CABO VERDE

NATIONAL DISASTER PREPAREDNESS BASELINE ASSESSMENT

A DATA-DRIVEN TOOL FOR ASSESSING RISK AND BUILDING LASTING RESILIENCE

PDC | GLOBAL

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- Associação Nacional dos Municípios Cabo-Verdianos (National Association of Municipalities)
- Guarda Costeira de Cabo Verde (Cabo Verde Coast Guard)
- IFRC/ Cruz Vermelha de Cabo Verde (Red Cross Cabo Verde)
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- Mindelo & Sao Vicente Municipality
- Municipality of Praia, Directorate of Civil Protection and Firefighters
- Prepared International
- Serviço Nacional de Proteção Civil e Bombeiros (Cabo Verde Civil Protection)
- UNDP/UNICEF/UNFPA Joint Office Cabo Verde
- Universidade de Cabo Verde (University of Cabo Verde)

LIST OF ABBREVIATIONS

AAC Agência de Aviação Civil / Civil Aviation Agency

ACÁCEA Associação Cabo-Verdiana de Educação Ambiental / Cabo Verdean Association for Environmental Education

ADA Appui au Développement Autonome / Support for Autonomous Development

ADAD Associação para a Defesa do Ambiente e Desenvolvimento/ Association for the Defense of the Environment and Development

AfDB African Development Bank Group

AFRICOM Africa Command (or US Africa Command)

AHBV Associações Humanitárias de Bombeiros Voluntários / Humanitarian Association of Volunteer Firefighters

ANMCV Associação de Municípios de Cabo Verde / Association of Cabo Verdean Municipalities

AOSIS Alliance of Small Island States

ARES Agencia Reguladora do Ensino Superior / Regulatory Agency for Higher Education

AU African Union

CC Coping Capacity

CCA Climate Change Action/ Adaptation

CMOEPC Centro Municipal de Operações de Emergência/ Municipal Emergency Operations Center

CNOEPC Centro Nacional de Operações de Emergência/ National Emergency Operations Center

CNOEPCAL Centro Nacional de Operações de Emergência Alternativas / Alternative Emergency Operations Center

CNPC Conselho Nacional de Proteção Civil / National Council for Civil Protection

COG Continuity of Government

COOP Continuity of Operations

COP Common Operating Picture

COVID-19 Corona Virus Disease 2019

CPLP Community of Portuguese Speaking Countries

CV Cabo Verde

CVCG Guarda Costeira de Cabo Verde / Cabo Verdean Coast Guard (also see CVGC)

CVCV Cruz Vermelha de Cabo Verde / Cabo Verde(an) Red Cross

DGASP Direção Geral de Agricultura, Florestas e Pecuária / General Directorate of Agriculture, Forestry, and Livestock

DM Disaster Management

DMA Disaster Management Analysis

DNA Direcção Nacional do Ambiente de Cabo Verde / National Directorate for Environment

DRM Disaster Risk Management

DRR Disaster Risk Reduction

ECREE ECOWAS Center for Renewable Energy and Energy Efficiency

ECOWAS Economic Community of West African States

EMOPS® Emergency Operations (DisasterAWARE®)

ENACOL Empresa Nacional de Combustíveis / National Fuel Company

ENAPOR Empresa Nacional de Administração dos Portos / National Company for Port Administration

ENRRD Estratégia Nacional de Redução de Risco de Desastres / National Disaster Risk Reduction Strategy

ENSAN Estratégia Nacional de Segurança Alimentar e Nutricional / National Strategy for Food and Nutritional Security

EOC Emergency Operations Center

EOP Emergency Operations Plan

EU European Union

EWS Early Warning System

FACV Forças Armadas Cabo Verde/Armed Forces of Cabo Verde

FAO Food and Agriculture Organization of the United Nations

FNE Fundo Nacional de Emergência / National Emergency Fund

FSE Fundo Soberano de Emergência / Sovereign Emergency Fund

GDP Gross Domestic Product

GFDRR Global Facility for Disaster Risk Reduction and Recovery (of World Bank Group)

GIS Geographic Information Systems

GoGIN Gulf of Guinea Inter-regional Network

HAN Hospital Agostinho Neto

HAZMAT Hazardous Materials

HBS Hospital Dr. Baptista de Sousa

HFA Hyogo Framework for Action

IAP Incident Action Planning

IBRD International Bank for Reconstruction and Development (of World Bank Group)

ICC International Code Council

ICIEG Instituto Cabo-verdiano para Igualdade e Equidade do Género/ Cabo Verdean Institute for Gender Equality and Equity

ICS Incident Command System

IDA International Development Association (of World Bank Group)

IDP Internally Displaced Population

IFAD International Fund for Agricultural Development

IMO International Maritime Organization

INDC Intended Nationally Determined Contribution

INECV Instituto Nacional de Estatística Cabo Verde / National Statistical Institute of Cabo Verde

INGRH Instituto Nacional de Gestão de Recursos Hídricos / National Institute of Water Resources Management

INMG Instituto Nacional de Meteorologia e Geofísica / National Meteorology and Geophysics Institute /

INSP Instituto Nacional de Saúde Pública / National Institute of Public Health

INVOLCAN Instituto Vulcanológico das Canárias/ Canary Islands Volcanic Institute

IPU Inter-Parliamentary Union

ISCEE Instituto Superior de Ciências Econômicas e Empresariais /Higher Institute of Economic and Business Sciences

ISCJS Instituto Superior de Ciências Jurídicas e Sociais / Higher Institute of Legal and Social Sciences

ITSO International Telecommunications Satellite Organization

ITU International Telecommunication Union

ITUC International Trade Union Confederation

IWRM Integrated Water Resources Management

LIST OF ABBREVIATIONS

JRCC Joint Rescue Coordinating Center

K-12 from Kindergarten to 12th grade

KAIPTC Kofi Annan International Peacekeeping Training Centre

MAI Ministério da Administração Interna / Ministry of Internal Affairs

MDA Ministry, Department, or Agency

MIOTH Ministério da Infraestrutura, Ordenamento do Território e Habitação / Ministry of Infrastructure, Spatial Planning and Housing

MoU Memorandum of Understanding

NAM Non-Aligned Movement

NAPA National Adaptation Program of Action

NBSAP National Biodiversity Strategy and Action Plan

NCP National Contingency Plan

NDPBA National Disaster Preparedness Baseline Assessment

NDRR National Disaster Risk Reduction

NEOC National Emergency Operations Center (see also CNOEPC)

NGO Non-Governmental Organization

OIF Organisation Internationale de la Francophonie / Organization of French Speaking Countries

OMCV Organização das Mulheres de Cabo Verde / Women Organization of Cabo Verde

OPCW Organization for the Prohibition of Chemical Weapons

OVCV Observatório Vulcanológico de Cabo Verde/ Cabo Verde Volcanological Observatory

PAGIRH Plano de Ação para a Gestão Integrada de Recursos Hídricos / Plan of Action for the Integrated Management of Water Resources

PAN-LCD Plano de Ação Nacional de Combate à Desertificação / National Action Plan to Combat Desertification

PANA Plano de Ação Nacional para o Meio Ambiente / National Action Plan for the Environment

PDC Pacific Disaster Center

PDNA Post Disaster Needs Assessment

PDRF Post Disaster Recovery Framework

PEDA Plano Estratégico de Desenvolvimento Agrícola / Agriculture Strategic Development Plan

PEDS Plano Estratégico de Desenvolvimento Sustentável/ Strategic Plan on Sustainable Development

PIO Public Information Officer

PLENAS Plano Estratégico Nacional de Água e Saneamento / National Strategic Water and Sanitation Plan

PNIA Plano Nacional de Investimento Agrícola / National Agricultural Investment Plan

PNIG Plano Nacional para Igualdade de Gênero / National Plan for Gender Equality

POOC_M Plano de Ordenamento da Orla Costeira e do Mar / Coastal and Sea Management Plan

PPE Personal Protective Equipment

PPP Public-Private Partnership

R&D Research and Development

REFLOR-CV Resiliência das florestas Cabo Verde / Resilience of Forestry Sector to Climate Change

SAR or S&R Search and Rescue

SD Sustainable Development

SDG Sustainable Development Goal

SIDS Small Island Developing States

SINAGERD Sistema Nacional de Gestão de Risco de Desastres / National Disaster Risk Management System

SIT-CV Sistema de Informação Territorial de Cabo Verde / Territorial Information System of Cabo Verde

SMPCB Serviço Municipal de Proteção Civil e Bombeiros / Municipal Civil Protection and Fire Service

SNPC Serviço Nacional de Proteção Civil National Civil Protection Service (replaced by SNPC-B)

SNPC-B Serviço Nacional de Proteção Civil e Bombeiros / National Civil Protection and Fire Service (see also CVCP)

SOP Standard Operating Procedure

S&T Science and Technology

TACV Transportes Aéreos de Cabo Verde / Cabo Verde Air Transport

UK United Kingdom

ULCV Universidade Lusófona de Cabo Verde/ Lusófona University of Cabo Verde

UM Universidade Mindelo/ Mindelo University

UN United Nations

UNDAC United Nations Disaster Assessment and Coordination

UNDAF United Nations Development Assistance Framework

UNDP United Nations Development Programme

UNDRR United Nations Office for Disaster Risk Reduction

UNFCCC United Nations Framework Convention on Climate Change

UNFPA United Nations Population Fund or United Nations Fund for Population Activities

UNHCR United Nations High Commissioner for Refugees

UNICA Universidade Intercontinental de Cabo Verde/ Intercontinental University of Cabo Verde

UNICEF United Nations Children's Educational Fund

Uni-CV or UNICV Universidade de Cabo Verde/ University of Cabo Verde

US United States or Universidade de Santiago / Santiago University

USAFRICOM US Africa Command (see also AFRICOM)

USAID United States Agency for International Development

USD United States Dollar

UTA Universidade Técnica do Atlântico / Technical University of the Atlantic

VAT Value Added Tax

WADPI West Africa Disaster Preparedness Initiative (of AFRICOM)

WAEMU West African Economic and Monetary Union

WAI West Africa Institute

WASH Water, Sanitation, and Hygiene

WCO World Customs Organization

WTO World Trade Organization

WHO World Health Organization

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EXECUTIVE SUMMARY

CABO VERDE NATIONAL DISASTER PREPAREDNESS BASELINE ASSESSMENT

OVERVIEW

The Pacific Disaster Center (PDC) completed the Cabo Verde National Disaster Preparedness Baseline Assessment (NDPBA) in partnership with the Republic of Cabo Verde Ministry of Internal Affairs (Ministério da Administração Interna, MAI) and Civil Protection and Fire Service (Serviço Nacional de Proteção Civil e Bombeiros, SNPC-B). Throughout the NDPBA, hazard-based risk, vulnerabilities, resilience, and disaster management capabilities were researched and analyzed to produce scientific data for use in the decision-making process during all phases of disaster management.

The NDPBA provides stakeholders with analytical tools, scientific data, and evidence-based practices for the disaster management community in Cabo Verde to reduce disaster risk and support response efforts. The results are based on desk research and data made available by Cabo Verde Partners between 2019 and 2021. The methodology and associated recommendations align with the United Nations Sustainable Development Goals (UNSDGs) and the Sendai Framework for Disaster Risk Reduction (Sendai Framework) 2015-2030.

The NDPBA was funded by the United States Government through the United States Africa Command and conducted in coordination with the United States Embassy in Praia. Although SNPC-B was PDC's in-country partner during this project, PDC also developed relationships and data-sharing agreements with multiple government and non-governmental agencies in Cabo Verde that supported the data gathering and vetting process.

The full report presents the collected data, assessment results, analysis of these results, and recommendations for closer alignment to the Sendai Framework. The following sections summarize findings for executive review.

Although Cabo Verde is a small country with challenges related to climate change, it has made meaningful progress towards understanding risks from contemporary and future climate hazards. Understanding these risks creates an environment that allows the disaster management community to prepare the foundation for reducing disaster risk and increasing capabilities for disaster preparedness and response. Although significant progress has been made toward disaster risk reduction, challenges exist for increasing economic resilience and reducing socioeconomic vulnerabilities. Cabo Verde's military capabilities and its role in the ECOWAS are critical strengths in creating and maintaining its disaster management (DM) capacity.

Cabo Verde's economy is driven by the service sector, making up about 70% of the GDP.[1] The country relies heavily on tourism, representing about 25% of the GDP and 40% of overall economic activity. Personal remittances are a significant source of income, equal to about 14% of GDP in 2020.[2] In contrast; agriculture makes up only 6% of GDP. With few natural resources and limited arable land, Cabo Verde relies on external resources to satisfy needs for food and energy. Urban poverty and

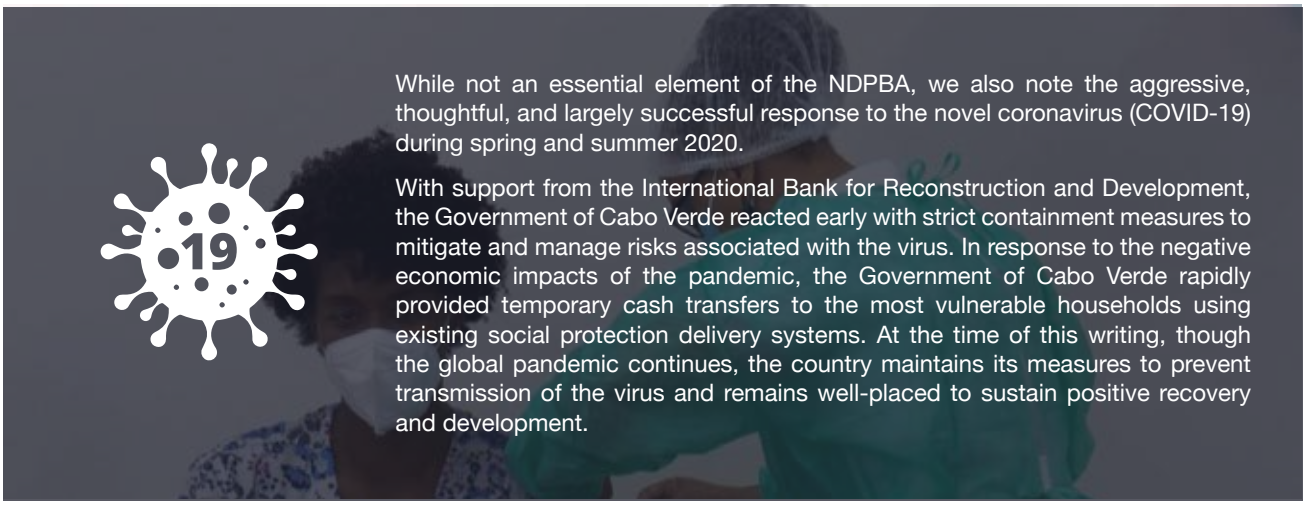
equitable access to information and resources also challenge broader economic advancement and sustainable development. Combined with dependence on external money transfers, the economy is sensitive to external shocks and disruptions in normal functions.

While the COVID-19 pandemic struck Cabo Verde at a time of strong economic development, the shutdown of the tourism sector consequently contracted total GDP by nearly 15% in 2020, reversing recent progress in economic development and poverty reduction.[2] Furthermore, the dispersed nature of the islands complicates the equitable distribution of resources to more remote populations. The impact of the global pandemic, combined with Cabo Verde's exposure to multiple natural hazards, puts additional strain on the economy and social services, environmental resources, and critical infrastructure.

Cabo Verde suffered from past disease outbreaks, with a Cholera Outbreak in 1995 affecting all nine islands and a Dengue Outbreak in 2009 affecting the islands of Brava, Fogo, Maio, and Santiago. These events resulted in the expansion of healthcare systems and the establishment of at least four regional hospitals, serving patients from multiple islands with emergency room capabilities and forming a public health delegation unit within each municipality. Expansion of the health care system has helped the country respond to the global COVID-19 pandemic.

In the face of these challenges, the Government of Cabo Verde has taken essential steps to provide for the safety of its citizens. Among these are the 2012 legislation establishing the general basis of civil protection in Cabo Verde delineating the duties of the National Civil Protection Service (SNPC-B) under the Ministry of Internal Affairs and decentralizing the functions allow preparedness and response capacity building.

The SNPC-B's role as the chief coordinating agency for disaster management encompasses mobilizing DM actors, protecting public health and safety, restoring government services, and providing emergency relief to disaster-affected populations. SNPC-B's function was strengthened by establishing the Regional Command Centers and Municipal Fire Services (Bombeiros) in each of the 22 municipalities. Together these steps have bolstered subnational DM capacity and enhanced overall DM coordination.



While not an essential element of the NDPBA, we also note the aggressive, thoughtful, and largely successful response to the novel coronavirus (COVID-19) during spring and summer 2020.

With support from the International Bank for Reconstruction and Development, the Government of Cabo Verde reacted early with strict containment measures to mitigate and manage risks associated with the virus. In response to the negative economic impacts of the pandemic, the Government of Cabo Verde rapidly provided temporary cash transfers to the most vulnerable households using existing social protection delivery systems. At the time of this writing, though the global pandemic continues, the country maintains its measures to prevent transmission of the virus and remains well-placed to sustain positive recovery and development.

Cabo Verde has a relatively robust parliamentary and legal system and the economy is supported by external donors, but budget deficits make it difficult to assign a dedicated DM budget to cover disaster losses. Despite the challenges noted above, the country has a well-regulated and relatively stable financial system.

While the country has policies and plans to address the DM cycle, it is experiencing difficulties in aligning the implementation of the legal framework with the national and municipal agendas with limited budgets. Furthermore, strategic policies and plans need updating since they were drafted more than ten years ago. Nonetheless, the plans to revise the Civil Protection Base Law and Draft Decree Law professionalizing firefighting and civil protection careers are promising. They will align the system to the National Disaster Risk Management System (SINAGERD) that the National Strategy for DRR 2018-2030 (ENRRD) promises.

SUMMARY OF FINDINGS

The Ministry of Internal Affairs (MAI), through the National Civil Protection and Fire Service (SNPC-B), leads the nation's effort in preparing for, responding to, and recovering from disasters. Committed to an all-hazards approach for disaster risk management, SNPC-B coordinates and mobilizes key stakeholder organizations and resources. These include government ministries and agencies, protective services, non-governmental organizations (NGOs), and community- and faith-based organizations in all phases of disaster management to prevent and reduce hazard impacts at the national level.

SNPC-B develops plans and procedures for vertical and horizontal support of comprehensive disaster management and disaster risk governance in coordination with the 22 municipal governments and national agencies. These include the National Meteorology and Geophysics Institute (INMG), Cabo Verde National Guard and Coast Guard (CVCG), Cabo Verde Red Cross (CVCV), and through international support.

Research findings identify potential gaps in plan formalization and integration, capacity building, equitable allocation of disaster response resources, disaster financing (especially at the municipal levels), addressing the needs of vulnerable populations, information management and sharing, early warning capabilities for hazard monitoring, and mitigation of sudden onset or slow-onset disasters including long-term climate impacts.

NATURAL HAZARD EXPOSURE

>136,000

people affected by natural disasters (2010 - 2020)

70,000

people affected by flooding in 2017

Economic growth is projected to average 4.6% through 2022 as economic conditions improve and fewer global supply chain disruptions combine to drive private consumption and investment. Inflation is projected at 1.3% and is expected to remain low in the medium term.

