



RE↑MAG↑NA Puerto Rico

Resilient Puerto Rico Advisory Commission

ECONOMIC DEVELOPMENT

SECTOR REPORT

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DEVELOPMENT**

SECTOR REPORT

RESILIENT PUERTO RICO ADVISORY COMMISSION

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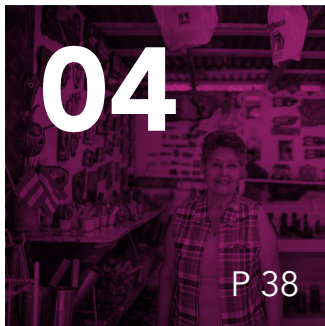
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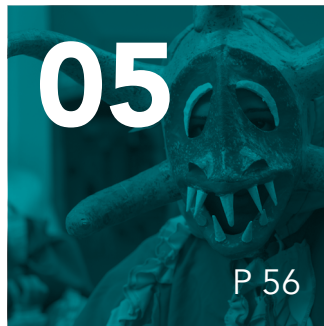
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Sector Goal



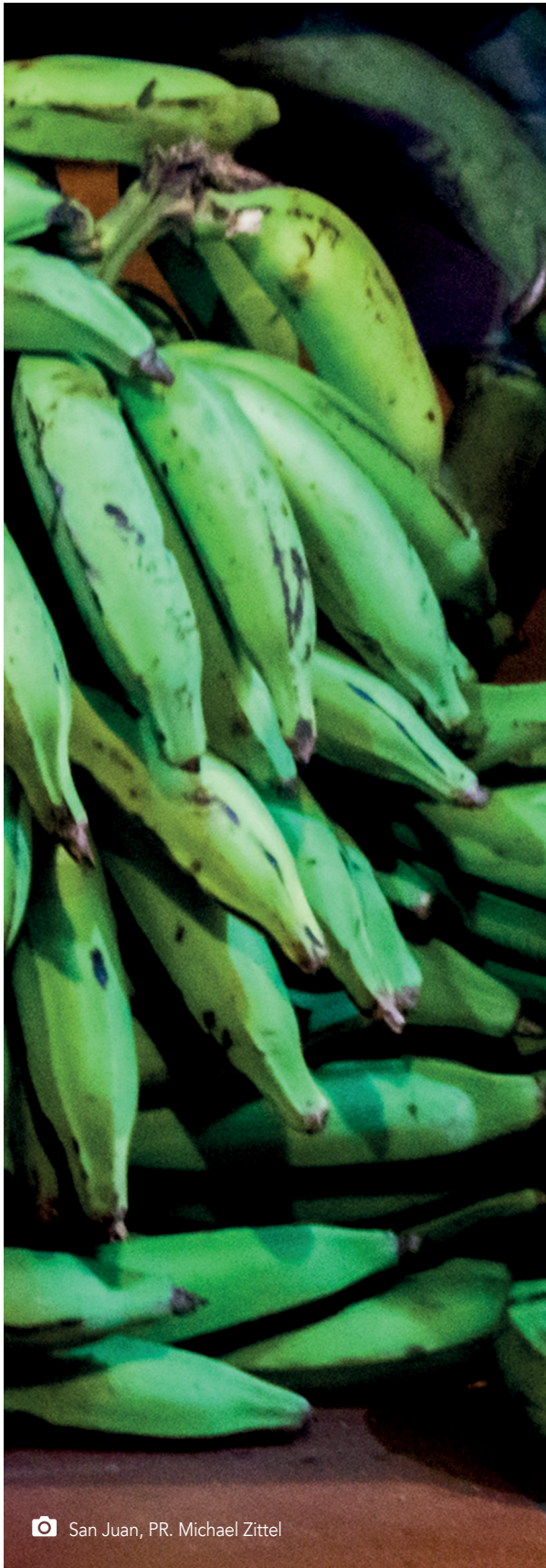
Opportunity Actions



Resources



Appendix



San Juan, PR. Michael Zittel

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 - 21st 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

QCEW 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

Puerto Rico Background

Hurricanes Irma and María impacted Puerto Rico on September 2017 and caused nearly complete devastation to the Island. On September 6th, 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 20th, 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 recover¹. 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)².

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 2017³. Changing demographic patterns have resulted in reductions in the Island's⁴ 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%)⁵. Puerto Rico’s GINI coefficient, an indicator that denotes income inequalities across populations, is the highest in the United States⁶.

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 declaration⁷ 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.

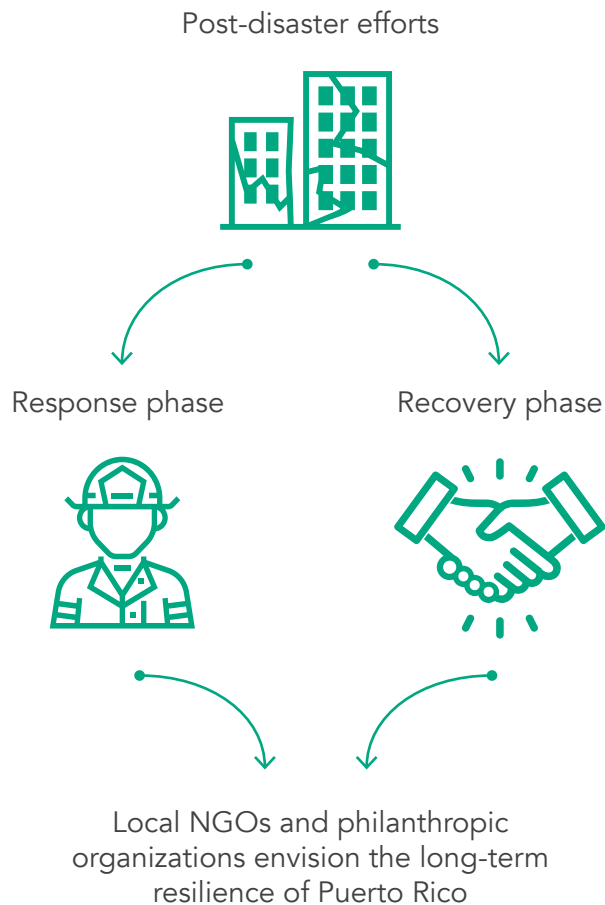
Even in the midst of all this turmoil, Puerto Ricans are clear on one thing: The path forward is not to return the Island to its prior state, normality is not the goal. The story of the new Puerto Rico is yet to be written. The Island must use this catastrophe to leverage the investments that will be 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.

