governmental organizations and another for the Puerto Rican diaspora in Orlando, Florida, where most Puerto Ricans have migrated to in the past year. The objective of the Focus Groups was to incorporate their voice in the development of the report, understand the Island-wide perspectives on recovery and resilience, and validate the Working Groups’ outcomes through participatory activities and prioritization processes. During these meetings, participants expressed

their issues and concerns regarding the hurricane impacts, they talked about opportunities to consider, and they validated the results from the Working Groups. Their outputs were used to elaborate and refine the needs, goals, opportunities, and actions of each Working Group.

The information derived from the Community Outreach and Engagement Process formed an integral part of the discussions in the Working Group meetings, and, ultimately, served as the basis for the recommendations presented in this report (see Figure 8).

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