The COVID-19 pandemic struck Cabo Verde at a time of strong economic development. The shutdown of the tourism sector consequently contracted total GDP by nearly 15% in 2020, stalling recent progress in economic development and poverty reduction.

Efforts are already underway to move toward more significant disaster risk reduction and resilience. With substantial external financing from the International Bank for Reconstruction and Development (IBRD), the International Association for Development (IDA), and partnering nation-states (primarily Japan, Portugal, and the United States), the government of Cabo Verde has made headway toward integrating NGO, private sector, and academic partners into Disaster Risk Management/Disaster Risk Reduction (DRM/DRR) initiatives, integrating its fire services into the DRR/DM frameworks and enhancing climate mitigation and adaptation strategies. While a great deal has been accomplished, the results of the NDPBA analysis form recommendations to be taken by the Government of Cabo Verde and its partners to increase resilience, enhance disaster management, and address the challenges of disaster risk reduction.

RECENT MAJOR DISASTERS

2020
Flood

1,050 people affected
on Santiago and Brava Islands.

2017
Drought

70,000 people affected
across the country.

RECOMMENDATIONS

These recommendations are included in greater detail in the body of the report. Our hope is that the Government of Cabo Verde and critical development and disaster management partners will leverage the results of this comprehensive assessment to enable a more robust and sustainable disaster risk-reduction effort in Cabo Verde.

IN LIGHT OF OUR FINDINGS, PDC MAKES THE FOLLOWING RECOMMENDATIONS:

1 **Formalize disaster management competencies within SNPC-B.** Ensure an established civil security career pathway and continuity in policies and planning in SNPC-B for effective DM and DRR.

2 **Strengthen the Regional Operational Commands.** Legally establish/charter the Civil Protection Regional Command Centers to provide more authority and autonomy with dedicated budgets.

3 **Fully implement a standard incident management system at all levels of government.** Include Incident Command System training for the management of the NEOC.

4 **Develop a formal mechanism to assess progress made toward achieving DRR and Sustainable Development Goals.** Ensure consistency in developing, reinforcing, and implementing policies, plans, practices, and legal and institutional mechanisms towards a common agenda for sustainable growth, food security, public health and safety, environmental management, and disaster risk reduction.

5 **Update policies to ensure NGOs, private sector partners, other sectoral organizations, and academia are comprehensively engaged in government disaster management efforts in a coordinated and complementary manner.** Formalize and build relationships with key partners in these sectors. Formally integrate them into plans.

6 **Revise legislation on national and subnational DM budget(s).** For example, ensure adequate funding to improve DM/DRR operational capacity and training, education, and R&D needs.

7 **Develop a national risk transfer strategy for natural hazards.** Develop a catastrophic risk insurance market with proper regulatory mechanisms for affordable premiums and market solvency, working with regional banks and private insurance companies.

8 **Create affordable formal microfinancing mechanisms through public-private partnerships (PPPs).** Leverage existing disaster financing programs.

9 **Engage the public to support DM efforts to reduce dependency on the government.** Legal provisions establish a robust foundation for government-led emergency preparedness-related activities engaging the public, private sector, NGOs, and government agencies.

10 **Create Continuity of Operations/Continuity of Government plans for all levels of government.** Share ministerial and departmental COOP/COG plans to reduce overlapping requirements and increase inter-operability during continuity operations.

11 **Update existing plans and develop plans and procedures for all phases of DM.** Standardize planning guidance and develop associated templates for multiple hazards covering all disaster management phases and accounting for unique geographical challenges of the archipelago.

12 **Enhance Cabo Verde's operational framework and disaster service capacity to meet international standards.** Include scalable EOPs, training and Exercises, better logistics and warehousing systems by leveraging international DM and coordination networks.

13 **Improve and expand the national shelter system.** Include shelter inventories with capacity and suitability needs to be assessed for anticipated disasters.

14 **Enhance Cabo Verde's disaster facilities and equipment quality and quantity through proper funding mechanisms.** Include funding for fire stations, hazard monitoring facilities, warehouses, and logistics supply systems.

15 **Build human resource capacity across the nation to support DM efforts.** Include firefighters, civil protection staff as well as scientific staff.

16 **Enhance the healthcare capacity and quality across the archipelago for increased access and disaster resilience.** Create legal instruments to regulate the emergency health care system with accountability, credibility, and service quality.

17 **Enhance functional capabilities, including evacuation, security, WASH, HAZMAT, and SAR.** Integrate sectoral and community plans to national plans.

18 **Institute and expand training programs and exercise requirements.** Link competencies to key leadership positions and all relevant DM staff.

19 **Include DRM in S&T Agenda and leverage academia for knowledge generation specific to Cabo Verde.** Mainstream DRR, risk awareness, and preparedness in school curricula and develop strategies to engage the public in preparedness and resilience-building campaigns.

20 **Strengthen construction code enforcement mechanisms.** Ensure building codes properly reflect hazard zones and are enforced to prevent crowding and reduce risk in disaster-prone areas.

21 **Develop reliable communications networks to connect police, fire brigades, and the municipal Civil Protection services.** Consider establishing a satellite-accessible network to enhance DM communications between islands.

22 **Establish risk and vulnerability assessments requirements in DM and DRR planning efforts nationally and for each municipality.** Formalize the inclusion of climate change criteria in risk assessments through collaboration with relevant stakeholders, mainly through research associations with the academic and private sectors.

23 **Increase information access and sharing among all DM stakeholders by developing or promoting a COP platform.** Establish/maintain risk mapping capacity and a centralized GIS system to support risk assessment reporting at the national and subnational level with adequate training of staff and create/update/maintain a national disaster loss database linked to the national statistics agency INECV.

24 **Institutionalize standards for damage and needs assessments.** Develop a nationally authorized assessment methodology, making them a requirement under the declarations process, assigning adequate resources and trained personnel, and engaging all relevant DM stakeholders; adopt a methodology and conduct training.

25 **Invest in technologies for hazard monitoring and early warning and establish protocols around them to build capacity for resilience.** Enhance EWS to target more than 75% of the population and adapt as needed to reach vulnerable populations.

26 **Invest in data and technology to support updated flood hazard mapping.** High-resolution elevation models can support probabilistic flood exposure mapping to contemporary and future hazards for the entire country.

27 **Build economic resilience at the individual, household, municipal, and national levels.** Invest in human capital by expanding access to higher education and facilitating education and training programs linked to sustainable development priorities for the nation's economic diversity, growth, and profitability.

28

Increase access, availability, and sustainability of clean water and sanitation. Strengthen collaboration between government, non-governmental organizations, and social service agencies to address rural disparities in access to clean water and sanitation infrastructure.

29

Reduce marginalization and promote gender equality. Promote policies that support economic and educational opportunities for women, including equal income, employment, land and homeownership, and access to credit.

30

Reassess progress made toward DRR and resilience goals. Update the NDPBA, including both the RVA and DMA analyses, to track progress toward reducing vulnerabilities, increasing coping capacities, and building disaster management capabilities supporting Cabo Verde's Disaster Risk Reduction and Sustainable Development Goals for a more resilient nation.

AN INTRODUCTION

TO PDC'S NATIONAL DISASTER PREPAREDNESS BASELINE ASSESSMENT *(NDPBA)*

The **NDPBA** uses a collaborative, stakeholder-driven approach, **PDC** worked to integrate national priorities and stakeholder feedback throughout every step of the process. The NDPBA for Cabo Verde included a Risk and Vulnerability Assessment **(RVA)** which examined several components of risk including exposure to hazards, vulnerability, coping capacity, and existing disaster management capabilities. The findings of the RVA were further reviewed through the lens of PDC's unique Disaster Management Analysis **(DMA)**. The DMA contextualizes the RVA and guides recommendations designed to increase resilience and reduce disaster risk. Findings of this analysis were compiled into a Disaster Risk Reduction **(DRR)** Plan offering practical actions to be taken over a five-year period.

To access all findings, recommendations, and data (tabular and spatial), developed for this analysis, please visit the Pacific Disaster Center's DisasterAWARE platform at emops.pdc.org.

CABO VERDE

APPLYING ASSESSMENT RESULTS

The Pacific Disaster Center's (PDC) National Disaster Preparedness Baseline Assessment (NDPBA) is more than just an assessment; it is a sustainable system for accessing, understanding, updating and applying critical risk information in decision making. The NDPBA provides the necessary tools, scientific data, and evidence-based practices to effectively reduce disaster risk—informing decisions at the national, subnational, and local levels.

STRENGTHEN PARTNERSHIPS

- Use the NDPBA as a decision-support tool to create a transparent and efficient process for disaster risk reduction efforts within the context of Cabo Verde.
- Provides necessary tools and data for disaster monitoring to promote risk-informed decision making and sustainable development.
- Allows team members to conceptualize risk as a function of data, measuring the social, cultural, and economic drivers of risk.

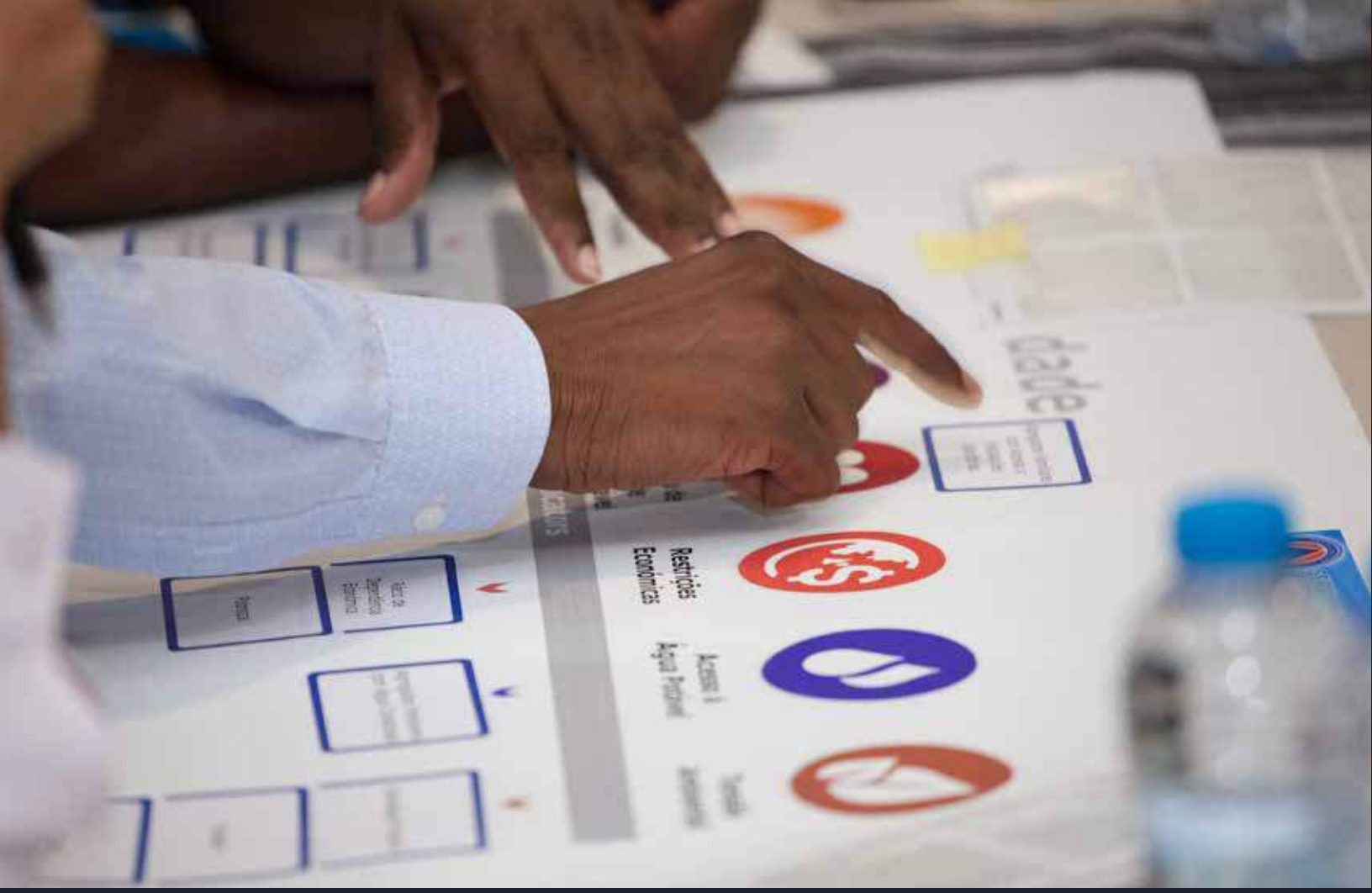
SUPPORT SENDAI COMMITMENTS

By participating in the NDPBA process, Cabo Verde significantly enhances its capacity to meet Sendai Framework commitments under each of these Priority Areas:

- **Priority 1** - Understanding Disaster Risk
- **Priority 2** - Strengthening Disaster Risk Governance to Manage Disaster Risk
- **Priority 3** - Investing in Disaster Risk Reduction for Resilience
- **Priority 4** - Enhancing Disaster Preparedness for Effective Response and to "Build Back Better" in Recovery, Rehabilitation and Reconstruction

INCREASE RESILIENCE

- Align in areas where partner capacity development efforts overlap.
- Improve resilience at the subnational level and reduce potential impacts to the population.
- Rely on trusted and proven data-driven tools.



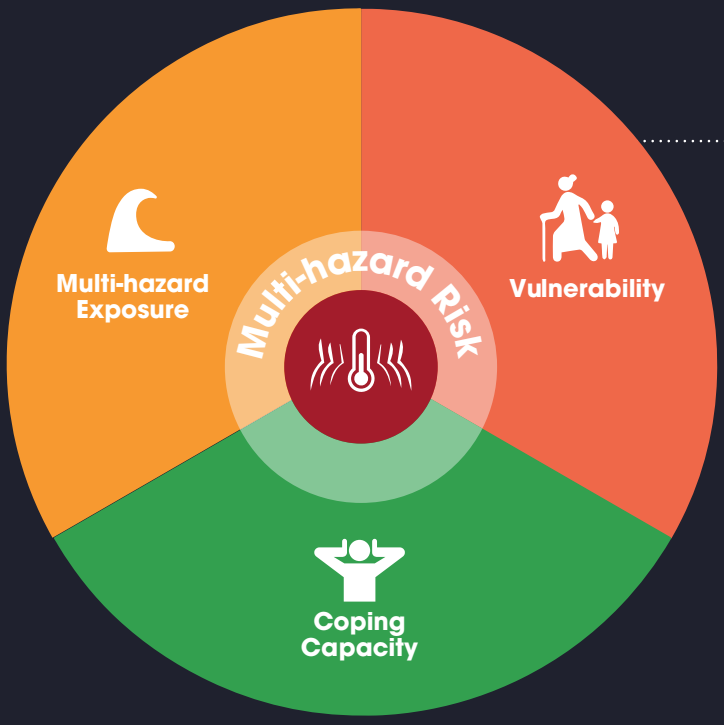
NDPBA

METHODOLOGY AND OBJECTIVES

OVERVIEW

MEASURING RISK

RVA METHODOLOGY | COMPONENTS OF RISK



SUBCOMPONENTS

- Population Pressures
- Gender Inequality
- Economic Constraints
- Information Access
- Clean Water Access
- Health Status
- Environmental Stress

The NDPBA methodology is based on a composite index approach and investigates the underlying conditions that lead to increased risk. The assessment combines several components of risk which include multi-hazard exposure, coping capacity, and vulnerability. Individual components are comprised of subcomponents used to assess the status of thematic areas either as a sum or individually. Additional information on the assessment methodology can be found at: https://pdc.org/methodology.

OBJECTIVES

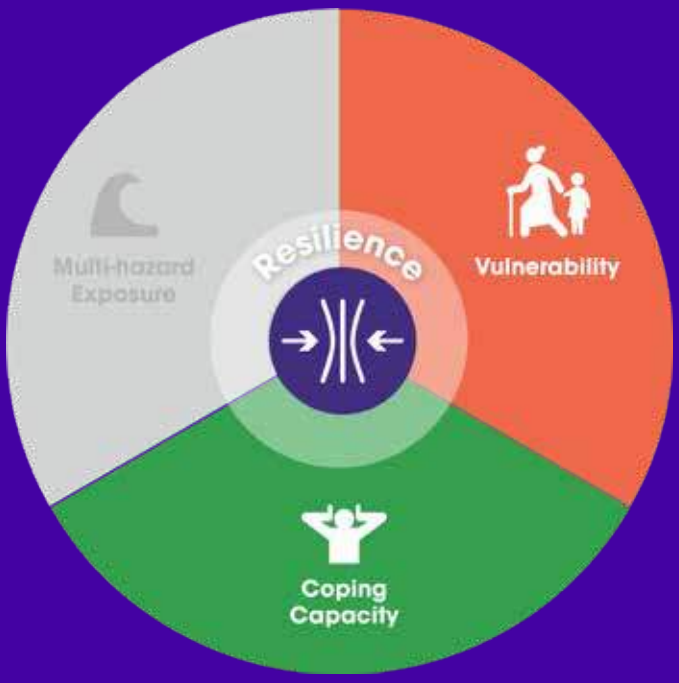
Form a foundation for long-term data sharing and monitoring to support disaster risk reduction.

Enhance decision making through improved access to temporal and spatial data.

MEASURING RESILIENCE

RVA METHODOLOGY

RESILIENCE



HAZARD INDEPENDENT

The measure of resilience includes vulnerability and coping capacity components, including their subcomponents. Components of resilience are independent of natural hazard exposure. This type of measure helps rank countries based on their likelihood of experiencing a disruption outside of a naturally occurring event.

OBJECTIVES

Use vulnerability and coping capacity indicators to determine initiatives and engagements that will decrease vulnerability and reduce disaster risk by increasing the resiliency of the population.