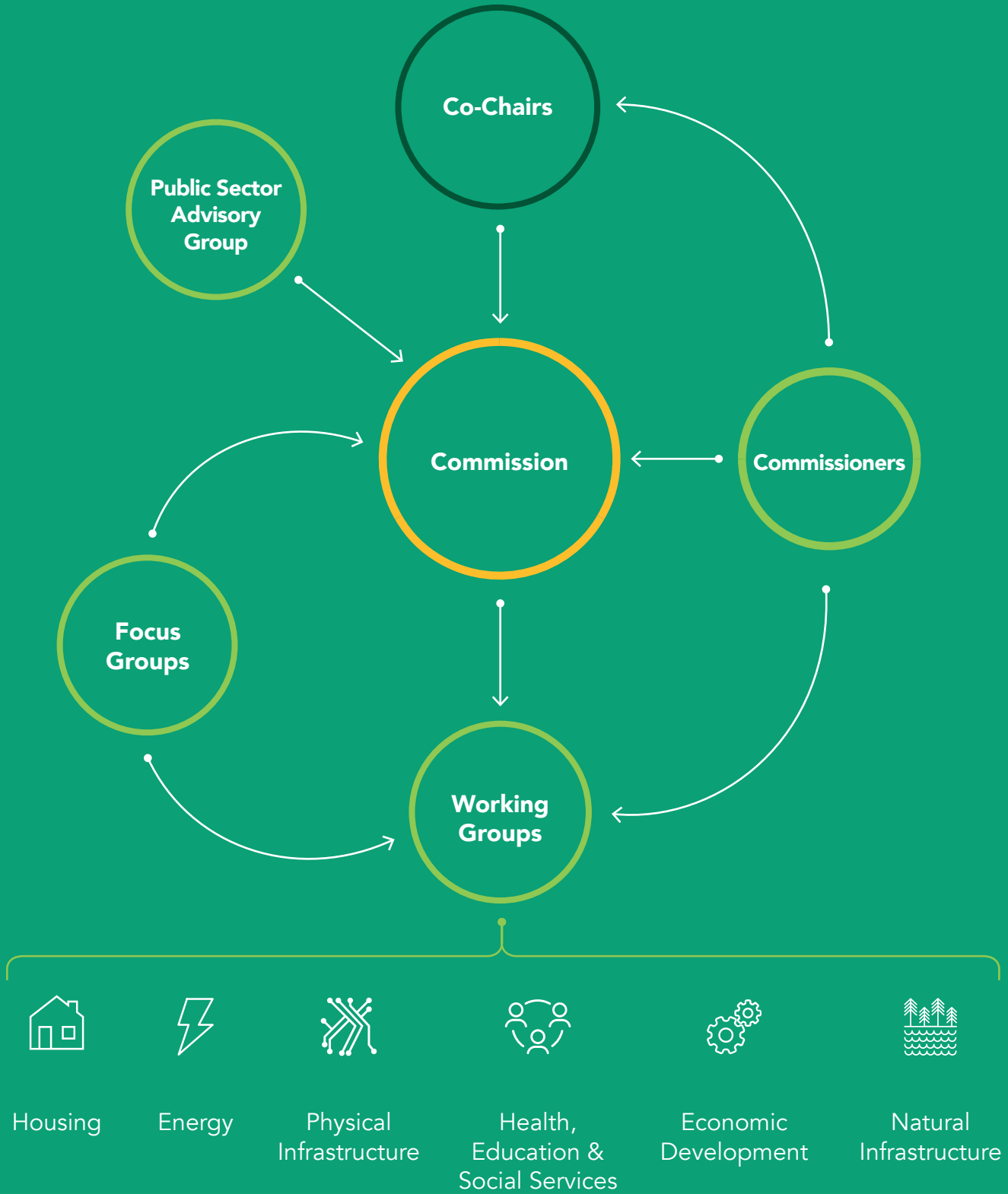
About the Resilient Puerto Rico Advisory Commission

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 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.



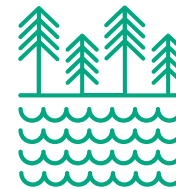
San Juan, PR. Han Kim



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.

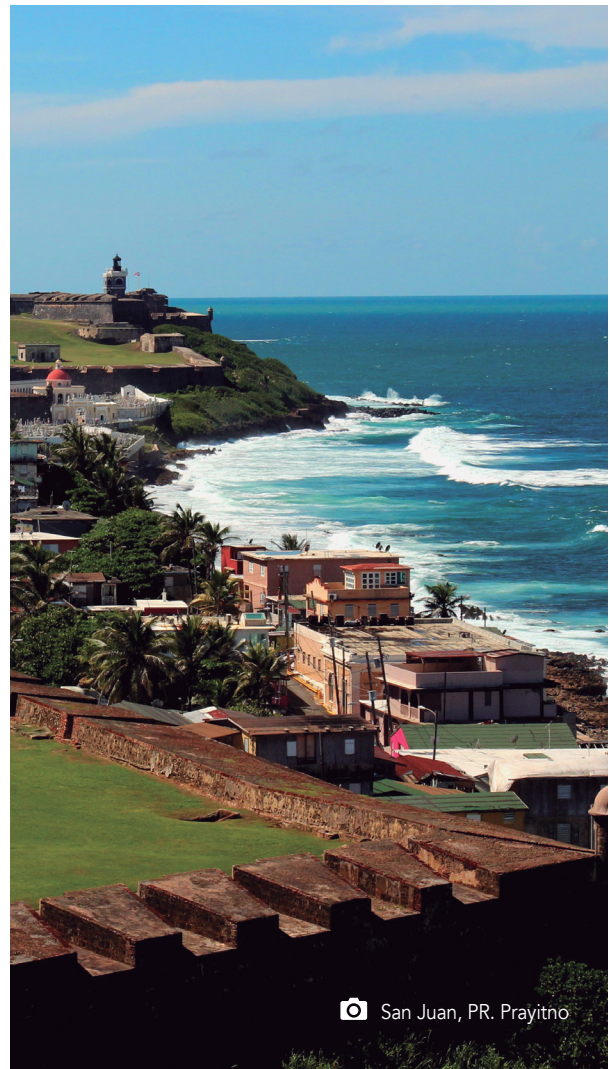
One of the core distinctions of this effort lies

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.

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.



San Juan, PR. Prayitno

Working Group Mission and Approach

The Economic Development Working Group served as an advisory group to the Commission to provide input on issues related to disaster recovery, growth, and short- and long-term resilience of Puerto Rico's economy. The mission of the working group was to provide technical guidance and advice to the Commission for the development of actionable and timely recommendations related to economic recovery from Hurricanes Irma and María, and from the financial and fiscal crisis of the last decade. Discussions focused on opportunities for recovery that would strengthen workforce development and business continuity across Puerto Rico, particularly along current and emerging small businesses. The Economic Development Working Group consisted of representatives from business associations, labor unions,

and universities as well as individual representatives of diverse industries, non-governmental organizations, and experts with different perspectives.

The working group focused on developing actions associated with recovery and the use of recovery funds for local workforce development and business continuity. Cross-cutting actions developed by the other working groups, specifically the Natural Infrastructure and Energy sectors, include various actions that achieve multiple benefits while building capacity for full economic recovery and future growth. The strategic actions proposed by the group reflect an optimism that Puerto Rico can grow and transform its economy in a resilient and inclusive manner for the benefit of all in Puerto Rican society.

The mission of the working group was to provide technical guidance and advice to the Commission for the development of actionable and timely recommendations related to economic recovery from Hurricanes Irma and María, and from the financial and fiscal crisis of the last decade.

02

SECTOR CONTEXT

The Economic Development Working Group considered the sector’s broad context, factoring pre-disaster conditions and trends, current post-emergency conditions, and pending reconstruction and other post-disaster investments to develop the goal and objectives of this strategy.

As the working group delved in the identification of opportunities for resilient recovery and reconstruction actions, it recognized the importance of focusing on analyzing employment trends and highlighting the main shocks and stresses affecting the implementation of an economic development strategy in a post-disaster context for Puerto Rico.

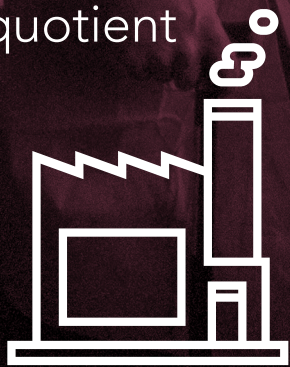
The Commission acknowledges the importance of aligning ongoing and projected initiatives for economic development with updated data on disaster impacts in

order to revamp the Island’s economic activities. It also recognizes the implications of the Puerto Rico Fiscal Plan, approved by the Financial Oversight and Management Board, in the implementation of an economic development strategy on the Island. This is particularly true for the reconstruction of critical infrastructure and utility assets, including energy, telecommunications, ports and airports, road networks, and water infrastructure.

The need to create substantial new quality jobs in Puerto Rico was highlighted as a key factor to improve the economic situation of the Island. The Commission deemed imperative that most of the reconstruction dollars and efforts be aligned. This would promote the creation of jobs for Puerto Rican workers and the development of their capacities, which ultimately contributes to the Island’s economic development.