KEY CONCEPTS

RVA METHODOLOGY

EXAMPLES AND DEFINITIONS

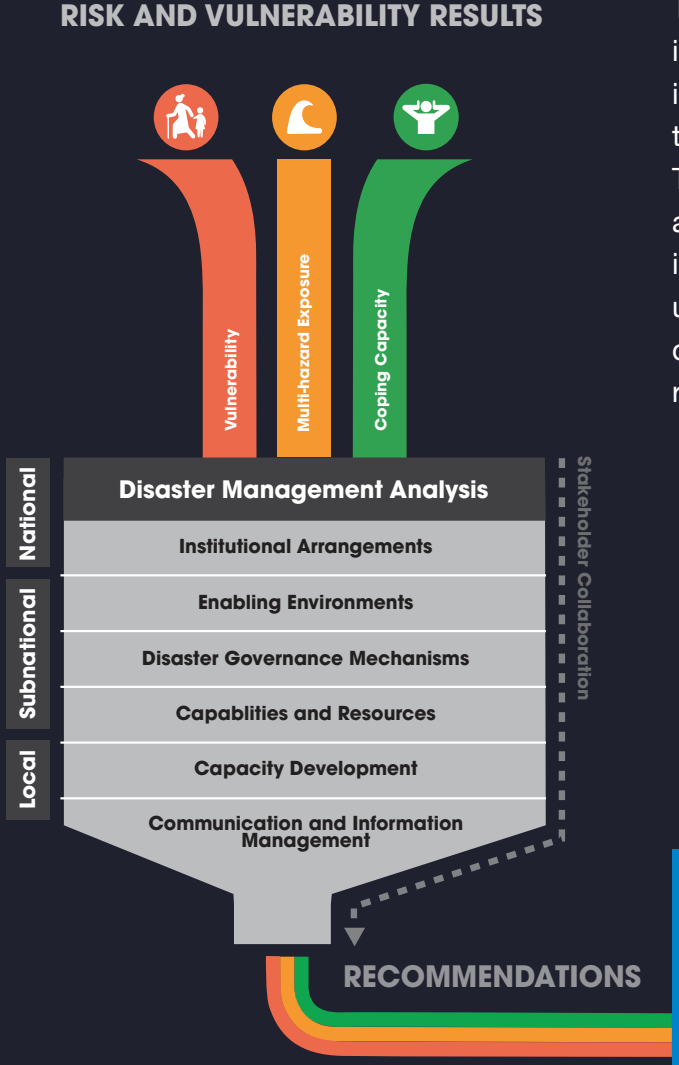
VULNERABILITY: Provides visibility into the underlying socioeconomic and societal factors that predispose areas to disasters. A vulnerability analysis measures the physical, environmental, social, and economic conditions and processes that increase the susceptibility of communities and systems to the damaging effects of hazards. Multiple factors influencing disaster outcomes, including those linked to poverty and development, are considered in the analysis.

COPING CAPACITY: Provides visibility into the status of governance and capacity within each municipality. A coping capacity analysis measures people and societies' systems, means, and abilities to absorb and respond to disruptions in normal function. It considers a range of factors that contribute to the ability of an impacted population to limit the likelihood or severity of the damaging effects of hazards and to manage disruptions that do arise.

RESILIENCE: Provides an overall measure of the ability of a municipality to withstand shocks and disruptions to normal function. For instance, districts with lower resilience may also exhibit a decrease in the ability of a population to mitigate the negative impacts of a disaster and return to normal function. This measure is the combination of the vulnerability and coping capacity components.

DISASTER MANAGEMENT ANALYSIS

DMA METHODOLOGY



The Disaster Management Analysis (DMA) identifies, codifies, and characterizes capacity implementation needs given risks identified in the RVA and a country's risk reduction goals. The analysis looks at the capabilities, resources, and systems that have been developed or implemented to reduce disaster risk, to address unmet needs that arise from a subsequent disaster event, and to facilitate long-term recovery of people, economies, and societies.

ANALYSIS OBJECTIVES

Increase resilience and reduce disaster risk through disaster management capacity development initiatives.

DISASTER MANAGEMENT THEMES

The DMA aims to limit hazard risk as assessed and address the anticipated response and recovery needs of hazard-exposed populations, economies, and societies. The manner in which unmet capacity is identified, qualified, and quantified supports a sharper focus on cost-effective investment planning. It also helps support long-term development that directly reflects the Sendai Framework and Sustainable Development Goals. The analysis considers needs in relation to multi-hazard risk and is based on sector-defined capacity standards. Associated themes are listed below with examples of the data and information that help to inform the analysis.

Institutional Arrangements

Enabling Environment

Disaster Governance Mechanisms

Capabilities and Resources

Capacity Development

Communication and Information Management

COUNTRY BACKGROUND AND OVERVIEW

GEOGRAPHY

GEOGRAPHY

Location: Cabo Verde is an island country in the North Atlantic Ocean, located 620 km (385 miles) west of Senegal, spanning an archipelago of ten (10) volcanic islands, nine (9) of them inhabited. The total area of Cabo Verde is 4,033 square kilometers (1,557 square miles). The capital, Praia, is located on Santiago Island in the south. The archipelago consists of the Barlavento island group to the north and the Sotavento island group to the south. The Barlavento Islands are Santo Antão, São Vicente, Santa Luzia (not inhabited), São Nicolau, Sal, and Boa Vista, and the islets of Branco and Raso. The Sotavento Islands consist of Maio, Santiago, Fogo, Brava, and the islets Rombos-Grande, Luís Carneiro, and Cima.[3]

Nearest Neighboring Country

620 km
from the tip of Senegal

4,033 km²
Total Area ~1557 mi²

965 km²
Coastline ~600 mi

22
Municipalities

10
Islands

ISLANDS	MUNICIPALITIES
Barlavento Islands (Windward)	
Santo Antão	Paul, Porto Novo, Ribeira Grande
São Vicente	Sao Vicente
São Nicolau	Ribeira Brava, Tarrafal De Sao Nicolau
Sal	Sal
Boa Vista	Boa Vista
Sotavento Islands (Leeward)	
Maio	Maio
Santiago	Praia, Ribeira Grande De Santiago, São Domingos, São Lourenço Dos Órgãos, São Salvador Do Mundo, Santa Catarina, Tarrafal, Santa Cruz, São Miguel
Fogo	Mosteiros, Santa Catarina Fogo, São Filipe
Brava	Brava

GEOLOGY AND CLIMATE

Cabo Verde is within the Sahel region of Africa, which is the ecoclimatic and biogeographic area of transition covering the Sahara to the north and the Sudanian savanna to the south.[3] Cabo Verde has a generally moderate climate with the lowest temperatures around 70 °F (low 20s °C) in February and highest in August and September with temperatures in the low 80s °F (high 20s °C). The country is affected by the two-season nature of the intertropical convergence zone, affected by calm winds from Europe in winter, and hot and humid Guinea Currents bringing precipitation to higher elevations during the summer months. Precipitation levels vary yearly depending on how far north the intertropical convergence zone progresses and how much tropical moisture it carries. Some years go by without precipitation. Hurricanes usually generate in the warm waters surrounding Cabo Verde and move westward across the Atlantic Ocean to the Caribbean and eastern coast of the U.S.[3] Fogo island has an active volcano with a caldera that presents rich biodiversity fertile soils fit for agricultural activities.[5]

Key climate change risks


Floods


Forest Fires


Severe Storms


Precipitation-induced Landslides


Drought


Extreme Temperatures


Food Insecurity


Water- and Vector-borne Diseases

DEMOGRAPHICS

556,859

Total population (2020, projected)

1.3 %

Avg. annual population growth (2000-2020)

138 per km²

53.3 per mi²

Population Density

168,000

Population by region – Praia ~30% of total population

67.1% urban

Urban vs. Rural population

Ethnic groups population

28% African

71% Mixed Race

1% European

7.7

Physicians per 10k people

73

Avg. life expectancy (2019)[4]

13

Infant deaths per 1k live births

13

Nurses per 10k people

21

Hospital beds per 10k people

88.9%

Adult literacy

Access to Information

93.4%

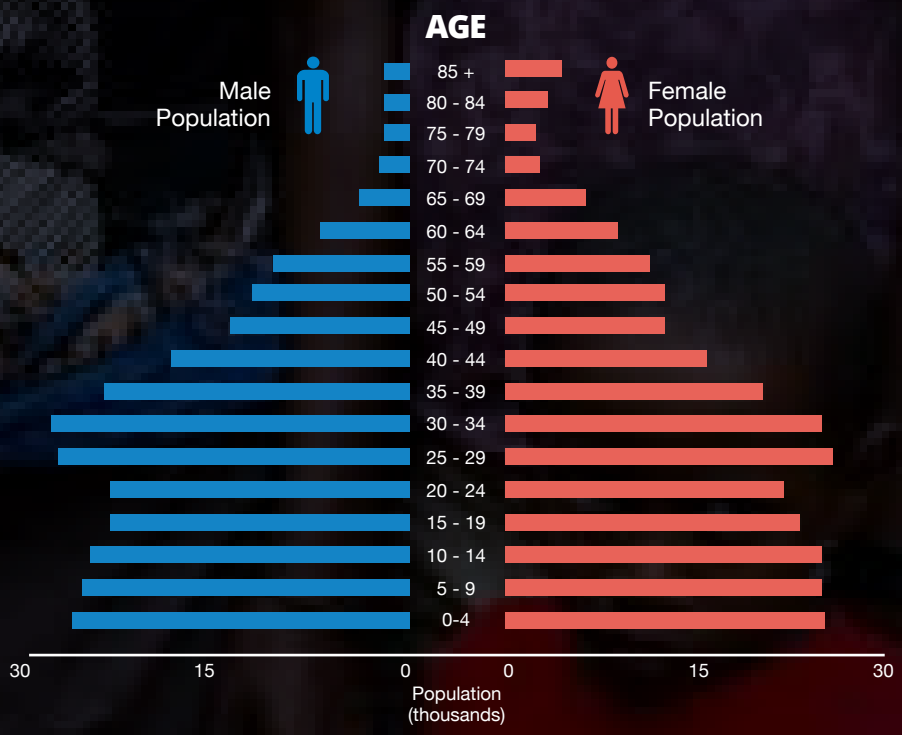
Net Enrollment in Primary School (2018)[4]

20%

Population 25+ with at least Upper Secondary Education (2015)[4]

67%

Household with Internet Access (2019):



ECONOMY

As of 2020, Cabo Verde's GDP was $1.704 billion (USD), down from $1.982 billion the previous year.[4] Tourism is the primary economic sector followed by agriculture.[6,7] Cabo Verde has few natural resources. Water supply is a significant problem, and there are no domestic sources of energy except firewood and renewables (wind and sunlight). Cabo Verde exports fish, salt, pozzolana (porous volcanic ash used in cement making, among other things), rum, animal hides, bananas, and coffee. Cabo Verde relies on imported food with top imports being cereals, fruits and vegetables, and beverages, as well as fuel and building materials. Portugal and Spain are the top two trade partners, while other main ones are the Netherlands, Belgium, the U.S., and China.3 Although poverty rates have significantly dropped over the past decade, poverty and income inequality remains to be a pressing challenge in Cabo Verde.[8,9]

$1.704 billion (-14%)
GDP (2020)

$3,064
GDP per capita (2020)[4]

1.16%
Avg. annual growth in GDP (2010-2020)

23.7%
People living below national Poverty line (2015)

Defined as USD 1.90 per day

MAJOR EXPORTS

Prepared meats

Knit apparel

Seafood

Footwear

Toys & sports equipment

Industrial machinery

SECTORS (% OF GDP)

73.7%
Services

17.5%
Industry

8.9%
Agriculture (2017 est.)

TOURISM

Tourism is the main economic driver of Cabo Verde's economy, accounting for at least 24% of the country's GDP. Visitors mainly come from Europe, with the largest share from the UK (24%). Sal and Boa Vista are the two most famous islands that offer "sun, sea, and sand" international operators. The Cabo Verdean government prioritizes tourism sector development through the diversification of the tourist portfolio by promoting other attractions such as sea turtle nesting sites, sailing, yachting, wind and kite surfing, game fishing, scuba diving, hiking and trekking, volcanic exploration, birdwatching, canyoning, cruise ships, retirement tourism, and cultural activities including music festivals, all through private sector investment.[7,11]

Cabo Verde had about 820,000 visitors in 2019 and anticipated increasing that number to 1 million in 2021. However, COVID-19 brought the tourism industry to a halt, causing economic shock.

KEY INFRASTRUCTURE

LOGISTICS

7
Airports

1
Large (Amílcar Cabral International Airport

5
Medium

1
Small

4
Communication Towers

8
Medium Size Ports

1
Small (Praia) Ports

8
Very Small Ports (Operated by the Cabo Verde Port Authority)

1,176 km
Roads

366
Bridges

Archipelago requires marine or air transportation for essential supplies, emergency relief, medical, goods, and services

ENERGY

80% imported
80% energy supply imported (petroleum); 20% renewables (wind and solar)

91.4%
Access to electric lighting (2019)

High cost of electricity – Government aims to increase renewable energy to 50% by 2030

WATER, SANITATION & HYGIENE

85.5%
Population with access to improved drinking water (2019)

85.2%
Households with access to wastewater system (2019)

8
Water and wastewater facilities

32
Total Dams

Emergency Services

10
Hospitals

6
Fire Stations

428
Firefighters

26
Police Stations

SECURITY / DEFENSE FORCES

Army (FACV): National Guard & Coast Guard – Total 1,200 members (2021)

- National Guard – ground force with 2 infantry battalions and a small air component with a maritime patrol squadron
- National Guard has naval patrol craft and aircraft obtained second hand from Netherlands and Portugal
- Coast Guard – 100 members (headquartered in Mindelo, Sao Vicente Island) consists of Air, Naval, Boarding Team, and Transportation.
- Transportation units have coastal patrol craft and patrol boats on Sao Tiago (Praia), Sal, and Sao Vicente islands
- Role in disasters articulated in National Contingency Plan

EDUCATION

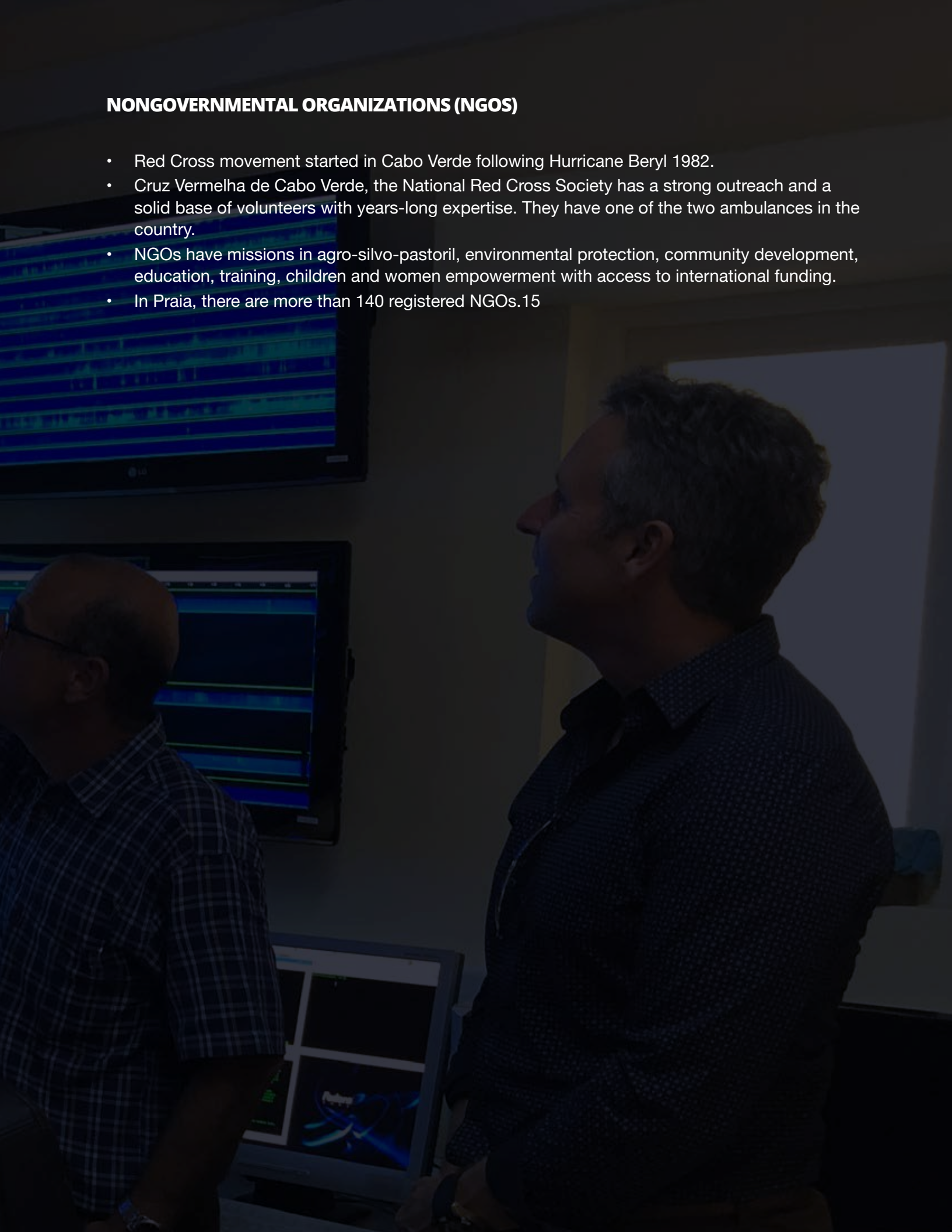
- Total Schools, Colleges, and Universities: 47
- 6-year primary education + 6-year secondary education – each divided into three phases
- Each municipality has at least one secondary school
- Higher Education is centralized in Praia, Mindelo, and Assomada
- Education Expenditures: 4.7% of GDP (2019 Rank: 74th)

UNIVERSITIES

- University of Cabo Verde (Uni-CV) – flagship university of Cabo Verde, conducts scientific research, provides technical advice and logistical support to various scientific councils, research centers, and other scientific units.13 - 4,025 students
- Higher Institute of Economic and Business Sciences (ISCEE) – 726 students
- Higher Institute of Legal and Social Sciences (ISCJS) – 580 students
- Lusófona University of Cabo Verde (ULCV) – 325 students
- Mindelo University (UM) – 691 students
- Intercontinental University of Cabo Verde (UNICA) – 193 students
- Jean Piaget University of Cabo Verde (UniPiaget) – 999 students
- Santiago University (US) 1,209 students
- University Institute of Art, Technology, and Culture (M_EIA) – 5 students
- Technical University of the Atlantic (UTA) – 467 students (2021-2022 AY)14

NONGOVERNMENTAL ORGANIZATIONS (NGOS)

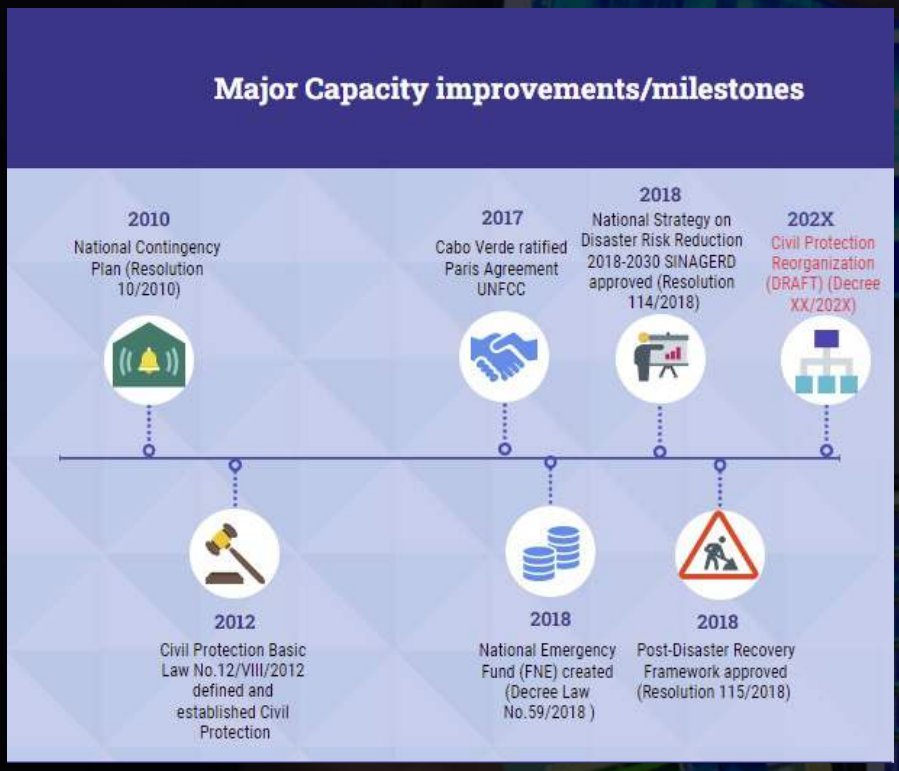
- Red Cross movement started in Cabo Verde following Hurricane Beryl 1982.
- Cruz Vermelha de Cabo Verde, the National Red Cross Society has a strong outreach and a solid base of volunteers with years-long expertise. They have one of the two ambulances in the country.
- NGOs have missions in agro-silvo-pastoril, environmental protection, community development, education, training, children and women empowerment with access to international funding.
- In Praia, there are more than 140 registered NGOs.15



DISASTER MANAGEMENT

Major capacity improvements/milestones (past 10 years):

- Resolution 10/2010 established the National Contingency Plan and formed the basis for all disaster preparedness plans ensuring effective coordination through national, subnational, and international levels.
- Civil Protection Base Law was established in 2012, forming the legal basis for all civil protection, DRR, and DM activities.
- The National Strategy on Disaster Risk Reduction (SINAGERD), approved in 2018, provides strategic guidance and calls for integrating DRR and DM into the development of policies at national and subnational levels.
- Post-Disaster Recovery Framework was created and approved via Resolution 115/2018.
- The civil protection structure will be reorganized to strengthen SNPC-B (forthcoming – currently in draft).



Major Capacity Improvements and Milestones

(Source: PDC desk research)

Major disaster impacts (1981 to 2021)[16]		
Tropical Cyclone Beryl (29 Sept 1982) Deaths: 3 Affected: 2,200 Losses: $3 million Affected Brava Island	**Tropical Cyclone Fran** (16 September 1984) Deaths: 29 Affected: 5,500 Losses: * Santo Antão and Santiago Island	**Cholera Outbreak** (November 1995) Deaths: 245 Affected: 12,344 Losses: $* All nine (9) inhabited islands
Drought and food shortage (June 2002-?) Deaths:* Affected: 30,000 people on Santo Antão and Santiago Islands Losses: *	**Dengue Outbreak** (September-Nov. 2009) Deaths: 6 Affected: 20,147 people on Brava, Fogo, Maio, and Santiago Islands Losses: *	**Pico de Fogo Volcano** Eruption (Nov.2014-Jan.2015) Deaths: * Affected: 2,500 people on Fogo Island Losses: $28 million
Flooding from rainfall and coastal flooding (2012-2016) Affected: Boa Vista, São Miguel, and Santo Antão Islands Losses: ~$10 Million Flood Losses	**Hurricane Fred** (Aug. 2015) Deaths: 9 Affected: All islands Losses: $2.5 million	**Drought** (2017) Affected: 70,000 (13% of population)
COVID-19 (March 2020-ongoing)	**Flooding** (September 2020) Deaths: 1 Affected: 1,050 people on Santiago and Brava Islands[17] Losses: *	

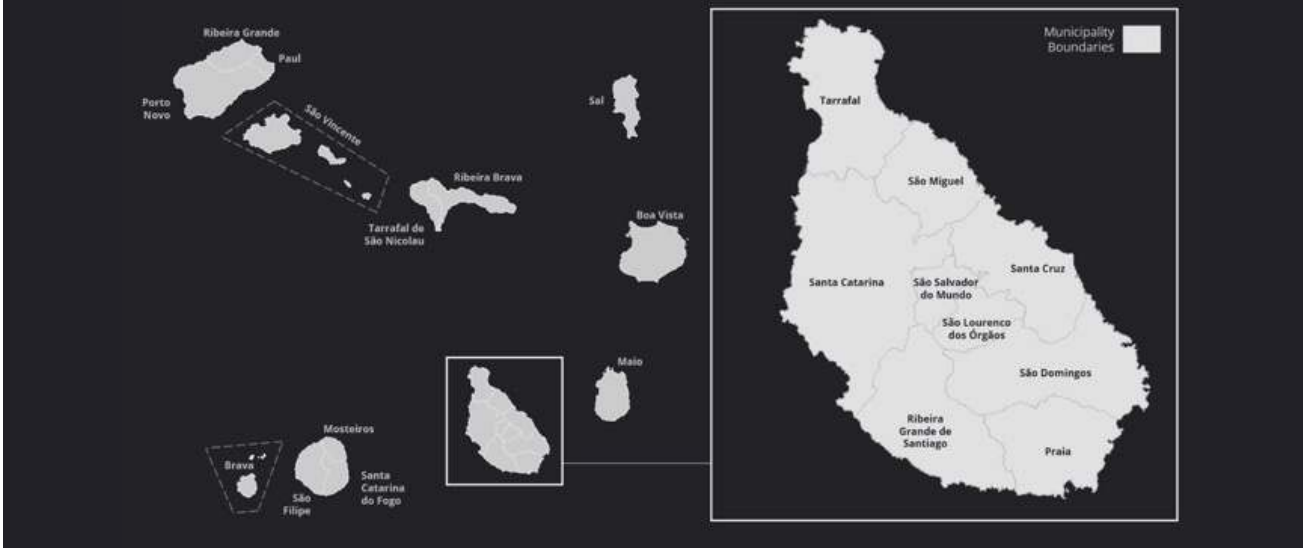
THE RVA

RISK AND VULNERABILITY ASSESSMENT RESULTS

RISK AND VULNERABILITY ASSESSMENT RESULTS

Provided in this section are the Risk and Vulnerability Assessment (RVA) results conducted by the Pacific Disaster Center as part of the Cabo Verde National Disaster Preparedness Baseline Assessment. For details on the methodology and datasets used, see Appendix A.

CABO VERDE MUNICIPALITIES



CABO VERDE BACKGROUND

Cabo Verde is a middle-income developing island country spanning an archipelago of ten volcanic islands. Nine of them are inhabited in the North Atlantic Ocean, located 620 km (385 miles) west of Senegal. Cabo Verde is a small country with a total area of 4,033 square kilometers (1,557 square miles). The capital Praia, located on Santiago Island in the south, is a central urban area with about 170,000 population where almost one-third of the Cabo Verdean population resides.18 Cabo Verde is divided into 22 municipalities (concelhos), forming the basis for RVA data comparison.

COMPONENTS OF RISK

Vulnerability

Coping Capacity

Multi-Hazard Exposure

THE RVA

MULTI-HAZARD EXPOSURE

MULTI-HAZARD EXPOSURE

Cabo Verde is located within the Sahel region of Africa, the ecoclimatic and biogeographic area of transition covering the Sahara to the north and the Sudanian savanna to the south. Precipitation in the region can be sparse, with long periods of drought. Hurricanes often originate from the warm ocean waters surrounding Cabo Verde and move westward across the Atlantic Ocean to the Caribbean and eastern coast of the U.S. Though Cabo Verde has been affected by tropical cyclones in the past, their occurrence in the islands is limited, and the country has been spared from significant hurricane impacts in recent years. Recurrent droughts are linked to severe food shortages and wildfires that mainly affect the islands of Fogo, Santo Antão, and Santiago.[16] Fogo Island has an active volcano with a caldera that presents rich biodiversity and fertile soils fit for agricultural activities. The Pico de Fogo volcano eruption in 2014-2015 caused physical damage to settlements and agriculture with estimated losses equivalent to $28 million.[19]

Cabo Verde's Global Multi-Hazard Exposure Rank

116 OUT OF 216 COUNTRIES / AREAS ASSESSED

Cabo Verde's Rank among West African nations

6 OUT OF 16 COUNTRIES / AREAS ASSESSED

CABO VERDE HAZARD ZONES

Multi-hazard exposure at the municipal level in Cabo Verde was assessed using hazard zones for drought susceptibility, flood susceptibility, earthquake-induced landslides, precipitation-induced landslides, forest fire susceptibility, and volcano susceptibility.

DROUGHT

92.1%
Relative Population Exposure

509,508
Raw Population Exposure

$5.5 Billion
Raw Economic Exposure (USD)

FLOOD

2.0%
Relative Population Exposure

10,867
Raw Population Exposure

$31.1 Million
Raw Economic Exposure (USD)

EARTHQUAKE-INDUCED LANDSLIDES

2.3%
Relative Population Exposure

12,848
Raw Population Exposure

$274.1 Million
Raw Economic Exposure (USD)

PRECIPITATION-INDUCED LANDSLIDES

6.9%
Relative Population Exposure

38,329
Raw Population Exposure

$1.1 Billion
Raw Economic Exposure (USD)

FOREST FIRE

29.5%
Relative Population Exposure

163,041
Raw Population Exposure

$1.9 Billion
Raw Economic Exposure (USD)

VOLCANO

6.7%
Relative Population Exposure

37,108
Raw Population Exposure

$567.9 Million
Raw Economic Exposure (USD)

MULTI-HAZARD EXPOSURE

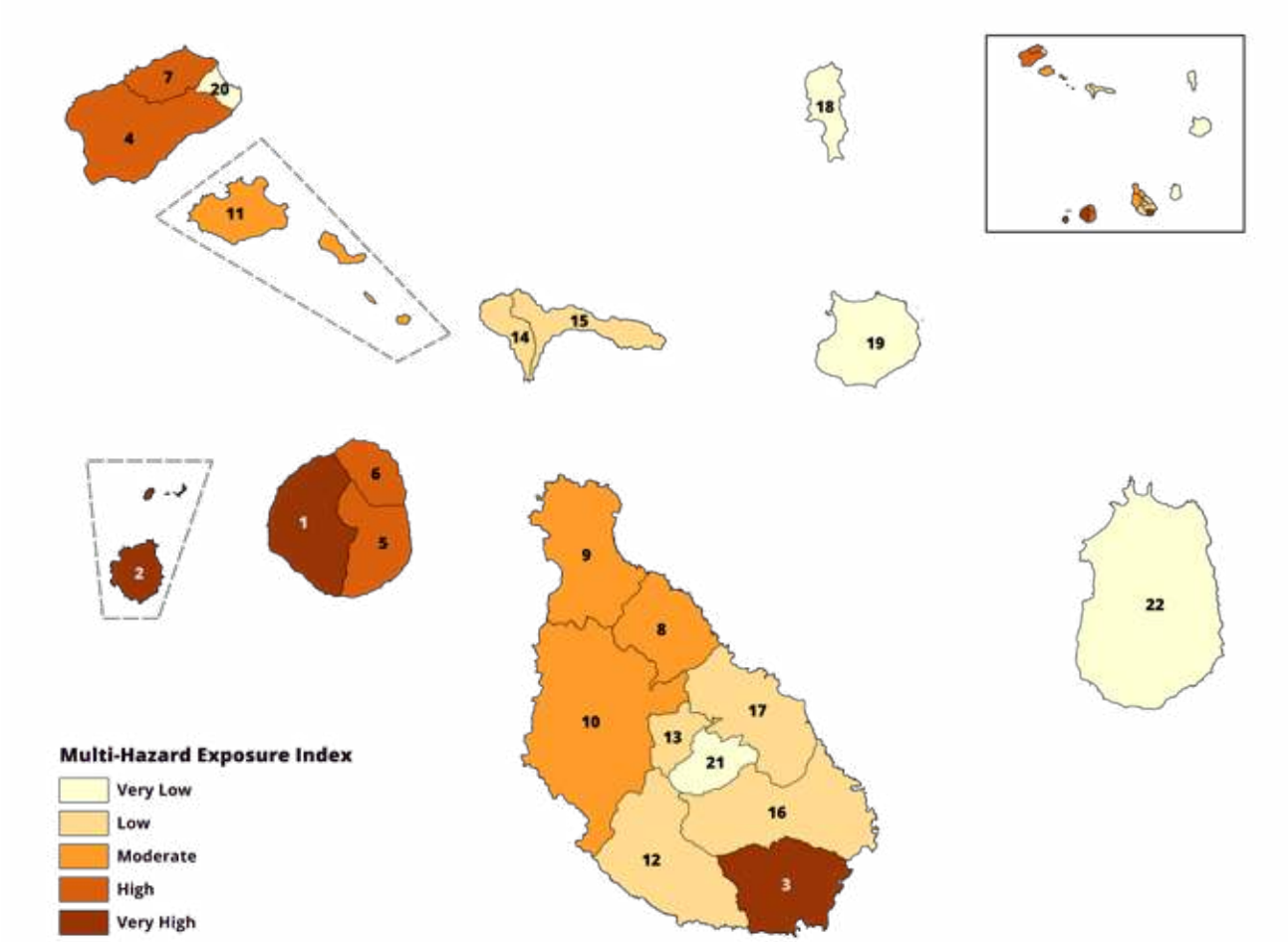
CRITICAL INFRASTRUCTURE SUSCEPTIBILITY BY HAZARD TYPE

	Drought	Flood	Earthquake-induced Landslides	Precipitation-induced Landslides	Forest Fire	Volcano
Communication Towers	3 (75%)	0 (0%)	0 (0%)	1 (25%)	2 (50%)	0 (0%)
Water & Wastewater Facilities	7 (88%)	0 (0%)	4 (50%)	4 (50%)	0 (0%)	0 (0%)
Airports	7 (100%)	0 (0%)	1 (14%)	0 (0%)	4 (57%)	1 (14%)
Ports	9 (100%)	0 (0%)	5 (56%)	3 (33%)	3 (33%)	1 (11%)
Bridges	342 (93%)	62 (17%)	42 (11%)	47 (13%)	110 (29%)	103 (28%)
Dams	32 (100%)	4 (13%)	5 (16%)	5 (16%)	15 (47%)	0 (0%)
Shelters	7 (100%)	0 (0%)	1 (14%)	0 (0%)	1 (14%)	0 (0%)
Hospitals and Clinics	67 (94%)	3 (4%)	3 (4%)	9 (13%)	4 (6%)	6 (8%)
Fire Stations	6 (100%)	1 (17%)	0 (0%)	0 (0%)	0 (0%)	1 (17%)
Police Stations	23 (88%)	0 (0%)	1 (4%)	1 (4%)	1 (4%)	3 (12%)
Schools and Universities	40 (85%)	0 (0%)	3 (6%)	6 (13%)	2 (4%)	3 (6%)
Places of Worship	83 (87%)	14 (15%)	13 (14%)	12 (13%)	6 (6%)	15 (16%)

MULTI-HAZARD EXPOSURE BY MUNICIPALITY

RANK	MUNICIPALITY	INDEX SCORE
1	Sao Filipe	0.748
2	Brava	0.570
3	Praia	0.560
4	Porto Novo	0.545
5	Santa Catarina Do Fogo	0.526
6	Mosteiros	0.483
7	Ribeira Grande	0.458
8	Sao Miguel	0.428
9	Tarrafal	0.422
10	Santa Catarina	0.413
11	Sao Vicente	0.407
12	Ribeira Grande De Santiago	0.400
13	Sao Salvador Do Mundo	0.400
14	Tarrafal De Sao Nicolau	0.398
15	Ribeira Brava	0.363
16	Sao Domingos	0.339
17	Santa Cruz	0.292
18	Sal	0.248
19	Boa Vista	0.232
20	Paul	0.162
21	Sao Lourenco Dos Orgaos	0.148
22	Maio	0.147

VERY LOW | LOW | MEDIUM | HIGH | VERY HIGH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Multi-Hazard Exposure Index
Very Low
Low
Moderate
High
Very High

THE RVA

VULNERABILITY

VULNERABILITY

Vulnerability measures the physical, environmental, social, and economic conditions and processes that increase the susceptibility of communities and systems to the damaging effects of hazards. Vulnerability data is designed to capture the multi-dimensional nature of poverty, the inequality in access to resources due to gender, and the ability of a given area to adequately support the population.

In coordination with stakeholders, the following indicators were selected to measure vulnerability subcomponents in Cabo Verde. Breaking down each vulnerability subcomponent to the indicator level allows users to identify the key drivers of vulnerability to support risk reduction efforts and policy decisions.

Cabo Verde's Global Vulnerability Rank (from PDC's global RVA)

72 OUT OF 204 COUNTRIES / AREAS ASSESSED

Cabo Verde's rank among West African nations

15 OUT OF 16 COUNTRIES / AREAS ASSESSED

VULNERABILITY SUBCOMPONENTS AND INDICATORS

Population Pressures
Average Population Change
Net Migration Rate
Youth Bulge

Gender Inequality
Gender Parity in Secondary Education Enrollment
Female to Male Labor Participation
Female Seats in Local Government

Information Access Vulnerability
Adult Literacy Rate
Average Years of Schooling
Percent of Households with Internet Access
Percent of Households with Television Access
Percent of Households with Radio Access

Environmental Stress
Livestock Density per Hectare
Use of Firewood for Primary Cooking Fuel
Loss in Tree Cover

Vulnerable Health Status
Infant Mortality Rate
Disabled Population
HIV Incidence
TB Prevalence

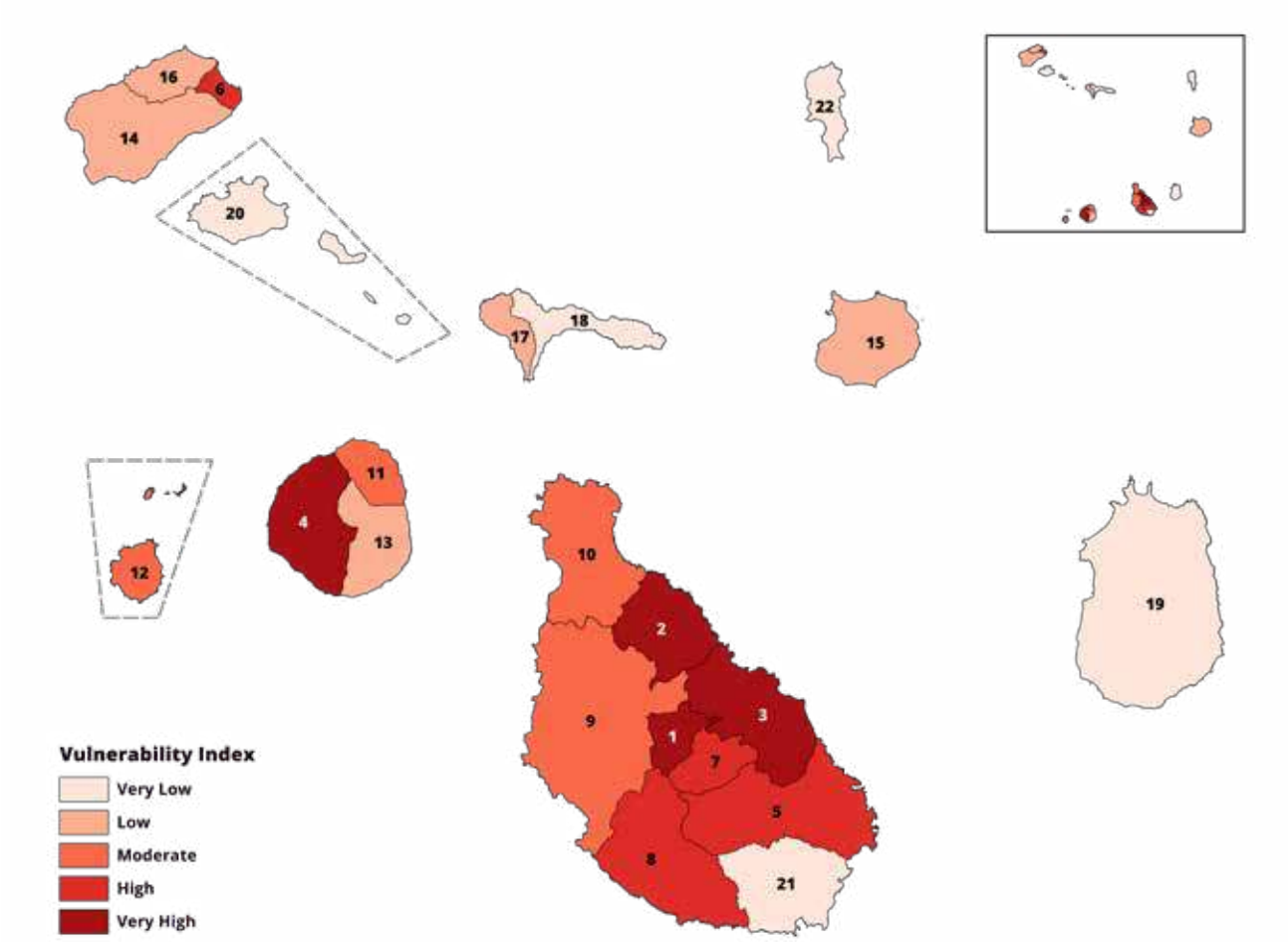
Clean Water Access Vulnerability
Percent of Population with Access to Clean Water
Percent of Households with Access to Wastewater System
Average Time to Collect Water