Pre-Disaster Context


Employment in Puerto Rico is highly concentrated in pharmaceutical and medical devices manufacturing, with an employment location quotient equal to **8.3** in 2016.



Puerto Rico has been facing issues concerning high net out-migration, low labor participation rates, high unemployment, and an economy lacking diversification. The 2017 Economic Report to the Governor shows that an estimated net out-migration of 525,769 inhabitants occurred between 2006 and 2016, which is equal to 7.0% of the population.

Information gathered from the Puerto Rico Department of Labor and Human Resources (DOLHR) shows that participation rates in labor force have been subject to a steady decrease. In 2006, it dropped from 49.0% to 41.0%. The United States Bureau of Labor Statistics (BLS) denoted a 66.0% labor participation rate in the U.S. for 2006, declining to 62.4% in 2016. These data represent that nearly two out of every five persons in Puerto Rico are either working or actively looking for work, while in the U.S. nearly three out of every five persons are either working or actively looking for work.

Employment in Puerto Rico (based on 2010 and 2016 BLS data) is highly concentrated in pharmaceutical and medical devices manufacturing, with an employment location quotient (LQ)⁸ equal to 8.3 in 2016. The next most concentrated U.S. state for this industry (in 2016) was Indiana, which had a location quotient of 3.0. The San Juan Metropolitan Statistical Area (MSA) was second only to the Durham-Chapel Hill MSA in North Carolina for its pharmaceutical manufacturing employment share in 2016 (9.67 in San Juan).



An estimated net out-migration of
525,769 inhabitants
occurred between 2006 and 2016, which is equal to
7.0% of the population

Given this level of concentration in Puerto Rico, additional growth in this industry would be difficult to achieve under the new 2017 federal tax legislation.

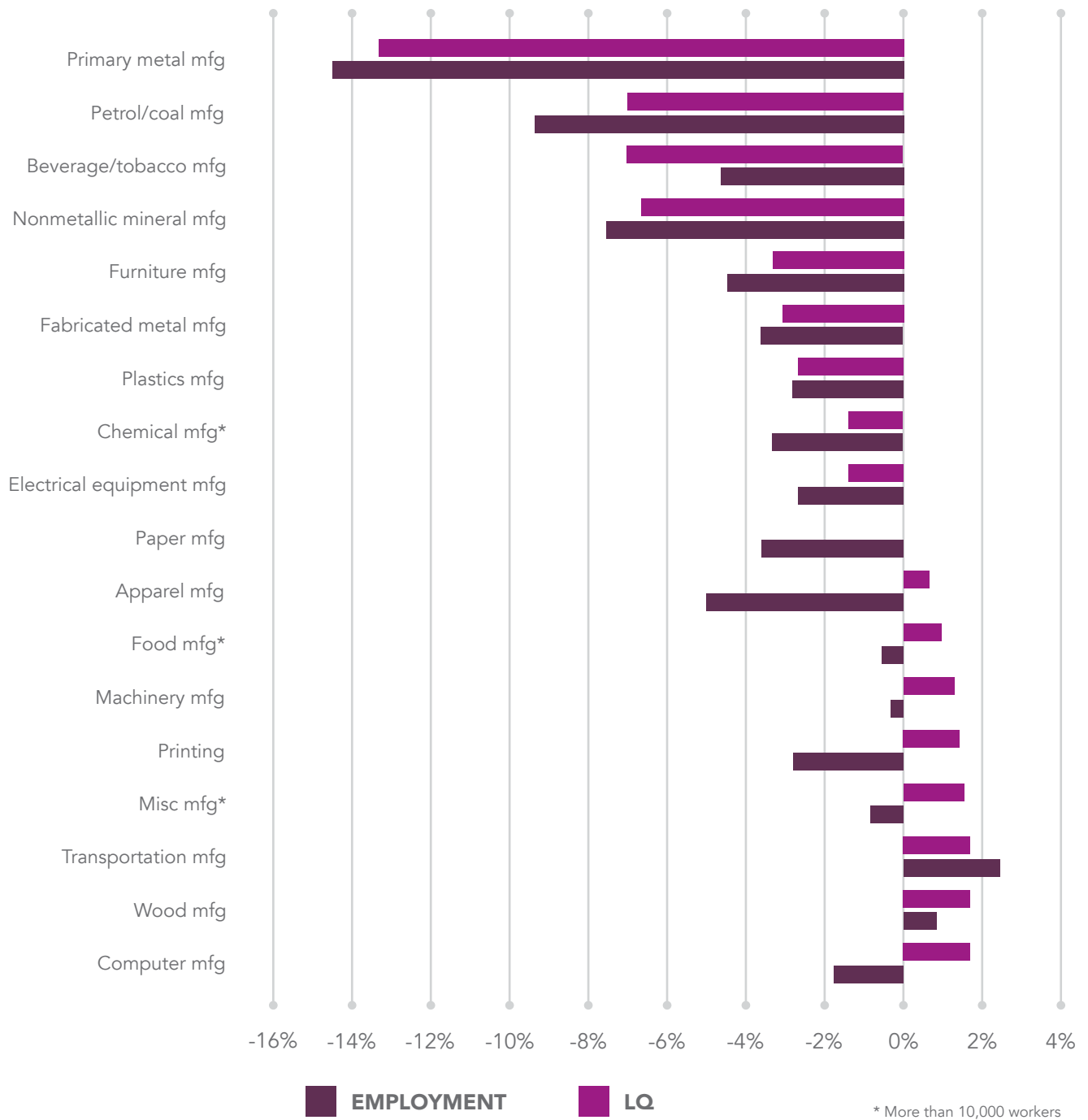
The once important employment engine of residential and nonresidential building construction experienced the largest declines in employment during the 2010-2016 period, reflecting the impact of the U.S.-wide real estate market collapse in 2007-2008. Most manufacturing industries experienced employment declines between 2010 and 2016, with the overall manufacturing sector experiencing an annual employment decrease of 3%. The two largest industries in Puerto Rico in 2016 were administrative services and food service, which annually added jobs at rates of 1.2% and 1.9% respectively. The agriculture, forestry, and fishing industry added jobs at an annual rate of 2% between 2010 and 2016.



The two largest industries in **Puerto Rico** in 2016 were **administrative services** and **food services**, which annually added jobs at rates of **1.2%** and **1.9%** respectively.

As shown in Figure 3, while manufacturing has traditionally played an important role in Puerto Rico, declines have occurred in all but two of the manufacturing industries in Puerto Rico according to the BLS Quarterly Census of Employment and Wages (QCEW). The manufacturing of transportation equipment experienced growth in employment of over 2.5%, in addition to an annual increase in location quotient of 1.3%.