Economic Constrains
Population Below Poverty Line
Age Dependency Ratio
Unemployment Rate
Gini Index
Percent of Households Owning a Vehicle

VULNERABILITY BY MUNICIPALITY

RANK	MUNICIPALITY	INDEX SCORE
1	Sao Salvador Do Mundo	0.609
2	Sao Miguel	0.601
3	Santa Cruz	0.573
4	Sao Filipe	0.533
5	Sao Domingos	0.509
6	Paul	0.498
7	Sao Lourenco Dos Orgaos	0.493
8	Ribeira Grande De Santiago	0.488
9	Santa Catarina	0.485
10	Tarrafal	0.478
11	Mosteiros	0.444
12	Brava	0.441
13	Santa Catarina Do Fogo	0.438
14	Porto Novo	0.436
15	Boa Vista	0.417
16	Ribeira Grande	0.406
17	Tarrafal De Sao Nicolau	0.404
18	Ribeira Brava	0.398
19	Maio	0.365
20	Sao Vicente	0.359
21	Praia	0.335
22	Sal	0.328

VERY LOW | LOW | MEDIUM | HIGH | VERY HIGH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Vulnerability Index
Very Low
Low
Moderate
High
Very High

THE RVA

COPING CAPACITY

COPING CAPACITY

Coping Capacity describes the ability of people, organizations, and systems, using available skills and resources, to face and manage adverse conditions, emergencies, or disasters.
The following indicators were selected to measure coping capacity subcomponents in Cabo Verde in coordination with stakeholders. Breaking down each coping capacity subcomponent to the indicator level allows users to identify the critical drivers of coping capacity to support risk reduction efforts and policy decisions.

Cabo Verde's Global Coping Capacity Rank

92 OUT OF 198 COUNTRIES / AREAS ASSESSED

Cabo Verde's Rank among West African nations

1 OUT OF 16 COUNTRIES / AREAS ASSESSED

VULNERABILITY SUBCOMPONENTS AND INDICATORS

Economic Capacity
Economic Activity Rate
Average Annual Expenditures Per Capita
Financial Service Locations per 10,000 Persons

Governance
Voter Participation
Proper Waste Disposal
Crime Rate

Environmental Capacity
Natural Protected Area

Communications Capacity
Percent Households with Fixed Phone
Percent of Population with Mobile Phone

Transportation Capacity
Road Density
Distance to Port or Airport

Healthcare Capacities
Physicians per 10,000 Persons
Nurses per 10,000 Persons
Hospitals per 10,000 Persons
Immunization Coverage

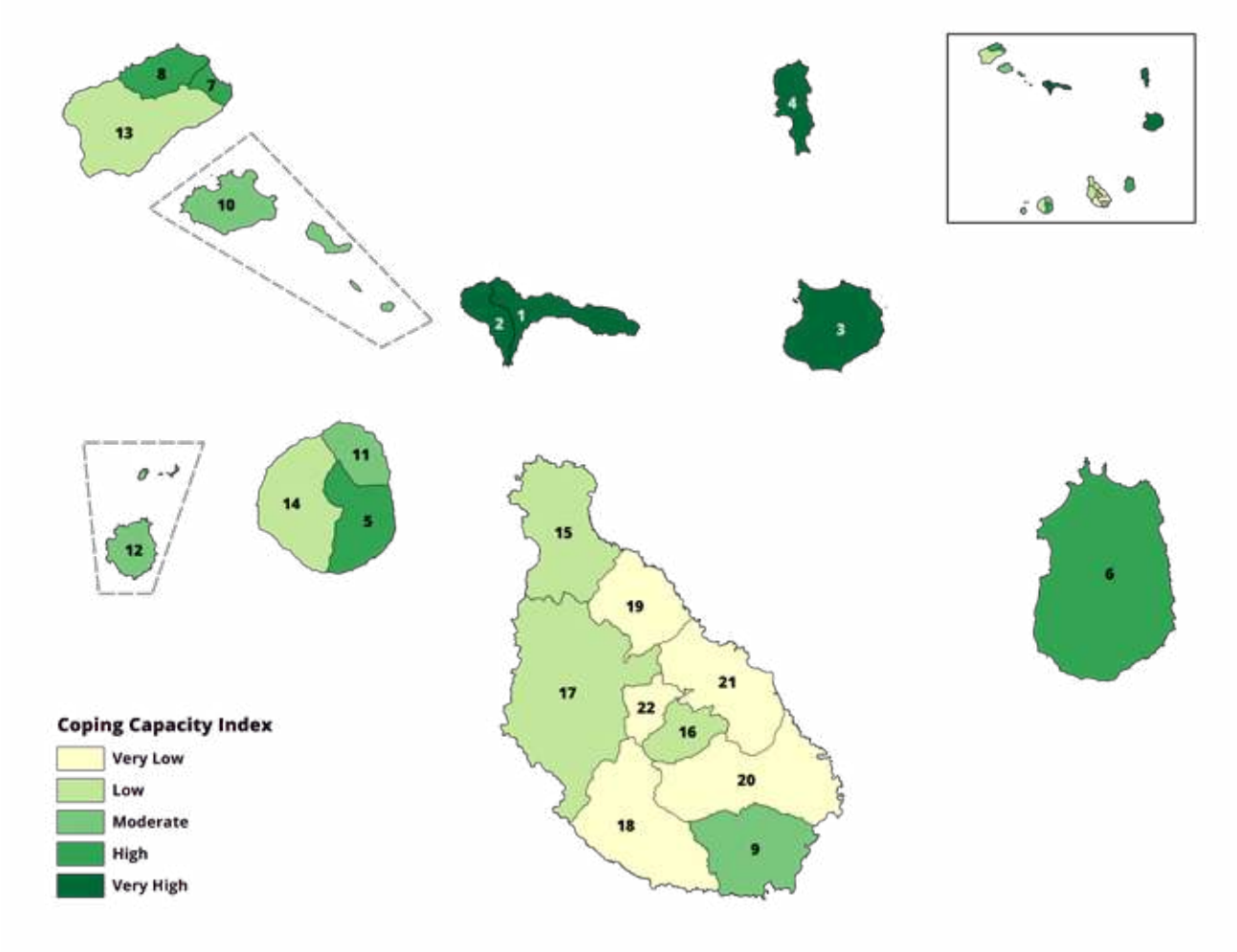
Energy Capacity
Electricity Access
Gas Access

Emergency Services Capacity
Average Distance to Police Station
Firefighters per 10,000 Persons
Distance to Hospital

COPING CAPACITY BY MUNICIPALITY

RANK	MUNICIPALITY	INDEX SCORE
1	Ribeira Brava	0.678
2	Tarrafal De Sao Nicolau	0.659
3	Boa Vista	0.621
4	Sal	0.609
5	Santa Catarina Do Fogo	0.585
6	Maio	0.560
7	Paul	0.530
8	Ribeira Grande	0.521
9	Praia	0.511
10	Sao Vicente	0.508
11	Mosteiros	0.456
12	Brava	0.451
13	Porto Novo	0.442
14	Sao Filipe	0.411
15	Tarrafal	0.404
16	Sao Lourenco Dos Orgaos	0.403
17	Santa Catarina	0.400
18	Ribeira Grande De Santiago	0.386
19	Sao Miguel	0.378
20	Sao Domingos	0.359
21	Santa Cruz	0.342
22	Sao Salvador Do Mundo	0.280

VERY LOW | LOW | MEDIUM | HIGH | VERY HIGH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Coping Capacity Index
Very Low
Low
Moderate
High
Very High

THE RVA

RESILIENCE

RESILIENCE

Resilience in Cabo Verde was calculated by averaging Vulnerability and Coping Capacity. Results are displayed across each municipality below, while the four main drivers of resilience provide detailed recommendations in the individual municipal profiles.

Cabo Verde's Global Resilience Rank

112 OUT OF 194 COUNTRIES / AREAS ASSESSED

Cabo Verde's Rank among West African nations:

1 OUT OF 16 COUNTRIES / AREAS ASSESSED

APPLYING RESILIENCE DATA

Resilience data can be used to:

- Prioritize response and recovery efforts during hazard events.
- Identify the social, cultural, and economic factors that influence disaster risk and vulnerability.
- Provide the necessary justification to support policy decisions that will protect lives and reduce losses resulting from disasters.
- Establish a municipal-level foundation for monitoring risk and vulnerability over time.
- Enhance decision making for disaster risk reduction initiatives.

RESILIENCE COMPONENTS

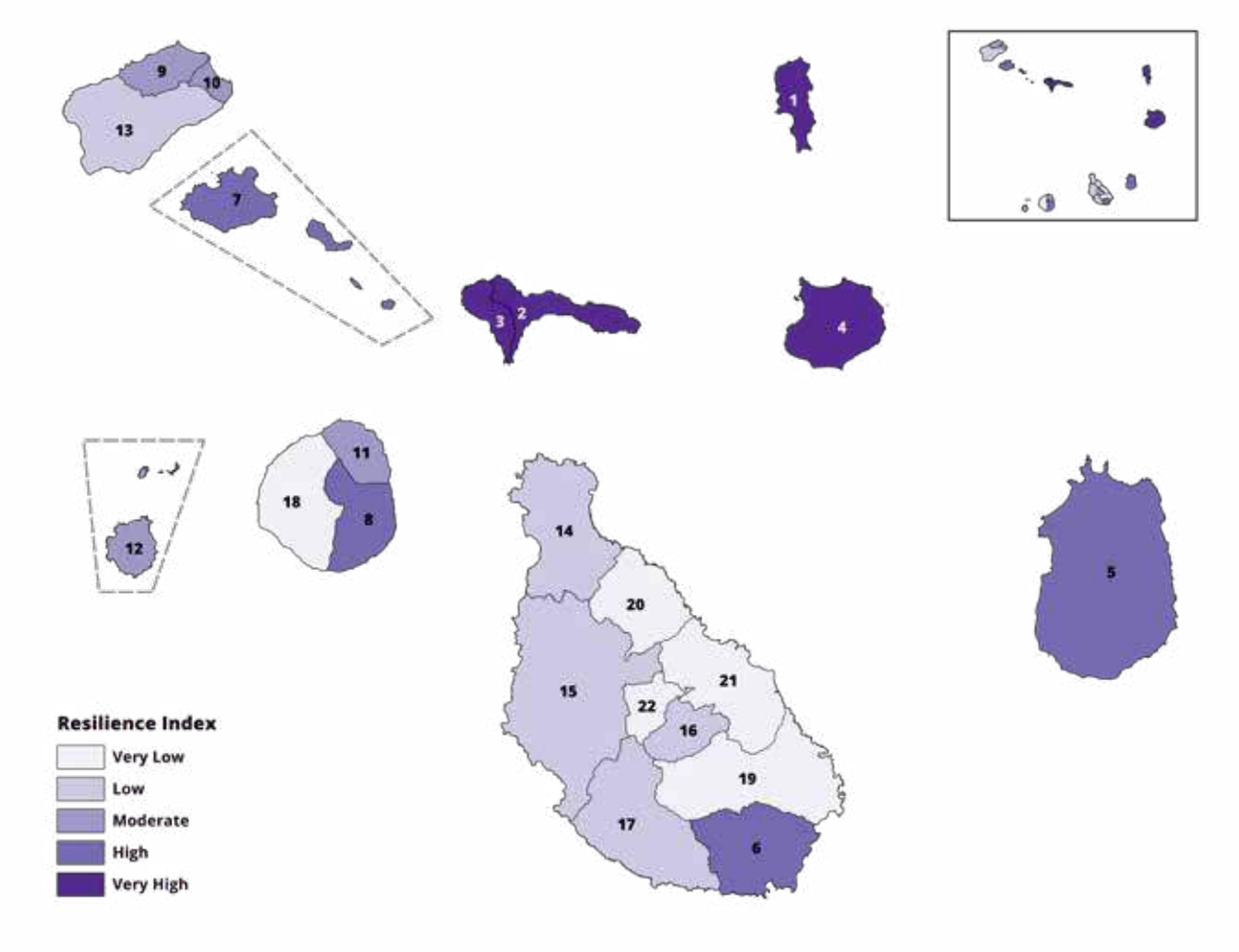
Vulnerability

Coping Capacity

RESILIENCE BY MUNICIPALITY

RANK	MUNICIPALITY	INDEX SCORE
1	Sal	0.640
2	Ribeira Brava	0.640
3	Tarrafal De Sao Nicolau	0.627
4	Boa Vista	0.602
5	Maio	0.598
6	Praia	0.588
7	Sao Vicente	0.574
8	Santa Catarina Do Fogo	0.573
9	Ribeira Grande	0.558
10	Paul	0.516
11	Mosteiros	0.506
12	Brava	0.505
13	Porto Novo	0.503
14	Tarrafal	0.463
15	Santa Catarina	0.457
16	Sao Lourenco Dos Orgaos	0.455
17	Ribeira Grande De Santiago	0.449
18	Sao Filipe	0.439
19	Sao Domingos	0.425
20	Sao Miguel	0.389
21	Santa Cruz	0.385
22	Sao Salvador Do Mundo	0.336

VERY LOW | LOW | MEDIUM | HIGH | VERY HIGH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Resilience Index
Very Low
Low
Moderate
High
Very High

THE RVA

HAZARD-SPECIFIC RISK

HAZARD-SPECIFIC RISK

Hazard-Specific Risk provides a tool for disaster managers to anticipate, plan for, and mitigate outcomes of specific hazard events across Cabo Verde. Hazard-Specific Risk examines individual hazard exposure in combination with resilience at municipal level to provide a clear understanding of risk drivers for each hazard type. Specific hazards assessed include drought, flood, earthquake-induced landslides, precipitation-induced landslides, forest fire, and volcanoes.

APPLYING HAZARD-SPECIFIC RISK DATA

Hazard-Specific Risk data can be used to:

- Examine socioeconomic and cultural factors that make certain populations more susceptible to negative outcomes from a specific hazard.
- Anticipate potential impacts of a specific hazard on a municipality's population.
- Enhance national and subnational multi-hazard planning.
- Prioritize national and munici-level hazard-specific mitigation actions.
- Provide necessary justification to enhance hazard monitoring and implement early warning systems.

HAZARD RISK COMPARED

Drought

Flood

Earthquake-induced Landslide

Precipitation-induced Landslide

Forest Fire

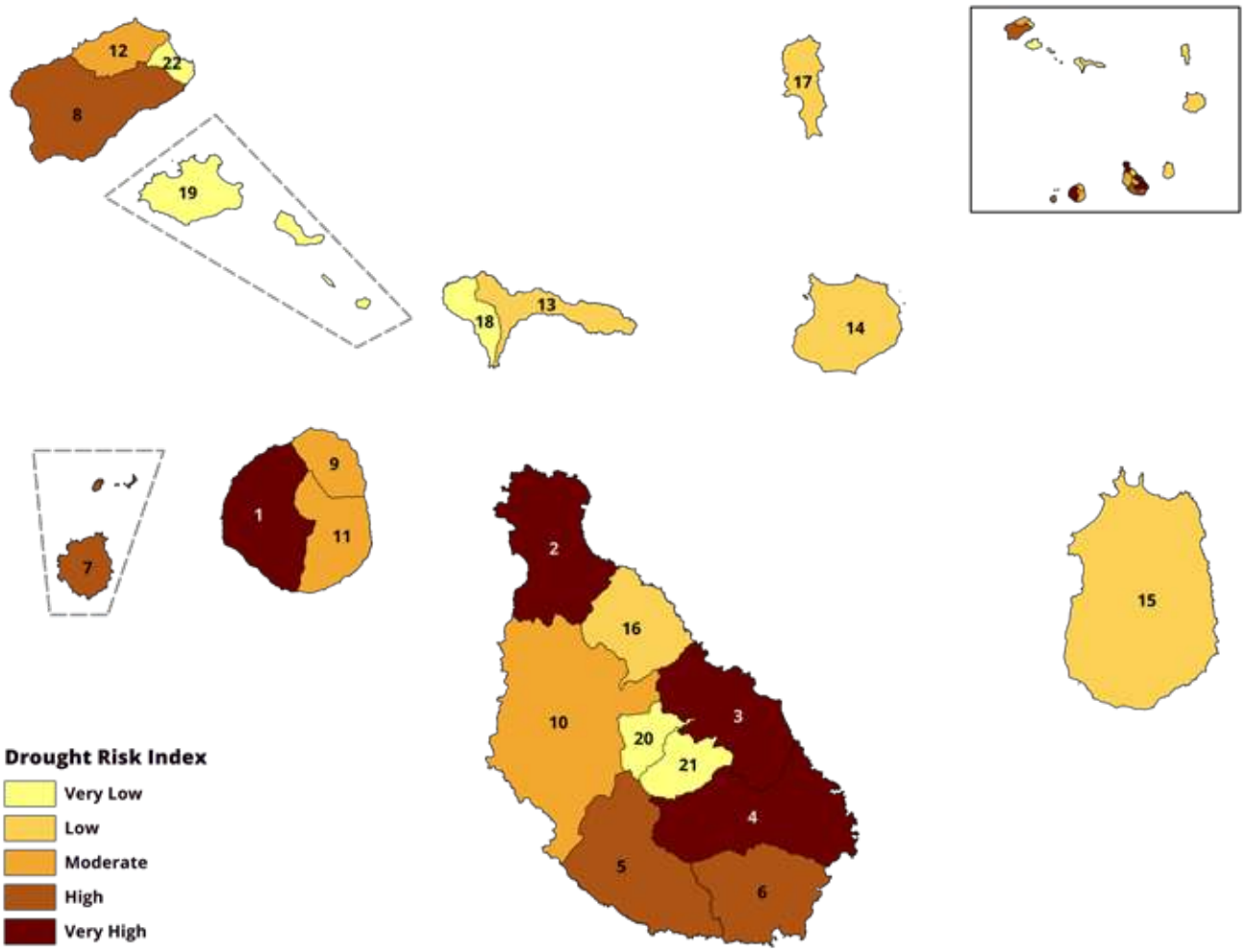
Volcano

DROUGHT RISK BY MUNICIPALITY

RANK	MUNICIPALITY	INDEX SCORE
1	Sao Filipe	0.459
2	Tarrafal	0.457
3	Santa Cruz	0.410
4	Sao Domingos	0.388
5	Ribeira Grande De Santiago	0.355
6	Praia	0.355
7	Brava	0.332
8	Porto Novo	0.318
9	Mosteiros	0.314
10	Santa Catarina	0.311
11	Santa Catarina Do Fogo	0.301
12	Ribeira Grande	0.296
13	Ribeira Brava	0.291
14	Boa Vista	0.287
15	Maio	0.283
16	Sao Miguel	0.274
17	Sal	0.259
18	Tarrafal De Sao Nicolau	0.248
19	Sao Vicente	0.245
20	Sao Salvador Do Mundo	0.209
21	Sao Lourenco Dos Orgaos	0.200
22	Paul	0.160