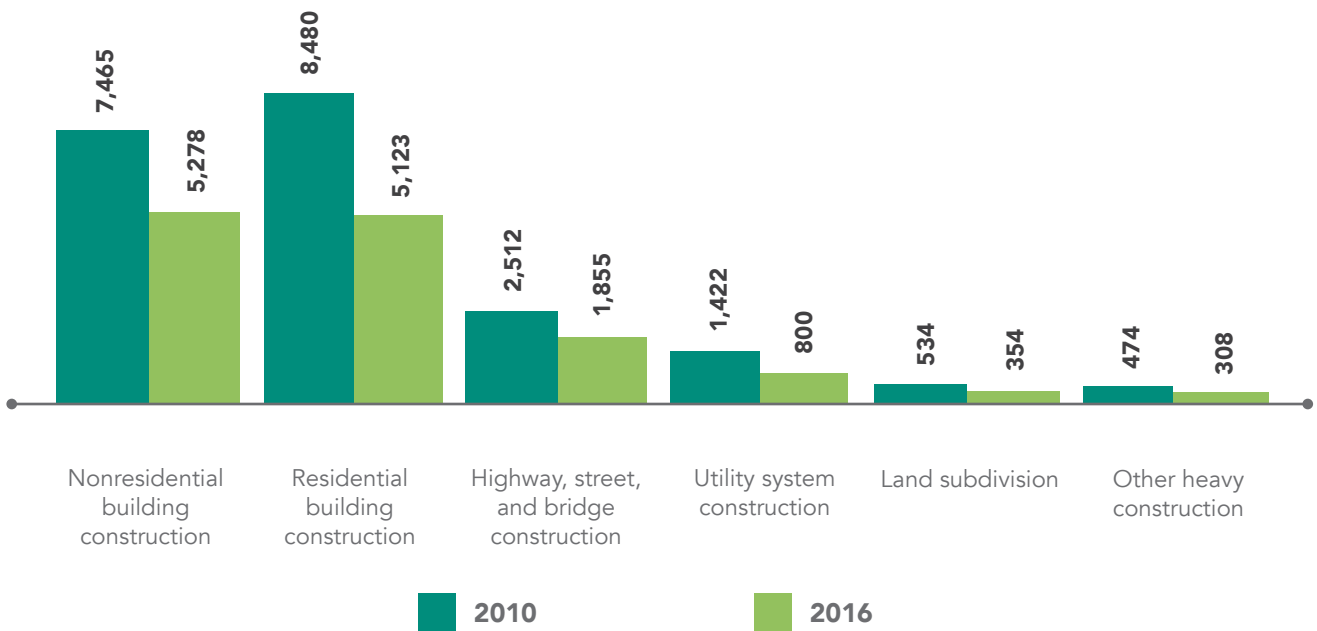
F3 CAGR EMPLOYMENT & LOCATION QUOTIENT (2010-2016): MANUFACTURING INDUSTRIES (3 DIGIT). SOURCE: BLS-QCEW





Meanwhile, as shown in Figure 4, Puerto Rico’s construction workforce declined at an average annual rate of 6% between 2010 and 2016. It is important to consider the capacities and opportunities the pre-María condition of the industry offered in order to use recovery investments to build a stronger and regionally competitive industry.

F4 CONSTRUCTION EMPLOYMENT BY 4 DIGIT NAICS CODE: EMPLOYMENT IN 2010 AND 2016.
SOURCE: BLS QCEW.





While available data does not yet allow detailed consideration of industry impacts with the 2017 hurricanes, **the 2016 data established that there was an array of growing industry sectors in Puerto Rico (in both employment and industry concentration) between 2010 and 2016.**

These sectors include:



Professional and technical services



Hospitals



Amusement, gambling, and recreation



Crop production



Motion picture/sound recording

It is worth noting that many of these emerging industries could have been severely disrupted due to hurricanes Irma and María. However there is no available data at present to evaluate in greater detail the economic impact of these events.



San Juan, PR. Prayitno

The further development and growth of any economic sector, particularly, a sector in which Puerto Rico has established concentration and comparative advantages, would contribute to resilience in the economy. However, because a variety of government entities and industry associations are currently preparing sector strategies, **the Commission highlighted efforts to build capacities and sectors that can uniquely contribute to broad-based, fundamental societal resilience.** These are sectors that can secure the availability and affordability of essential goods and services for all Puerto Ricans under the fullest range of conditions or events. Under current circumstances these aforementioned sectors are vulnerable, and they contribute to the poor economic resilience of the Island.

These **sectors**, in particular, would be:



Energy/power



Telecommunications



Housing/construction



Agriculture/food processing and services



Health services/medicine



Educational services



Carolina, PR. Sgt. José Díaz-Ramos

Post-Disaster Context

There are data gaps that do not allow for an adequate assessment of the impacts of Hurricanes Irma and María on small and midsize businesses particularly, regarding temporary or permanent closures. It is yet unclear how many businesses closed shop due to these, but a substantial portion of small businesses remained closed for various months due to the lack of power and other effects of the hurricanes.

According to labor statistics provided by the Puerto Rico Department of Labor and Human Resources, the workforce in Puerto Rico is proven to be susceptible to acute stresses. After Hurricane María, unemployment in Puerto Rico suffered a surge of 11.0% in December 2017, from 10.4% in August of that same year⁹. In terms of Labor Participation Rate, there was a significant drop between August and October 2017, from 39.8% to 38.5% respectively¹⁰.

Also, the rate of net out-migration accelerated right after the hurricane. Research conducted by City University of New York's Center for Puerto Rican Studies estimated that between 114,396 and 212,607 Puerto Ricans could leave the Island in the year following Hurricane María¹¹.

The Puerto Rico Planning Board (PRPB) identified the economic impact to diverse sectors for the period between September 19, 2017 and February 1, 2018, including damages, expenses, and loss of income (see Figure 5). The most impacted economic sector was manufacturing, which sustained a loss of income of \$17,139,600,000¹². The interruption in operations in the manufacturing industry not only posed risks to the economy of the Island but also to the supply chain of pharmaceuticals, life sciences, and medical devices abroad. Another critical economic sector that sustained a heavy loss in the timespan detailed above was the services industry.

ECONOMIC SECTOR

ECONOMIC LOSS

**AGRICULTURE****\$ 2,007.3**

MILLIONS OF DOLLARS

**MINING AND CONSTRUCTION****\$ 806.8**

MILLIONS OF DOLLARS

**MANUFACTURING****\$ 17,764.0**

MILLIONS OF DOLLARS

**SERVICES****\$ 11,176.4**

MILLIONS OF DOLLARS

**COMMERCE****\$ 1,701.1**

MILLIONS OF DOLLARS

**HOUSING****\$ 1,500.0**

MILLIONS OF DOLLARS

**TOTAL****\$ 34,955.7**

MILLIONS OF DOLLARS

Shocks and Stresses

As a first step, the working group explored Puerto Rico's exposure to shocks and stresses.

Key shocks include:



Hurricanes and tropical storms



Floods



Earthquakes and tsunamis



Failure of health, communication, energy, fuel, water, and food distribution systems

Additional stresses include:



Economic depression



Migration



Aging of the population and social insecurity for the retired



Lack of fiscal independence



Poverty



Limited government resources to meet essential needs and services



Losses of employment and closures of companies; unemployment and underemployment



Increase in sea level



Increased energy production cost



High import dependencies, in particular for fuels and food



Lack of available safe and affordable housing



Poor data, data management, and economic intelligence systems



Limited representation of Puerto Rico at the federal level of the United States



Droughts



Lack of a fully developed and reliable public transportation system

Unmet Needs

The results from the Economic Development Working Group and the community outreach and engagement process presented a set of unmet needs that were classified into the following categories:



DEMOGRAPHIC TRENDS FOR NET OUT-MIGRATION.

Puerto Rico's population peaked at 3.827MM in 2005 as per U.S. Census Bureau. When compared to the American Community Survey (ACS) data, which documents a population of 3.337MM in 2017, there has been a drastic reduction of nearly 0.5MM or a loss of 12.8% of the population in approximately a decade. Furthermore, out-migration was exacerbated by the hurricanes due to crippled infrastructure services and the uncertainty of job retention.



HIGH UNEMPLOYMENT. According to the BLS, February 2018 showed an unemployment rate of 10.6%, while, during the same period, the unemployment percentage in the U.S. was of 4.1%. This high percentage of unemployment must be contextualized with a labor participation rate of 40.0% for the same period.



REDUCED INDUSTRY PRODUCTIVITY. The elimination of Section 936 of the Internal Revenue Services (IRS) Code in 1996, with a staggered implementation that would be completely phased out as of 2006, implied a shift in the industrial base of Puerto Rico's economy. As per the Bureau of Labor Statistics, this shift resulted in a reduction of manufacturing jobs, going from 112,400 jobs in January 2006 to 70,000 jobs in February 2018. Additionally, having an economy highly dependent on the construction industry resulted in a substantial drop in jobs in that sector, from 66,800 jobs in January 2006, to 21,100 jobs in February 2018.