VERY LOW | LOW | MEDIUM | HIGH | VERY HIGH

DROUGHT RISK BY MUNICIPALITY

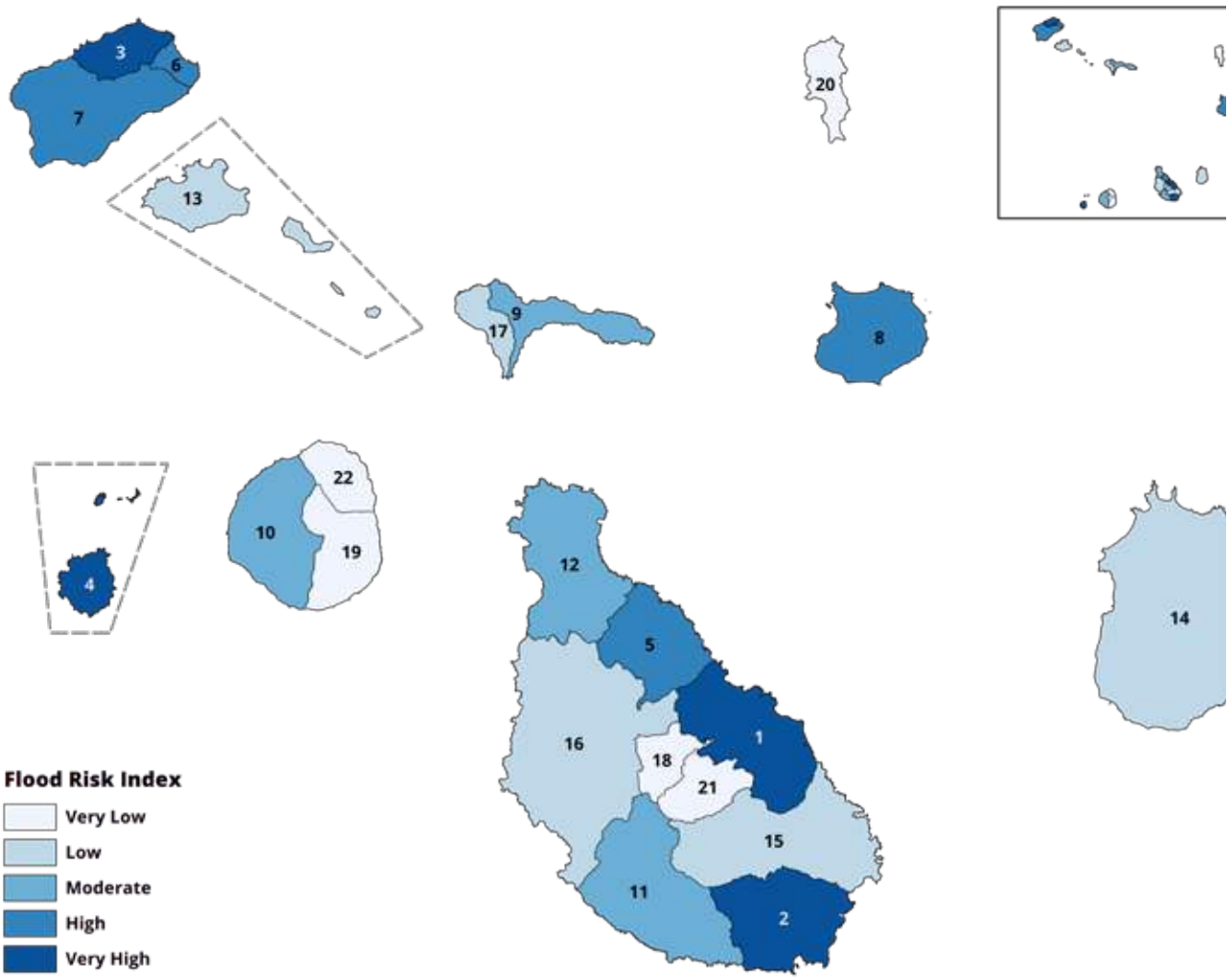


FLOOD RISK BY MUNICIPALITY

RANK	MUNICIPALITY	INDEX SCORE	
1	Santa Cruz	0.373	
2	Praia	0.332	
3	Ribeira Grande	0.277	
4	Brava	0.181	
5	Sao Miguel	0.173	
6	Paul	0.169	
7	Porto Novo	0.167	
8	Boa Vista	0.117	
9	Ribeira Brava	0.110	
10	Sao Filipe	0.110	
11	Ribeira Grande De Santiago	0.102	
12	Tarrafal	0.102	
13	Sao Vicente	0.099	
14	Maio	0.097	
15	Sao Domingos	0.093	
16	Santa Catarina	0.067	
17	Tarrafal De Sao Nicolau	0.066	
18	Sao Salvador Do Mundo	0.059	
19	Santa Catarina Do Fogo	0.048	
20	Sal	0.038	
21	Sao Lourenco Dos Orgaos	0.009	
22	Mosteiros	0.000	VERY LOW

VERY LOW | LOW | MEDIUM | HIGH | VERY HIGH

FLOOD RISK BY MUNICIPALITY

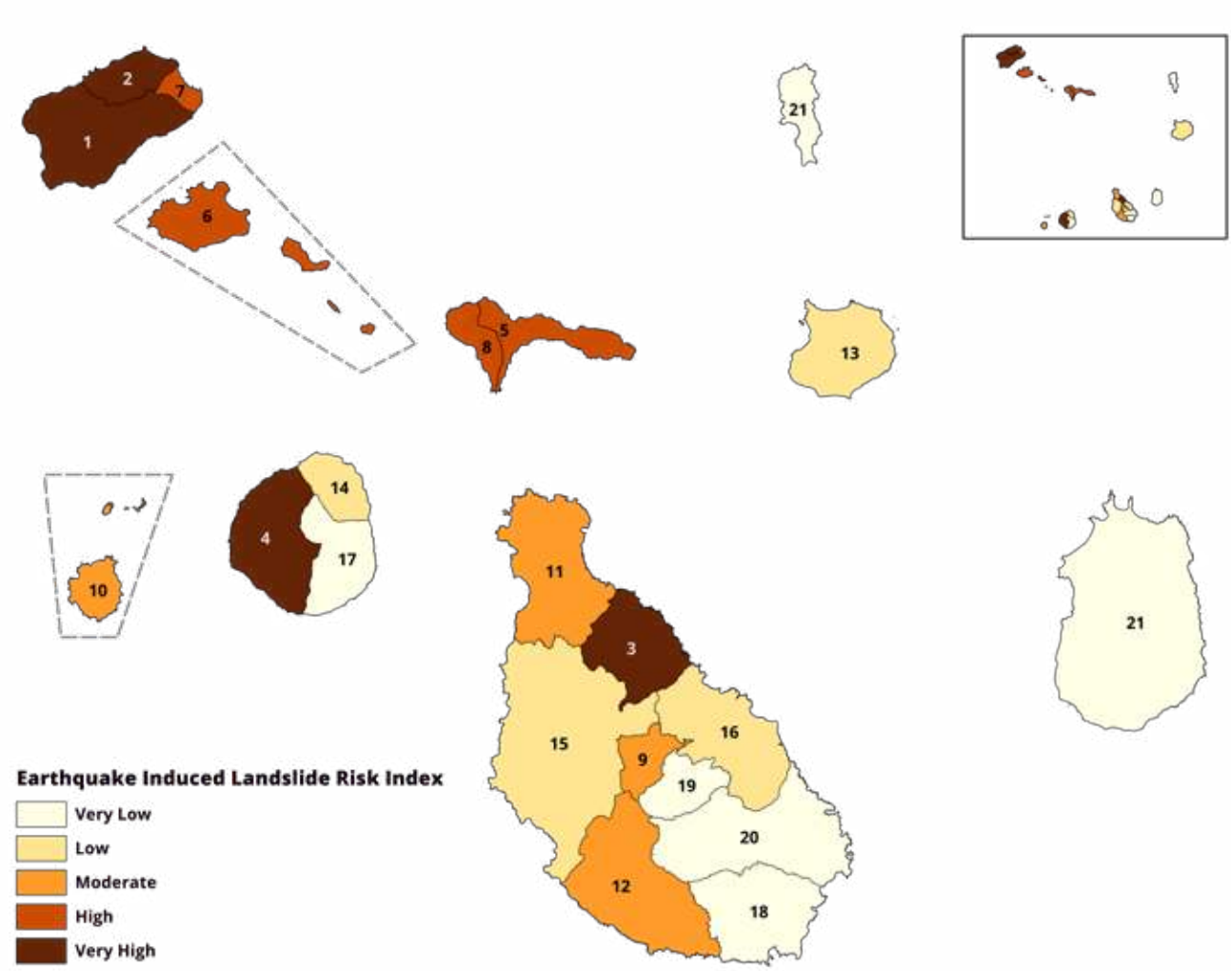


EARTHQUAKE-INDUCED LANDSLIDE RISK BY MUNICIPALITY

RANK	MUNICIPALITY	INDEX SCORE
1	Porto Novo	0.488
2	Ribeira Grande	0.294
3	Sao Miguel	0.250
4	Sao Filipe	0.241
5	Ribeira Brava	0.221
6	Sao Vicente	0.206
7	Paul	0.205
8	Tarrafal De Sao Nicolau	0.202
9	Sao Salvador Do Mundo	0.200
10	Brava	0.174
11	Tarrafal	0.127
12	Ribeira Grande De Santiago	0.115
13	Boa Vista	0.111
14	Mosteiros	0.110
15	Santa Catarina	0.092
16	Santa Cruz	0.056
17	Santa Catarina Do Fogo	0.036
18	Praia	0.036
19	Sao Lourenco Dos Orgaos	0.032
20	Sao Domingos	0.022
21	Maio	0.000
21	Sal	0.000

VERY LOW | LOW | MEDIUM | HIGH | VERY HIGH

EARTHQUAKE-INDUCED LANDSLIDE RISK BY MUNICIPALITY

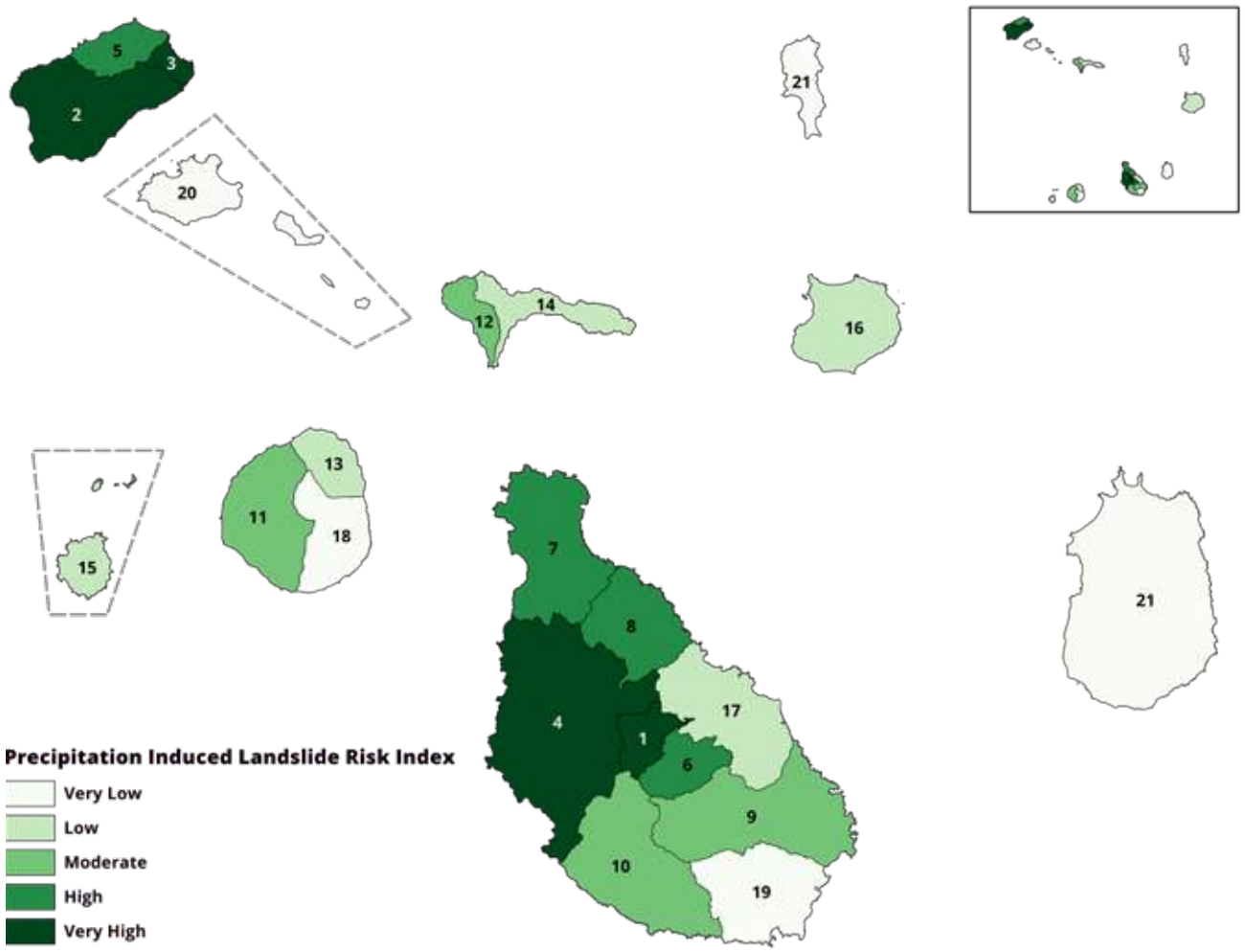


PRECIPITATION-INDUCED LANDSLIDE RISK BY MUNICIPALITY

RANK	MUNICIPALITY	INDEX SCORE
1	Sao Salvador Do Mundo	0.556
2	Porto Novo	0.313
3	Paul	0.308
4	Santa Catarina	0.306
5	Ribeira Grande	0.276
6	Sao Lourenco Dos Orgaos	0.253
7	Tarrafal	0.229
8	Sao Miguel	0.189
9	Sao Domingos	0.178
10	Ribeira Grande De Santiago	0.158
11	Sao Filipe	0.133
12	Tarrafal De Sao Nicolau	0.097
13	Mosteiros	0.092
14	Ribeira Brava	0.082
15	Brava	0.076
16	Boa Vista	0.075
17	Santa Cruz	0.059
18	Santa Catarina Do Fogo	0.042
19	Praia	0.024
20	Sao Vicente	0.004
21	Maio	0.000
21	Sal	0.000

VERY LOW | LOW | MEDIUM | HIGH | VERY HIGH

PRECIPITATION-INDUCED LANDSLIDE RISK BY MUNICIPALITY

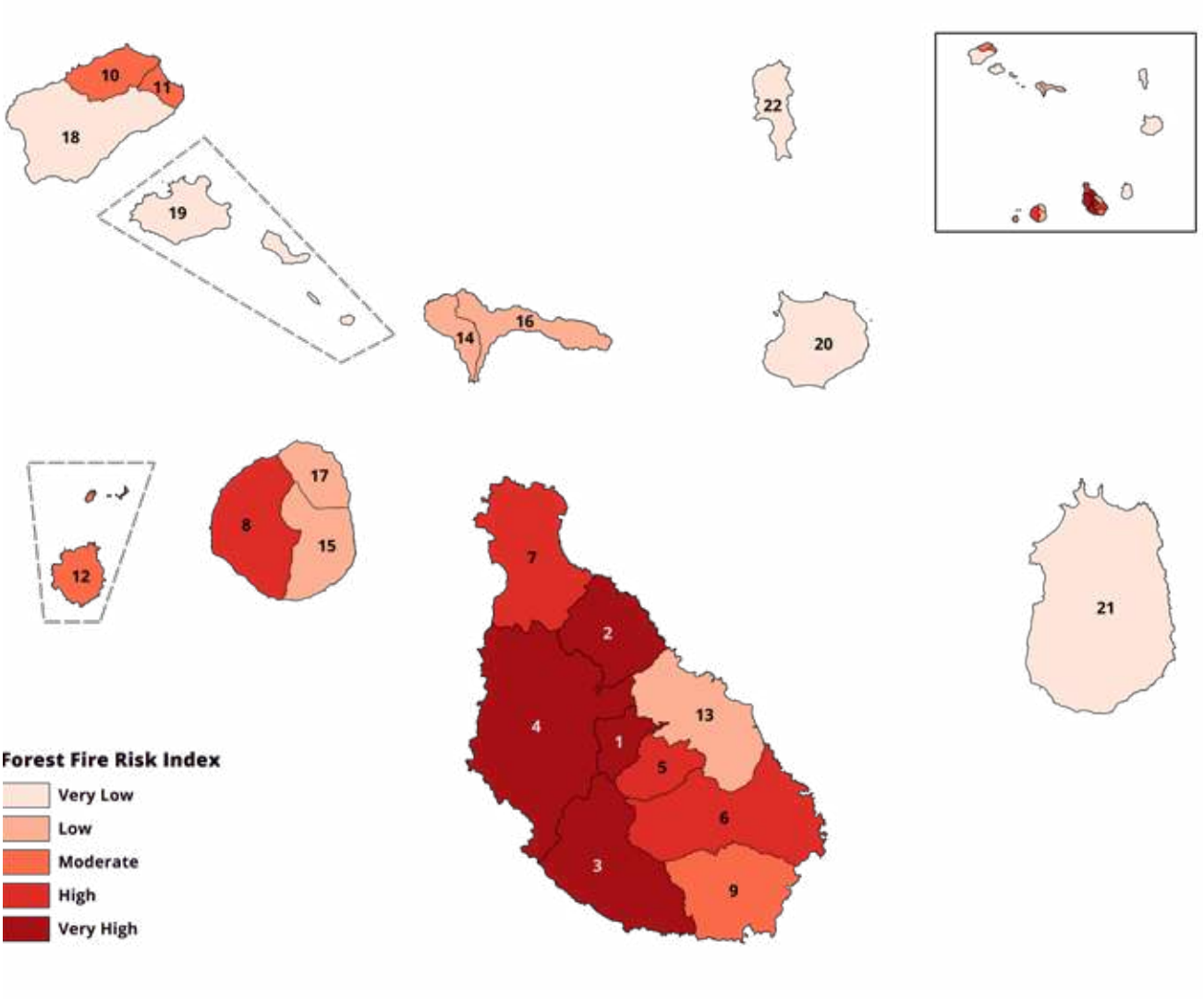


FOREST FIRE RISK BY MUNICIPALITY

RANK	MUNICIPALITY	INDEX SCORE
1	Sao Salvador Do Mundo	0.556
2	Porto Novo	0.313
3	Paul	0.308
4	Santa Catarina	0.306
5	Ribeira Grande	0.276
6	Sao Lourenco Dos Orgaos	0.253
7	Tarrafal	0.229
8	Sao Miguel	0.189
9	Sao Domingos	0.178
10	Ribeira Grande De Santiago	0.158
11	Sao Filipe	0.133
12	Tarrafal De Sao Nicolau	0.097
13	Mosteiros	0.092
14	Ribeira Brava	0.082
15	Brava	0.076
16	Boa Vista	0.075
17	Santa Cruz	0.059
18	Santa Catarina Do Fogo	0.042
19	Praia	0.024
20	Sao Vicente	0.004
21	Maio	0.000
21	Sal	0.000