HIGH POVERTY LEVELS. According to the ACS of the U.S. Census Bureau, an estimated 43.5% of Puerto Rican residents lived in poverty in 2016, compared to 12.7% in the U.S. The median household income in Puerto Rico is \$19,606; meanwhile, the median household income in the U.S. is \$55,322.



LACK OF INCENTIVES FOR PRIVATE INVESTMENT. The economic and fiscal climate in the Island does not currently promote investment from the private sector, causing undue dependence in public investment, which is crippled by debt levels and lack of access to municipal bond markets.

03

SECTOR
GOAL

Based on the sector's context assessment, the Economic Development Working Group defined the following goal for the economic recovery efforts.

Craft a diversified portfolio of economic activities that augment Puerto Rico's resiliency by enhancing existing capabilities, improving employment prospects, and reducing inequalities.

04

OPPORTUNITY ACTIONS



Action Sheet Guideline

Action Number

Action Title

A1

Develop and begin implementation of a disaster resilience strategy for the micro and small businesses of Puerto Rico

Description

This initiative is intended to respond to the Hurricane María crisis with an explicit focus on micro and small business resilience. With up to 80% of the Island's formal employment in the micro and small business sector, this initiative would provide tools to support baseline economic resilience through disaster preparedness.

Action steps include:

1. Create a mechanism to provide micro or small businesses with grants and loans so that they may reopen, while incorporating resilience considerations in their operations. Community Development Financial Institutions (CDFI) and Community Development Banks (CDB) are highly encouraged. Establish technical Assistance Programs that will also enable existing Non-Government Organizations (NGOs) to grow and develop.
2. Develop specialized financing mechanisms for backup power supply (see Energy Sector Report).
3. Prioritize public policies that aim to keep businesses open by focusing on strengthening the entrepreneurial skillsets of Small and Midsized Businesses (SMBs), managers, and promoting the development of CDBs and CDFIs that can provide more flexible access to financial tools, such as grants and loans, than commercial banking institutions. These public policies must:
 - Create a Disaster Workforce Subsidy Program to help small businesses in their struggle to keep their doors open during disaster events
 - Develop small business risk management education and 'audit' tools, including preparedness for weather and seismic shocks
 - Increase business continuity and recovery planning
 - Provide guidance on managing business and household finances separately, as to protect the latter from business risks
 - Explore collective risk transfer solutions, i.e., underwriting of risk pools and mutual insurance schemes
 - Provide specialized business development support and local supply chain development, i.e., competing with online and big-box retail

Potential Lead

Non-government organizations & philanthropic organizations

Potential Co-leads

DEDC; Regional Consortiums; Municipalities

Potential Funding Sources

Private investment, Philanthropic fund, Local and PR government budgets, workforce investment boards and intermediaries, EDA Federal Grants, USDA Federal Grants, other NGO funds.

Unmet Needs



Crosscutting Benefits



Timeframe

Short and medium term

Potential Lead: Lead organization responsible for execution of action

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

Potential Funding Sources: Federal, local, and philanthropic resources

Unmet Needs:

- Demographic trends for net out-migration
- High unemployment
- Reduced industry productivity
- High poverty levels
- Lack of incentives for private investment

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

Goal and Actions

Craft a diversified portfolio of economic activities that augment Puerto Rico’s resiliency by enhancing existing capabilities, improving employment prospects, and reducing inequalities.

A1 | Develop and implement a disaster resilience strategy for the micro and small businesses of Puerto Rico.

A2 | Promote the adoption of best practices in enterprise risk management and business continuity planning for mid-sized companies.

A3 | Leverage Hurricane María reconstruction investments to advance the construction sector’s recovery, innovation, and resilience.

A4 | Ensure that reconstruction related procurements give priority to local workforce employment, training, and certification.

A5 | Prioritize Workforce Innovation and Opportunity Act (WIOA) funding for training, re-training, and skills credentialing within priority industry clusters.

A6 | Develop on-Island employment/career opportunities for both Puerto Rican youth and for aging members of the workforce, ensuring the quantity and quality of the future workforce is able to support growth in prioritized economic sectors/clusters.

A7

Support and communicate clear pathways for Puerto Rico's youth and young adults to establish businesses, social enterprises, and professional services careers in Puerto Rico's Next Generation Economy.

A8

Support social service programs that reduce family and child poverty to ensure the readiness of the future workforce.

A9

Strengthen broad-based, community-level economic development initiatives, building and strengthening Puerto Rico's community economic development organizations and their networks through sustained, collective investments from the Puerto Rican diaspora associations, foundations, and crowd-sourcing activities.

A10

Develop and implement specific industry cluster strategies for economic sectors that are key to the resilience of Puerto Rican society, such as housing, power supply, health services and medicine, food, global supply chain, knowledge economy and education. Expand the organizational capacity as part of economic development efforts focused on these sectors and the resilience of mid-sized companies.

A11

Review existing laws and regulations and simplify the permitting and licensing processes that are required to open a business, without compromising human or environmental capital, and attracting new investment.

A12

Optimize the use of and improve fiscal stewardship of subsidies awarded to create quality jobs and stimulate economic activity.

Develop and implement a disaster resilience strategy for the micro and small businesses of Puerto Rico.

Description

This initiative is intended to respond to the Hurricane María crisis with an explicit focus on micro and small business resilience. With up to 80% of the Island's formal employment in the micro and small business sector, this initiative would provide tools to support baseline economic resilience through disaster preparedness.

Action steps include:

1. Create a mechanism to provide micro and small businesses with grants and loans so that they may reopen, while incorporating resilience considerations in their operations. Community Development Financial Institutions (CDFIs) and Community Development Banks (CDBs) are highly encouraged. Establish technical assistance programs that will enable existing non-governmental organizations (NGOs) to grow and develop.
2. Develop specialized financing mechanisms for backup power supply (see the Energy Sector Report).
3. Prioritize public policies that aim at keeping businesses open by focusing on strengthening the entrepreneurial skillsets of *small and midsize enterprises (SMEs)* and managers. These policies should also promote the development of CDBs and CDFIs that can provide more flexible access to financial tools, such as grants and loans, than commercial banking institutions. These public policies must:
 - Create a disaster workforce subsidy program to help small businesses in their struggle to keep their doors open during disaster events.
 - Develop small business risk management education and 'audit' tools, including preparedness for weather and seismic shocks.
 - Increase business continuity and recovery planning.
 - Provide guidance on managing business and household finances separately, as to protect the latter from business risks.
 - Explore collective risk transfer solutions, i.e., underwriting of risk pools and mutual insurance schemes.
 - Provide specialized business development support and local supply chain development, i.e., competing with online and big-box retail.

Potential Lead

Non-government Organizations & Philanthropic Organizations

Potential Co-leads

DEDC; Regional Consortiums; Municipalities

Potential Funding Sources

Private investment; Philanthropic funds; Local and Government of Puerto Rico Government; Workforce investment boards and intermediaries; EDA Federal Grants; USDA Federal Grants; NGOs

Unmet Needs



Crosscutting Benefits



Timeframe



Short and medium term

Promote the adoption of best practices in enterprise risk management and business continuity planning for mid-sized companies.

Description

This action focuses on the unique needs and capacities of mid-sized companies to manage risks and fulfill their growth and competition strategies. It is intended for existing mid-sized businesses to ensure that they have:

- Thoroughly assessed their post-hurricane status in the local, regional, and global market contexts.
- A better technical understanding of their risk profiles and vulnerabilities to shocks.
- Evaluated their needs and potential, as well as requirements for future growth and expansion.

Action steps include:

1. Providing access to business intelligence in order to help companies identify new and emerging end market sectors and growing geographies.
2. Establishing a dedicated business forum for chief risk officers and other executives to share and advance practices of enterprise risk management and business continuity planning. Said forum would provide cost-effective access to subject matter experts in these fields. Special forums addressing the unique issues and conditions of specific sectors may merit.
3. Giving export market penetration services to help existing companies diversify sales and business risks and compete in global markets.
4. Supporting the development of catastrophic insurance and risk management tools for midsized companies.
5. Working with companies on energy strategies to help them gain control over their energy costs and secure constant energy supply, even during extreme events.

Potential Lead

Puerto Rico Department of Economic Development and Commerce

Potential Co-leads

PRCC; Insurance and reinsurance companies; The banking sector; Business schools and institutes

Potential Funding Sources

Private investment; Philanthropic funds; Local and Government of Puerto Rico budgets; Workforce investment boards and intermediaries; EDA Federal Grants; USDA Federal Grants; NGOs

Unmet Needs



Crosscutting Benefits



Timeframe



Short and medium term

Leverage Hurricane María reconstruction investments to advance the construction sector’s recovery, innovation, and resilience.

Description

Puerto Rico’s construction industry has seen a steady decrease in employment during the decade-long recession. However, given the dramatic backlog of housing reinvestment needs, a focused strategy on housing could be managed to kick-start industry employment and growth. While responding to this new demand and the re-establishment of capacity, it is important to use this opportunity to make the industry competitive again.

Action steps include:

1. Updating relevant economic development strategies to prioritize the development of new sectors within Puerto Rico’s construction industry. Some examples include seismic wind- and flood-resistant building innovations, renewable energy and micro grids, senior housing, and modular off-site production.
2. Aligning Puerto Rico’s workforce development strategies to encourage training across construction trades and related occupations (e.g., surveying, and Geographical Information System [GIS]), emphasizing training linked to certification programs.
3. Training workforce to support housing renovations that reduce energy and water consumption.
4. Leverage practical experience with GIS tools to document formal and informal housing inventories, conditions, regulatory context, real estate values, and related metrics.
5. Leverage GIS data to update property assessment databases and provide critical market data that can aid in establishing a minimum baseline for residential real estate values.
6. Evaluating housing options for vulnerable demographics, such as seniors and single parent and low-income households.
7. Supporting companies and cooperatives or nonprofit housing associations to provide opportunities for affordable self-building.
8. Ensuring that zoning laws and building codes enable sector innovation.
9. Evaluating the role of land trusts or land banks, which can have a long-term view on residential and commercial stock reinvestment.

Potential Lead

Puerto Rico Department of Economic Development and Commerce

Potential Co-leads

DOLHR

Potential Funding Sources

Construction trade unions; Insurance companies and mortgage banks; Fannie Mae; Construction and building material companies; Municipalities

Unmet Needs



Crosscutting Benefits



Timeframe



Short and medium term

Ensure that reconstruction-related procurements give priority to local workforce employment, training, and certification.

Description

This action focuses on leveraging maximum economic benefits and workforce development from pending public sector procurements for reconstruction and other public capital expenditure projects. A special ‘reconstruction procurement’ framework should be established to would provide ‘points’ and other incentives for bid proposals that:

- Establish minimum standards for employment of Puerto Rico residents.
- Link workforce and occupational training to Puerto Ricans in reconstruction-related projects with Workforce Innovation and Opportunity Act (WIOA) supported training programs.
- Enhance training programs so that they provide trainees with the skills and experience necessary to secure relevant trade and professional certifications.
- Promote the use of small businesses in large contracts by using subcontracts or splitting projects into various parts.

Strategies, such as Community Benefits Agreements (CBAs), should be encouraged as part of contract awards processes. CBAs are legally binding contracts between two private parties – developers and community-labor coalitions – to ensure that major development projects benefit residents. Benefits are negotiated individually for each deal to fit the needs of community groups, and they often include first-source hiring, living wages, and affordable housing assistance. Agreements are then incorporated into the city or county development agreement so that they are doubly enforceable by both citizen groups and local governments.

Potential Lead

Puerto Rico Central Office of Recovery, Reconstruction, and Resilience

Potential Co-leads

USDOL; USDOED; USDOC

Potential Funding Sources

Local and Government of Puerto Rico budgets; Workforce investment boards; Universities

Unmet Needs



Crosscutting Benefits



Timeframe



Short and medium term

Prioritize Workforce Innovation and Opportunity Act (WIOA) funding for training, re-training, and skills credentialing within priority industry clusters.

Description

The recently passed Workforce Innovation and Opportunity Act (WIOA) establishes guidance for how workforce training dollars will be invested in Puerto Rico. Ideally, these dollars will be aligned with priority industry clusters that have definite potential to grow.

The allocation of WIOA funds should reflect the needs of prioritized industry clusters in order to support the career pathways of individuals who have relevant employment experience and life skills but lack formal education or industry certifications in those clusters. Rapid assessments of workforce needs should be undertaken for priority clusters, considering both current reconstruction efforts and requirements for mid- and long-term cluster competitiveness and growth. Trade unions should work in these assessments along with business groups and Puerto Rican executive departments and agencies involved in the allocation of WIOA funds. As proposed in the WIOA State Plan, a working group of representatives of key existing and emerging industries, government departments, industry associations, and relevant labor unions should assist the State Board and regional boards in developing sector strategies and related career pathways.

Potential Lead

Puerto Rico Department of Economic Development and Commerce

Potential Co-leads

DOLHR; PRDE; Labor unions; Industry associations; Universities and vocational schools; Nonprofit training organizations

Potential Funding Sources

WIOA; EDA; HUD; Local and Government of Puerto Rico budgets; Workforce investment boards and intermediaries

Unmet Needs



Crosscutting Benefits



Timeframe



Short and medium term

Develop on-Island employment/career opportunities for both Puerto Rican youth and for aging members of the workforce, ensuring the quantity and quality of the future workforce is able to support growth in prioritized economic sectors/clusters.

Description

Government and private sector procurements in priority industries should provide explicit incentives to train young Puerto Ricans and re-train aging members of the workforce during reconstruction.

Action steps include:

1. Reviewing public education curricula and programs.
2. Focusing education, mentoring, training, and re-training on needs and gaps specifically related to the Puerto Rico labor market.
3. Identifying and evaluating barriers faced by women in the workforce.
4. Developing distinct employment re-training and transitional programs to support members of the workforce who are in later stages of the employment life.
5. Furthering incentives that provide job training programs.
6. Establishing a retention program that provides incentives for young people to develop their careers in Puerto Rico.
7. Increasing the quantity and quality of internship and cooperative employment programs in public schools.
8. Addressing net out-migration through the implementation of marketing strategies aimed at people that left Puerto Rico due to hurricane-related job loss or economic instability.

Strategies would include those highlighted in the WIOA State Plan, specifically:

1. Providing in-school youth early exposure to career and higher education opportunities available through the workforce system.
2. Providing services and coordination across programs to improve education, work experience, and employment outcomes for out-of-school and disconnected youth.
3. Providing pre-employment transition services to youth with disabilities.
4. Creating a registered apprenticeship program.
5. Improving occupational education for high-demand, highly skilled, and technologically advanced occupations.
6. Improving the reach of English language literacy activities throughout the job seeking population in need of English language skills.

Potential Lead

Puerto Rico Department of Labor and Human Resources & Puerto Rico Department of Economic Development and Commerce

Potential Co-leads

PRDE; Labor unions; Industry associations; Universities and vocational schools; Nonprofit training organizations

Potential Funding Sources

WIOA; EDA; HUD; Local and Government of Puerto Rico budgets; Workforce investment boards and intermediaries

Unmet Needs



Crosscutting Benefits



Timeframe



Medium and long term



Support and communicate clear pathways for Puerto Rico's youth and young adults to establish businesses, social enterprises, and professional services careers in Puerto Rico's Next Generation Economy.

Description

In promoting clear education and support pathways for Puerto Rico's youth and young adults who seek to establish businesses, social enterprises, or self-employed professional services careers, this initiative contributes to the future growth of the Island's economy. It also responds to the risk of continued out-migration to U.S. mainland, in particular, young adults with university degrees.