VERY LOW | LOW | MEDIUM | HIGH | VERY HIGH

FOREST FIRE RISK BY MUNICIPALITY

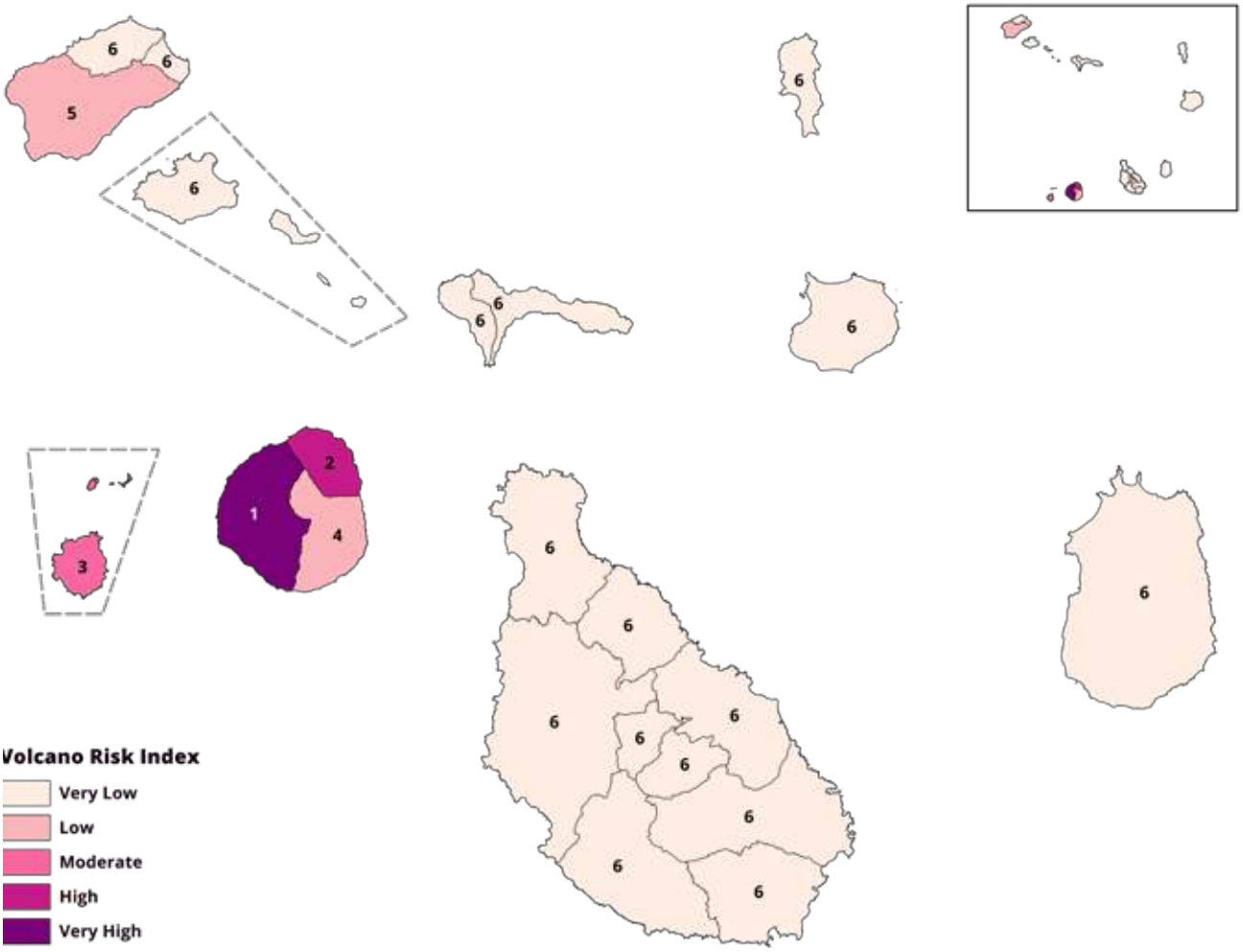


VOLCANO RISK BY MUNICIPALITY

RANK	MUNICIPALITY	INDEX SCORE
1	Sao Filipe	0.561
2	Mosteiros	0.461
3	Brava	0.459
4	Santa Catarina Do Fogo	0.405
5	Porto Novo	0.300
6	Sao Salvador Do Mundo	0.000
6	Sao Miguel	0.000
6	Ribeira Grande De Santiago	0.000
6	Santa Catarina	0.000
6	Sao Lourenco Dos Orgaos	0.000
6	Sao Domingos	0.000
6	Tarrafal	0.000
6	Praia	0.000
6	Ribeira Grande	0.000
6	Paul	0.000
6	Santa Cruz	0.000
6	Tarrafal De Sao Nicolau	0.000
6	Ribeira Brava	0.000
6	Sao Vicente	0.000
6	Boa Vista	0.000
6	Maio	0.000
6	Sal	0.000

VERY LOW | LOW | MEDIUM | HIGH | VERY HIGH

VOLCANO RISK BY MUNICIPALITY



THE RVA

MULTI-HAZARD RISK

MULTI-HAZARD RISK

Multi-hazard Risk in Cabo Verde was calculated using a combination of Multi-hazard Exposure, Vulnerability, and Coping Capacity. Results are displayed across each municipality below, while additional detail on municipal-level risk is provided in the individual municipal profiles.

Cabo Verde's Global Coping Resilience Rank (from PDC's global RVA)

101 OUT OF 193 COUNTRIES / AREAS ASSESSED

Cabo Verde's Cabo Verde's rank among West African nations

16 OUT OF 16 COUNTRIES / AREAS ASSESSED

MULTI-HAZARD RISK COMPONENTS

Vulnerability

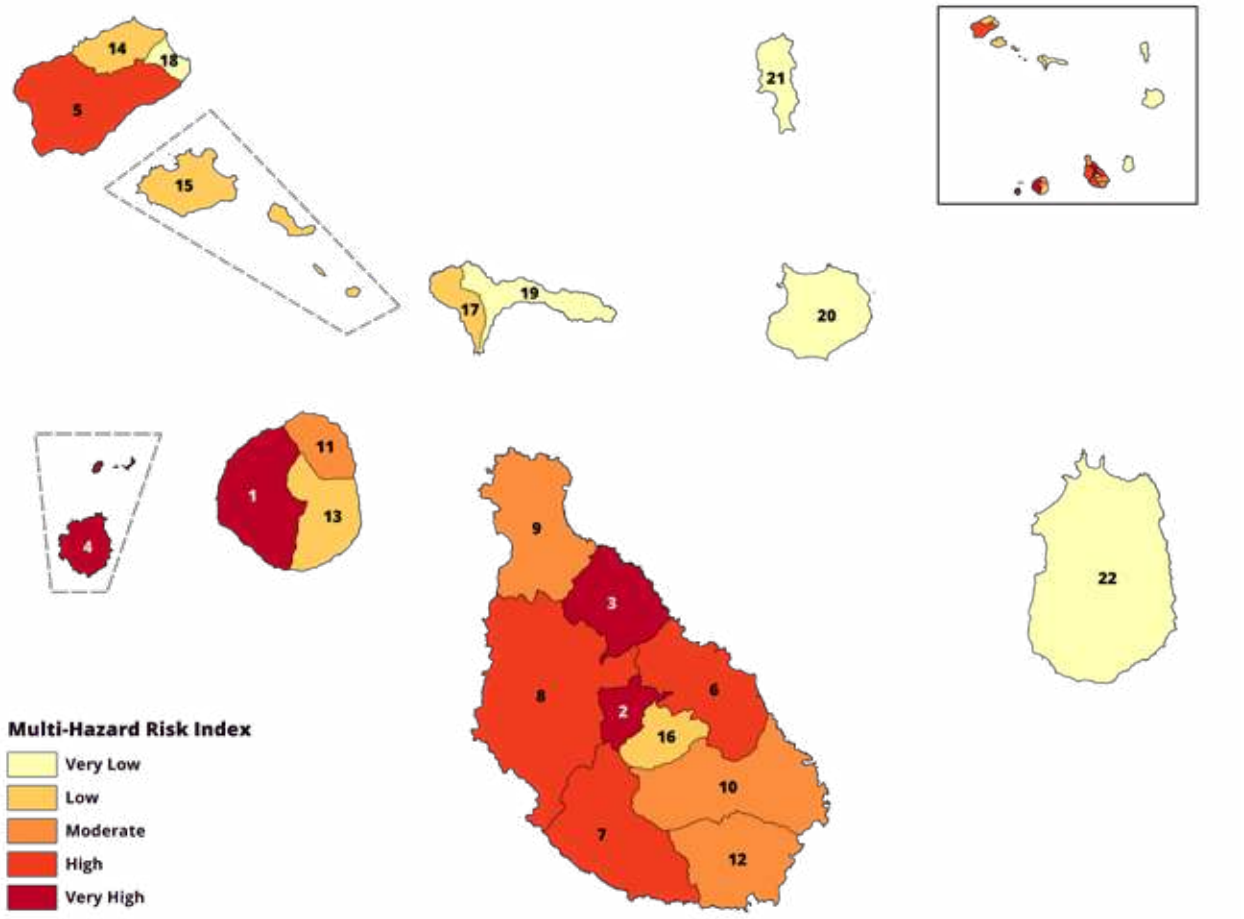
Coping Capacity

Multi-Hazard Exposure

MULTI-HAZARD RISK BY MUNICIPALITY

RANK	MUNICIPALITY	INDEX SCORE
1	Sao Filipe	0.623
2	Sao Salvador Do Mundo	0.576
3	Sao Miguel	0.550
4	Brava	0.520
5	Porto Novo	0.513
6	Santa Cruz	0.508
7	Ribeira Grande De Santiago	0.501
8	Santa Catarina	0.499
9	Tarrafal	0.498
10	Sao Domingos	0.496
11	Mosteiros	0.490
12	Praia	0.461
13	Santa Catarina Do Fogo	0.460
14	Ribeira Grande	0.447
15	Sao Vicente	0.420
16	Sao Lourenco Dos Orgaos	0.413
17	Tarrafal De Sao Nicolau	0.381
18	Paul	0.377
19	Ribeira Brava	0.361
20	Boa Vista	0.343
21	Sal	0.322
22	Maio	0.317

VERY LOW | LOW | MEDIUM | HIGH | VERY HIGH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12
22
Multi-Hazard Risk Index
Very Low
Low
Moderate
High
Very High

THE DMA

DISASTER MANAGEMENT ANALYSIS

SUMMARY OF FINDINGS

DISASTER MANAGEMENT ANALYSIS

FINDINGS & RECOMMENDATIONS

Provided in this section are the results of the Disaster Management Analysis (DMA) conducted as part of the Cabo Verde National Disaster Preparedness Baseline Assessment. The outcome enables more effective prioritization of risk reduction and resilience-building initiatives. Considering diverse community needs, operational successes, and barriers, the DMA results would allow communities to prioritize actions for disaster risk reduction and disaster governance at all levels. The following section summarizes key findings in six broad areas of analysis: Institutional Arrangements; Enabling Environment; Disaster Governance Mechanisms; Capabilities and Resources; Capacities; and Communications and Information Management.

DISASTER MANAGEMENT ANALYSIS THEME AND SUBTHEMES

Institutional Arrangements
Organizational Structures
Leadership Arrangements
Mechanisms for Stakeholder Engagement

Capabilities and Resources
Dedicated Facilities and Equipment
Human Resources
Inventory of Commodities and Supplies
Targeted Functional Capabilities

Enabling Environment
Legal Instruments
Financial Resources
Strategies
Public Confidence and Political Support
Attitudes and Experience

Capacity Development
Capacity Development Plans and Strategies
Training and Education Programs and Facilities
Certification Programs
After-action Reporting
Monitoring and Evaluation Processes and Systems

Disaster Governance Mechanisms
Plans
Standard Operating Procedures
Emergency Operations Centers
Command, Control, and Coordination Systems

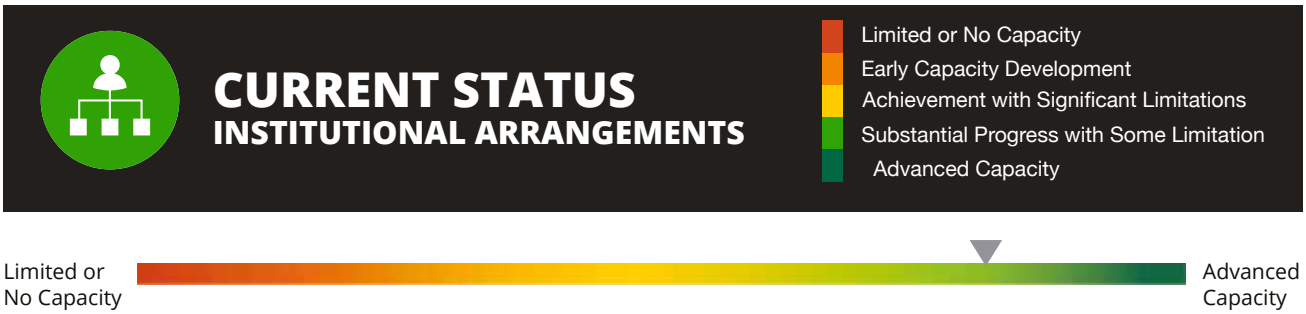
Communication and Information Management
Hazard and Risk Analysis Systems
Disaster Assessment
Media and Public Affairs
Information Collection, Management, and Distribution

THE DMA

INSTITUTIONAL ARRANGEMENTS

INSTITUTIONAL ARRANGEMENTS

The organizational and institutional structures through which disaster management capacity forms indicate a country's institutional arrangements. By examining the organization and composition of diverse agencies and individuals that constitute a nation's disaster management capacity—detailing the relationships and collaboration between them—tangible opportunities for increased effectiveness are often revealed. The DMA analyzes sub-themes that characterize institutional arrangements.



Cabo Verde's current institutional arrangements for DM have evident achievements with some limitations.

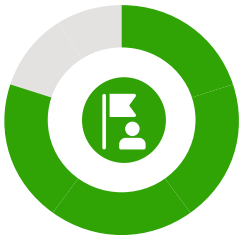
There is a well-defined organizational arrangement for the country's DM functions that delegates shared responsibilities across all layers of the government. However, Civil Protection services are not fully established/operational at the local/municipal level, with most services supported only by firefighters. Legal arrangements are taking place to formalize the duties of Fire Services and the Regional Command Centers that will allow better resourcing and accountability. Cabo Verde has taken essential steps to satisfy its obligations under the Sendai Framework by establishing its DRR platform with guidance from the UN and under the leadership of SNPC-B and issuing its first National Strategy for Disaster Risk Reduction (Estratégia Nacional de Redução de Risco de Desastres, ENRRD) in 2017. Per its commitment to the Paris Accord, the National Climate Change Platform has also made notable advances by issuing the National Adaptation Program of Action (NAPA) and developing plans for climate adaptation commensurate with NAPA. However, Cabo Verde relies on external funding to achieve its climate objectives. The government is updating major policies and plans delineating the roles within the DRR and disaster response organizations. These need to be aligned closely with ENRRD and the Sendai Framework and in an integrated manner across policies and SDG priorities.[20–22]

SUBTHEME STATUS
INSTITUTIONAL ARRANGEMENTS

- Limited or No Capacity
- Early Capacity Development
- Achievement with Significant Limitations
- Substantial Progress with Some Limitation
- Advanced Capacity

Organizational Structures

- Organization of disaster management functions
- Development of disaster management offices
- Regionalized disaster management capacity
- Engagement with bilateral, international, and other humanitarian actors
- National platform/office to manage DRR and Sendai Framework implementation
- National platform/office to manage Climate Change Action/Adaptation (CCA)
- National platform/office to manage SD 2030 agenda
- Integration of DRR, CCA, and SD
- Integration of military into civil DM structure