As a first step, it is necessary to align existing entrepreneurship and start-up support programs through a common strategy. This strategy should support linkages among different programs and initiatives in order to provide young entrepreneurs and self-employed professionals integrated access to entrepreneurship, business establishment and mentorship support, financing options, networking forums, life skills, and language skills development opportunities.

We should evaluate model 'next economy,' incubator, and social enterprise programs in other states and countries for potential application in Puerto Rico. This should be done with a particular view towards establishing ongoing linkages and affiliations with selected mainland partners.

Potential Lead

Corporation for Business Financing of Commerce and Communities (now known as "lendreamers")

Potential Co-leads

DEDC; DOLHR; PRDE; PRDA; Industry associations; Farm organizations; Labor unions; PRTEC; PRTC; Universities and vocational schools; Nonprofit training organizations

Potential Funding Sources

COFECC; SBA 504 Loan program; Corporate social responsibility funds (e.g., Banco Popular); Local and Government of Puerto Rico budgets; Workforce investment boards and intermediaries; EDA Federal Grants; Enterprise Puerto Rico

Unmet Needs



Crosscutting Benefits



Timeframe



Medium and long term

Support social service programs that reduce family and child poverty to ensure the readiness of the future workforce.

Description

This action recognizes that Puerto Rico is straining against a consequential level of child poverty, with more than 50% of children falling below federally-defined poverty levels. Studies demonstrate that extended time in child poverty may lead to the emergence of structural factors, related to physical and mental health and educational outcomes. These factors ultimately produce workforce development challenges that require more aggressive and costly social services in later years.

As a first step, the Government of Puerto Rico should create a Child Poverty Commission tasked with setting targets for child poverty reduction at the Island and municipal levels. It should use results-based accountability and a collective action framework to monitor and reduce child poverty. The Child Poverty Commission could be created through an Executive Order or legislation. This Commission would lead the data gathering effort and the development of comprehensive metrics and targets for child poverty reduction. It would closely monitor conditions and report trends at least annually. Establishing a dedicated child-poverty reduction strategy would reflect the analyses of these trends.

In order to support single mothers in obtaining work or establishing micro/small businesses, specific programs should be created to enable them to overcome poverty. Such programs need to holistically consider requirements not only for training, but also for child support, family food support, career/business mentoring, and one-on-one case management.

There is also a need for workforce programs that allow adults in welfare programs to transition to employment. For instance, creating a dedicated, guaranteed, 12-24-month income support program to assist single mothers who are starting micro- or small businesses, considering the risks of such business start-ups. The government should also provide employment support programs for working parents (child care, transportation, earned income tax credits, coaching, etc.) to enable them to initiate and continue employment.

Potential Lead

Puerto Rico Department of Economic Development and Commerce

Potential Co-leads

PRDF; PRDE; Puerto Rico Legislature; PRPB; Municipalities; USDOL

Potential Funding Sources

Puerto Rico social assistance programs; Local and Government of Puerto Rico budgets; Philanthropic funds; Corporate foundations; Federal grants

Unmet Needs



Crosscutting Benefits



Timeframe



Medium and long term

Strengthen broad-based, community-level economic development initiatives, building and strengthening Puerto Rico's community economic development organizations and their networks through sustained, collective investments from the Puerto Rican diaspora associations, foundations and crowd-sourcing activities.

Description

A full recovery of Puerto Rico's economy, as well as preparedness for future shocks, requires broad-based community economic development (CED) efforts across the Island's diverse regions and communities.

A first step would be the establishment of an alliance of CED organizations to develop and coordinate strategies for the Island's different types of communities and build a learning community among these organizations. Participating CED organizations would include cooperatives, community development finance and micro-finance institutions, and local cultural and business improvement associations. This initiative would focus on:

- Expanding access to capital for community-level developers, stimulating asset ownership of community-based organizations.
- Expanding local micro- and small business communities and markets to ensure localized access to basic goods and services.
- Expanding local employment and livelihood opportunities through training, mentoring, and technical advisory services for specialized producer communities (e.g., coffee growers).
- Supporting residents and businesses to better identify and connect with opportunities in the broader regional economy. Support could come through supply chain relationships, improvements to regional markets, or cultural festivals.
- Promoting eco-tourism as an opportunity for community-based economic development.
- Identifying high-risk communities to promote preparedness education and risk mitigation.

Considering the scale of the Puerto Rican diaspora and its geographic concentration in mainland cities, an important objective would be to reinforce existing partnerships, as well as build new ones between local communities and the diaspora. Diaspora NGOs, foundations, and Island-based CEDs could coordinate these partnerships.

Potential Lead

Non-governmental organizations with strong ties to Puerto Rican diaspora and diaspora-based organizations

Potential Co-leads

Foundations; Diaspora-based NGOs

Potential Funding Sources

CDBG-DR; Philanthropic funds; Local and Government of Puerto Rico budgets; Diaspora associations; Cooperatives; Corporate CSR programs

Unmet Needs



Crosscutting Benefits



Timeframe



Short and medium term

Develop and implement specific industry cluster strategies for economic sectors that are key to the fundamental resilience of Puerto Rican society, such as housing, power supply, health services and medicine, food, global supply chain, knowledge economy, and education. Expand the organizational capacity as part of economic development efforts focused on these sectors and the resilience of mid-sized companies.

Description

Cluster strategies require a wide array of economic development instruments and incentives to expand production and develop more value-added products and services. Measures would include: a) targeted attraction and retention efforts, b) local supply chain development, c) research, development, and business innovation resources, and d) workforce training and certification. To this end, market analysis tools can be funded through EDA to study current trends and Puerto Rico's competitive advantages, as well as to define a responsible and coherent long term economic strategy.

In addition to focusing on existing high growth industries, a focus on economic resilience gives particular priority to industry clusters that secure the availability of essential goods and services for Puerto Ricans. The impacts of Hurricane María and events following the crisis have highlighted some of these industries.

Proposed steps include:

1. Conducting a deep dive and inventory of companies, supply chain connections, real estate conditions, critical suppliers, ownership status, and missing links to promote economic development.
2. Evaluating the retention requirements of anchor companies and institutions.
3. Aligning workforce development to support cluster development efforts.
4. Evaluating distribution and import-export infrastructure as to understand how Island producers serve local and destination markets.

The agriculture, food processing, and food services industry cluster offers a unique opportunity to build local incomes and wealth in impoverished and underserved rural areas. An agriculture-food cluster strategy would:

- Leverage and increase agriculture and food science research in academic and science institutions to further develop extension services and value added products.
- Evaluate the role of food hubs in fostering local market connections between farmers, grocery stores, and restaurants to increase efficiency and reduce the carbon footprint.
- Study local markets to incubate and expand local brands.
- Align food production with strategies to grow food-linked tourism.

Potential Lead

Puerto Rico Department of Economic Development and Commerce

Potential Co-leads

DOLHR; PRDE; PRDA; PR Science Trust; Industry associations; Farm organizations; PRTEC; PRTC; Echar Pa'lante; Vocational schools; NGOs

Potential Funding Sources

Local and Government of Puerto Rico budgets; Workforce investment boards and intermediaries; EDA Federal Grants; USDA Federal Grants

Unmet Needs



Crosscutting Benefits



Timeframe



Medium term



01

02

03

04

OPPORTUNITY ACTIONS

05

06

Review existing laws and regulations and simplify the permitting and licensing processes that are required to open a business, without compromising human or environmental capital, and attract new investment.

Description

A fragmented permitting and licensing system most certainly creates delays in the start-up and launch of new businesses, and, consequently, impacts business plans and company output. It proves to be burdensome for businesses and entrepreneurs, particularly those who are operating on thin margins or evaluating new business ventures.

This action focuses on the need to establish clear and streamlined regulatory processes that: help entrepreneurs manage their projections and budgeting processes during start-up, provide transparency, reduce upfront permitting costs, mitigate risks, and encourage entrepreneurs to start formal businesses. Such processes would also complement efforts to retain and grow existing small and mid-sized companies.

Action steps include:

1. Reviewing the existing laws and regulations, as well as current processes, to determine ways to streamline and expedite permitting processes in order to encourage new business start-ups and expansions.
2. Determining integration mechanisms for processes and data sharing among all the agencies involved.
3. Developing a uniform plan to establish efficient one-stop-shops across municipalities with legal authority to issue permits.

Potential Lead

Puerto Rico Permit Management Office and municipalities currently issuing permits

Potential Co-leads

URA; PRCC; PRTEC; CAAPPR; Labor unions

Potential Funding Sources

Local and Government of Puerto Rico budgets; Federal grants; NGOs; Enterprise Puerto Rico

Unmet Needs



Crosscutting Benefits



Timeframe



Medium term

Optimize the use of and improve fiscal stewardship of subsidies awarded to create quality jobs and stimulate economic activity.

Description

Stimulating economic activity and job creation often comes hand in hand with the award of subsidies to promote investment from the private sector. The following action steps should be implemented to ensure the best use of the subsidies provided to these developers and investors:

- Ensure that subsidized companies create quality jobs – Job quality standards are requirements for subsidized companies to create full-time positions paying livable wages and providing health insurance and other benefits. Wage and benefit requirements enable the government to avoid a double subsidy: the cost of direct economic development aid as well as the cost of social support programs, such as Medicaid and food stamps needed by low-wage employees to make ends meet.
- Require disclosure of subsidy spending and company compliance – Disclosure laws require states to release company-specific information on the type and amount of subsidies they grant, the benefits companies have promised to create, and the track record of companies in complying with those obligations. The availability of complete, accurate, and timely information on the costs of subsidies and compliance allows public officials and citizens to evaluate whether subsidies are a good investment of taxpayer dollars.
- Increase accountability in the subsidy approval process – Increased citizen input in the subsidy award process means that decisions are no longer made solely by corporate executives and development officials. Holding well-publicized public hearings (at reasonable times) on proposed subsidy deals will enable citizens to weigh in before decisions are made. Requiring every subsidy deal to be voted on by elected bodies allows citizens to hold their representatives accountable for making wise choices that create real benefits with economic development dollars.
- Enact and enforce money-back guarantees on subsidies (“Clawbacks”) – Clawbacks, also called recapture provisions, are clauses in subsidy laws that require a company to return all or part of the value of a subsidy if the company fails to meet the obligations agreed to as a condition of receiving the award.

Potential Lead

Puerto Rico Department of Economic Development and Commerce

Potential Co-leads

NGOs; PRIDCO; Municipalities; OCPR

Potential Funding Sources

Local and Government of Puerto Rico budgets

Unmet Needs



Crosscutting Benefits



Timeframe



Medium term



05

RESOURCES

Glossary

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.

GINI quotient

A statistical measure of distribution developed by the Italian statistician Corrado Gini in 1912. It is often used as a gauge of economic inequality, measuring income distribution or, less commonly, wealth distribution among a population.

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.

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.

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.

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.

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.

Microgrants

Small awards given to community groups, among others,

for short-term community projects.

Mitigation

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.



San Juan, PR. Ricardo Mangual

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 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.

Regulatory Frameworks

It provides the bases on which institutions build and determine the scope and nature of participation in society. It is a complex combination of statutes and legal regulations, judicial rules and actual practice.

Resilience

The capacity of individuals, communities, institutions, business 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 when 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.

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.

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.

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.

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. It comprises a variety of concepts and elements that include sensitivity or susceptibility to harm and lack of responsiveness and adaptation.

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06

APPENDIX



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 Framework¹⁰ and The Rockefeller Foundation's City Resilience Framework¹¹.

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.

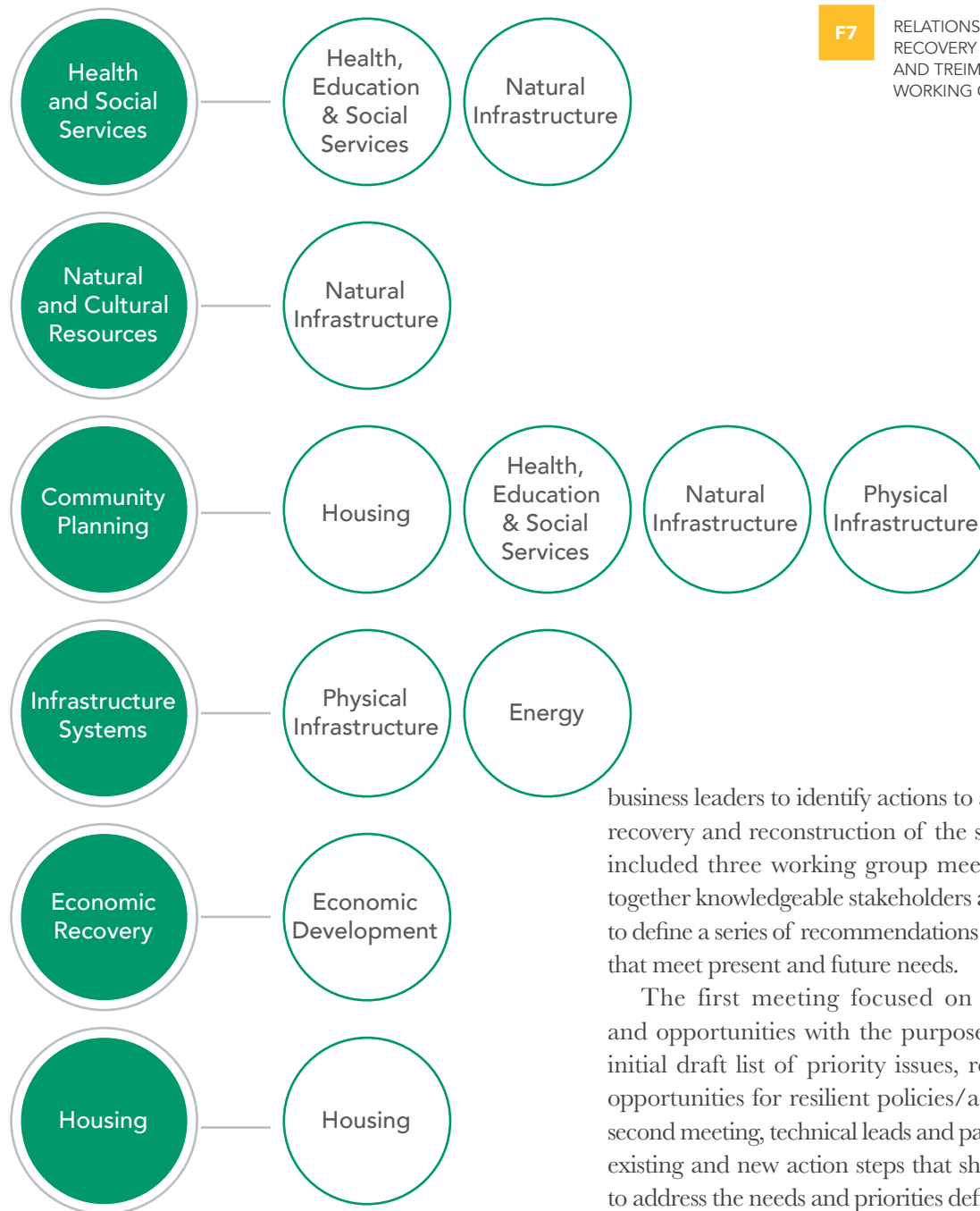
- 1. Effective leadership & management
- 2. Empowered stakeholders
- 3. Integrated development planning

- 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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