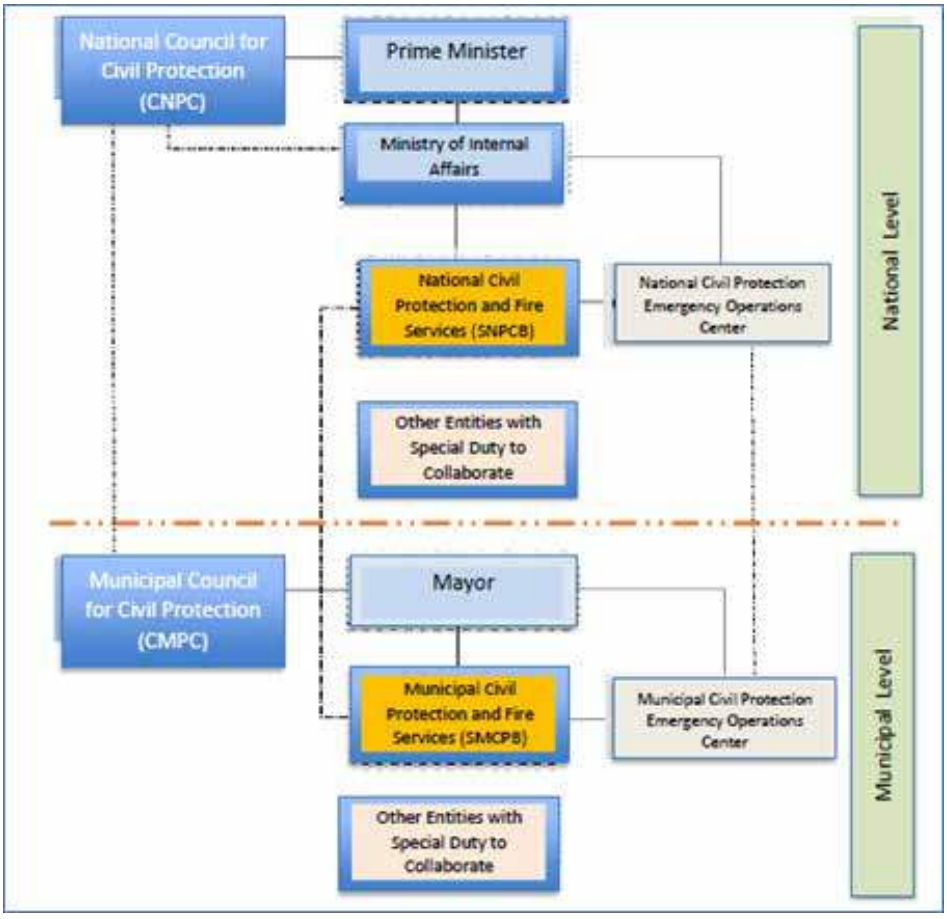


Leadership Arrangements

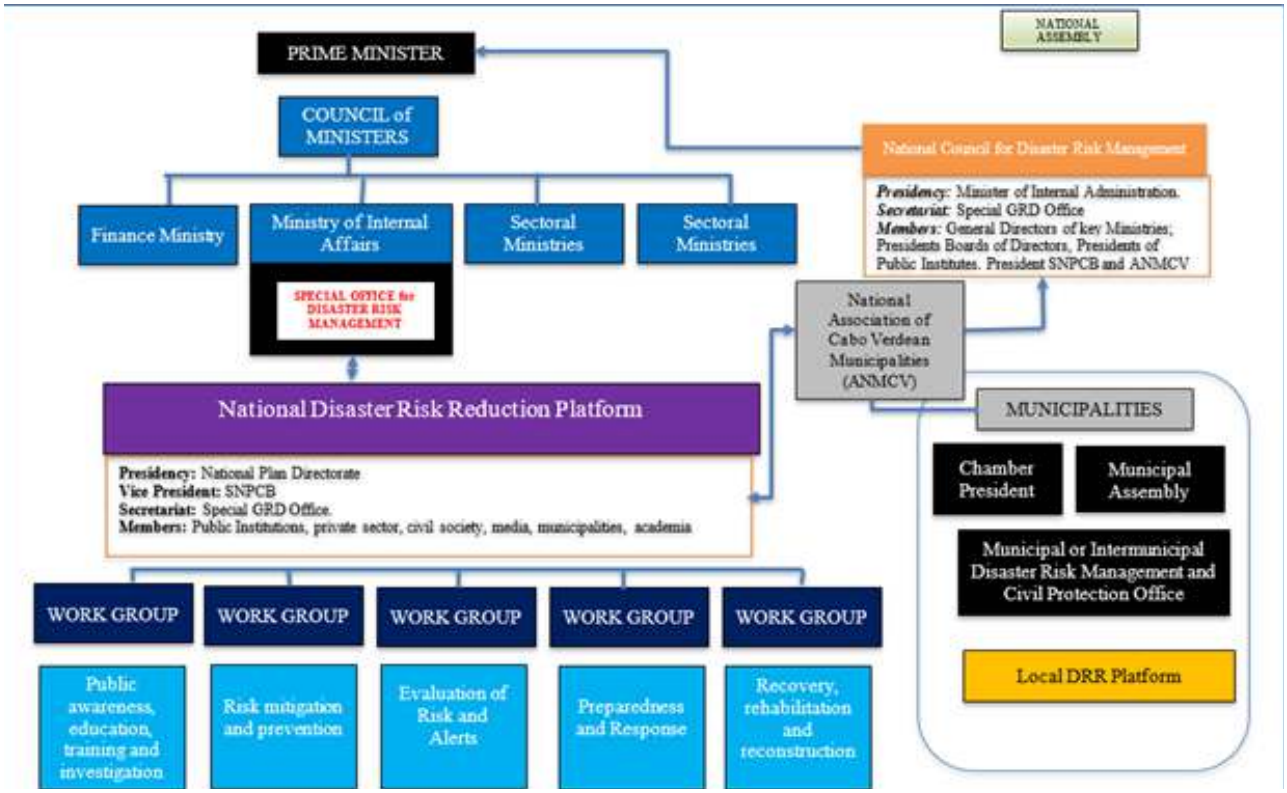
- Linkage of disaster management leadership to political leadership
- Disaster management leadership arrangements
- Percentage of leadership positions filled
- Requirements for job-specific competencies for disaster management leadership
- Leadership structure during major disaster response events
- Disaster management committee structure to support response and recovery operations
- Special disaster risk management policy-making committees
- Diversity of stakeholder groups represented in committees

Mechanisms for Stakeholder Engagement

- Nongovernmental stakeholders represented in governmental disaster management structures
- Public-Private Partnerships (PPPs)
- Inventory of NGO and private sector disaster management capabilities
- Nature of multi-stakeholder engagement
- Private sector engagement
- Organizational arrangements used by NGOs to support disaster management efforts
- Academia involvement in government disaster management
- Relationship between national governments, regional entities, and global disaster management organizations



Organizational Chart of the Cabo Verde Civil Protection System (Source: Adapted from World Bank-GFDRR, 2018[23])



Draft Institutional Framework for Disaster Risk Reduction
(Source: Cabo Verde National Strategy for DRR 2017[20])

Adaptation contributions	Key strategic axes	▪ Promoting integrated water resources management, guaranteeing stable and adequate water supply (for consumption, agriculture, ecosystems and tourism); ▪ Increasing adaptive capacities of agro-silvo-pastoral production systems in order to ensure and improve national food production and promoting Cabo Verde´s ocean-based ("blue") economy; ▪ Protecting and preventing degradation of coastal zones and their habitat.
	Proposed measures	Seek to ensure by 2030: ▪ that every citizen has safe access to a minimum of 40l potable water per day; ▪ that all urban households are connected to the water supply network; ▪ that sewage collection system and proper disposal is extended to cover at least 90% for the cities of Praia and Mindelo and at least 50% of rural areas; ▪ the construction (or retrofitting/expansion) of at least 4 wastewater treatment plants and water re-use facilities.

Cabo Verde Climate Action Strategic Areas
(Source: Cabo Verde INDC, 2015, p.6.[24])

ASSOCIATION OF VOLUNTEER FIREFIGHTERS (AHBV)	VOLUNTEER FIREFIGHTING. AHBV FIREFIGHTERS ARE REGULATED THROUGH DECREE LAW 61/2020.25
CABO VERDE RED CROSS	COMMUNITY SUPPORT ACTIVITIES, PARTICULARLY FIRST AID, AND MEDICAL ASSISTANCE, STRONG COMMUNITY TRUST, MOBILIZING POWER WITHIN COMMUNITIES
CHURCHES	REPRESENTATION ON ALL ISLANDS, STRONG COMMUNITY OUTREACH, AND TRUST, ONGOING COMMUNITY OUTREACH CAMPAIGNS, PREVIOUS EXPERIENCE IN DISASTER RELIEF SUPPORT (FOGO ERUPTION 2014-2015)
FRIENDS OF THE SAFENDE COMMUNITY	OUTREACH TO VULNERABLE GROUPS LIVING IN INFORMAL SETTLEMENTS, STRONG TRUST AMONG VULNERABLE GROUPS, REPRESENTATION ON SANTIAGO ISLAND
COMMUNITY WORKERS AND COMMUNITY ASSOCIATIONS (E.G., FAJÃ DE ÁGUA)	REPRESENTATION OF COMMUNITY INTERESTS WITHIN THE GOVERNMENT, STRONG MOBILIZATION CAPACITY WITHIN COMMUNITIES, PRESENCE WITHIN ALL CABO VERDEAN MUNICIPALITIES
WOMEN ORGANIZATION OF CABO VERDE (OMCV)	OUTREACH TO VULNERABLE GROUPS, STRONG MOBILIZATION CAPACITY AMONG WOMEN, POSITIVE REPUTATION ACROSS THE CABO VERDEAN SOCIETY, PREVIOUS EXPERIENCE IN DISASTER RELIEF UPPORT (FOGO ERUPTIONS 2014-2015)
WOMEN ORGANIZATION OF CABO VERDE (OMCV)	OUTREACH TO VULNERABLE GROUPS, STRONG MOBILIZATION CAPACITY AMONG WOMEN, POSITIVE REPUTATION ACROSS THE CABO VERDEAN SOCIETY, PREVIOUS EXPERIENCE IN DISASTER RELIEF SUPPORT (FOGO ERUPTIONS 2014-2015)

NGOs active in community outreach
(Source: World Bank-GFDRR, 2020)

Climate-finance Commitments to the Indian Ocean and African SIDS 2010-2015 (US$ million)
(Source: SEI, 2017, p.14)

FINDINGS AND ACTIONS
TO REACH ADVANCED CAPACITY

★ **Cabo Verde has a well-defined organizational arrangement for its DM functions that delegates shared responsibilities across all layers of the government.** However, Civil Protection services are not fully established/operational at the local/municipal level, with most services supported only by firefighters.[26]

★ **While the Base Law of 2012 describes the regional command as an intermediary stage of coordination by setting up Regional Relief Operations Command posts, there is no official charter that operationalizes the five regional commands.**[27] The draft decree is expected to provide a detailed organizational charter for the SNPC-B and formalize the duties of Fire Services and the Regional Command Centers to allow better resourcing and accountability.[28] Therefore, we recommend the following:

- ✔ Ensure an established civil security career pathway and continuity in policies and planning in SNPC-B for effective DM and DRR.
- ✔ Require relevant bachelor's and/or master's degrees for key leadership positions by associating those to relevant academic offerings and with proper funding mechanisms.
- ✔ Address the short-term staffing needs in key critical DM functional areas.
- ✔ Institute and expand training programs and exercise requirements and link to competencies not just in key leadership positions but for all relevant DM staff, including the media.
- ✔ Establish incident-specific proxy leaderships depending on the nature of the disaster.

★ **The Government of Cabo Verde (GoCV) updates significant policies and plans delineating the roles within the DRR and disaster response organizations.** These need to be aligned well with the 2017 National Strategy for Disaster Risk Reduction (Estratégia Nacional de Redução de Risco de Desastres, ENRRD) and the Sendai Framework and in an integrated manner across policies and SDG priorities.[20] The existing platform on DRR is led by SNPC-B but is incomplete. An effective organizational framework was proposed through the ENRRD that empowers municipalities under the Local DRR Platform and engages partners from NGOs, CSOs, and the private sector.

★ **Cabo Verde has climate change factored in its development agenda and significant plans as an archipelago island nation and a small island developing state (SIDS), with high exposure to oceanic and atmospheric disturbances.** Food insecurity is a significant concern related to changing climate patterns, drought, and flooding conditions.

★ **Cabo Verde relies on external funding for the realistic achievement of its climate objectives.**

- **The National Directorate of Environment leads the Climate Change platform (Direcção Nacional do Ambiente de Cabo Verde, DNA), National Meteorology and Geophysics Institute (Instituto Nacional de Meteorologia e Geofísica, INMG).** The 3rd National Communication in CC was published in 2017, where strategic axes remain the same as those highlighted in the 2008-2012 National Adaptation Program of Action (NAPA). Those are:

  1. Promoting integrated water resources management (IWRM),
  2. Improvement of national food production through agricultural adaptation; and
  3. Coastal zone protection from degradation.

- **Cabo Verde Red Cross has an active role in DRR. In 2015 Cabo Verde Red Cross pledged a voluntary commitment to SDG Goal 1 (Adoption of risk-informed development pathways that minimize new disaster risks) and acted as the implementing organization.**

- **Cabo Verde Military, with its National Guard and Coast Guard, plays an active role in DM. The Chief of Staff of the Armed Forces is a member of the National Council for Civil Protection, the coordinating body of the national civil protection policy.** The military's operational role is defined under the National Contingency Plan (NCP) of 2010 as a key participating agency with its capacity for disaster response planning, logistics supply and warehouses, shelter, SAR, safety and security, and evacuations.

Our general recommendations align with the ENRRD, which are:

- ✔ Ensure consistency in developing, reinforcing, and implementing policies, plans, practices, and legal and institutional mechanisms towards a common agenda for sustainable growth, food security, public health and safety, environmental management, and disaster risk reduction.
- ✔ Integrate DRR with CCA coherently in national, sectoral, and local development plans and policies.
- ✔ Concretize the integration in instruments such as the Strategic Plan on Sustainable Development (Plano Estratégico de Desenvolvimento Sustentável, PEDS).
- ✔ Integrate DRR with CCA in:
  - Fiscal instruments, frameworks, and public investment systems;
  - Strategic policies, plans, and sectoral programs
  - Decentralization frameworks and local development plans
- ✔ Integrate DRR with CCA by working with:
  - Civil society organizations
  - The media and journalists
  - Scientists and academics
  - Community leaders

- **GoCV has legal provisions and incentives for establishing voluntary services in the civil protection area on behalf of the government actors. However, the current implementation is reportedly ad hoc and lacks structure.** The Civil Protection Base Law of 2012 and the National Contingency Plan call for multiple stakeholders from a broad array of groups, including the ministry, department or agencies (MDAs), the Army, NGOs, and the private sector. However, challenges remain in the implementation as the National Emergency Management system evolves. The Civil Protection Base Law and National Contingency Plan are in the process of being /need to be updated. They must provide a stronger emphasis on stakeholder integration and reflect the current paradigms.

- **The participating stakeholders in the National Council for Civil Protection (Conselho Nacional de Proteção Civil, CNPC) include those with the expertise of hazard and risk assessment and mitigation, such as the health and scientific research organizations as stipulated by the Base Law 2012.** In practice, risk management policies do not consistently elicit expertise from the relevant institutions; and challenges continue to exist.

- **As expected, Cabo Verde Red Cross (Cruz Vermelha de Cabo Verde, CVCV) plays a key role in DM and the lead role in volunteer and goodwill management groups responsible for coordinating the mobilization and reception, management, and integration of charitable groups and civil society organizations.**

- **The Cabo Verdeans have a strong tradition of civic duty, with various civil society organizations active in outreach.** (e.g., Approximately seventy-seven (77) percent of firefighters in Cabo Verde are volunteer firefighters; Praia has 140+ NGOs officially registered) However, their integration into official governmental DM efforts remains ad hoc.

- **Many NGOs have missions in environmental and climate action planning with access to international funding such as Association for the Defense of Environment and Development (Associação de Defesa do Meio Ambiente e Desenvolvimento, ADAD); Cabo Verde Association for Environmental Education (Associação Cabo Verde para a Educação Ambiental, ACÁCEA) to name a few.**

- **The private sector role in DM lacks definition and organization in practice. Hazard-specific and sectoral plans are mainly missing (except semi-public utility companies like ENACOL who have their internal plans) and are not incorporated into national plans. While Public-Private-Partnerships exist, they are primarily informal.** For example, during the 2014 Fogo Eruption, private equipment and trucks were utilized, but fees accrued since there were no pre-scripted contracts. Cabo Verdean businesses tend to put profit concerns aside when disasters strike; however, both the people and the businesses should be protected.

- **Mindelo Municipality expressed interest in external help creating local preparedness plans involving Civil-Military, Civil-Private, and volunteer coordination.**

- **The National Recovery Framework and the ENRRD emphasize the active role of academia in developing a multi-disciplinary applied research program.** University of Cabo Verde (Uni-CV) has been instrumental in DM efforts through hazard mapping and analyses; however, resource shortages inhibit implementation.

- **Cabo Verde is a signatory nation to both the Sendai Framework of Action and the Paris Agreement.** Cabo Verde is also a part of regional networks and partnerships, including the West Africa Disaster Preparedness Initiative (WADPI), which is supported by AFRICOM's Disaster Preparedness Program in collaboration with the Kofi Annan International Peacekeeping Training Centre (KAIPTC), ECOWAS, and the National Management Organization of Ghana. Cabo Verde's progress towards Target F-7 (increasing the number of international, regional, and bilateral programs and initiatives for disaster reduction-related capacity building in developing countries) is notable.

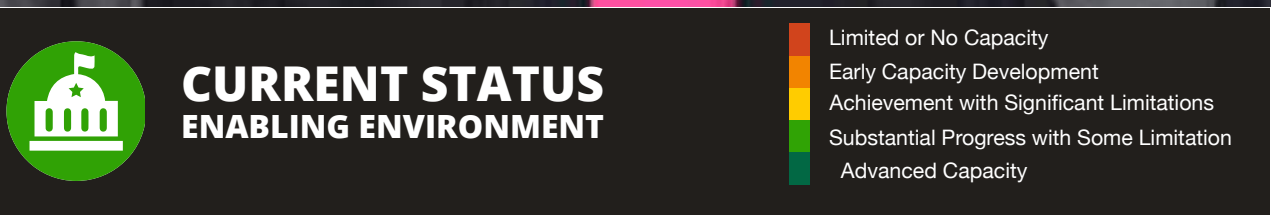
- **We recommend the following to further Cabo Verde's meaningful actions to strengthen stakeholder engagement in DM and DRR:**

  - ✔ Strengthen the policies to ensure NGOs, the private sector partners, and other sectoral organizations are comprehensively engaged in government disaster management efforts in a coordinated and complementary manner. Formalize and build relationships with key partners in these sectors. Formally integrate them into plans.
  - ✔ Develop/strengthen municipal level response plans. Ensure plan coordination.
  - ✔ Fully engage higher education institutions in the technical committees through Memoranda of Understanding (MOUs) and proper funding mechanisms and tie these to the Science and Technology (S&T) agenda.
  - ✔ Expand the activities of NGOs and private sector partners and formalize them to operate at the subnational levels to address specific needs of populations.
  - ✔ Create a formal NGO Association whose program/mission areas have DM. Document their previous activities to leverage their resources to incorporate them into preparedness plans, eliminating redundancies in the services.
  - ✔ Leverage NGOs in raising disaster risk awareness in local communities emulating on the previous work of The Women Organization of Cabo Verde (Organização das Mulheres de Cabo Verde, OMCV)
  - ✔ Include academia in DM through linking DM research, and training needs to academic programs.

THE DMA

ENABLING ENVIRONMENT

ENABLING ENVIRONMENT



Cabo Verde's enabling environment for DM has clear achievements with some limitations.

As a signatory nation to HFA and Sendai, Cabo Verde's disaster risk management development policies have been shaped through funding and knowledge transfer from external lending and development agencies such as the World Bank and UN that have been instrumental in the capacity building. As such, Cabo Verde's existing legislation is based on a broad strategic vision and covers all phases of DM (mitigation, preparedness, response, and recovery). The Civil Protection Base Law 2012, the National Contingency Plan Law 2010, and the Regulatory Decree No.18/99 organizing SNPC-B govern the DM affairs in Cabo Verde. While Cabo Verde enjoys a relatively well-developed and well-functioning legislative system in the West Africa Region and the legal arrangements pertaining to DM are comprehensive, they are up for renewal as indicated in its National DRR Strategy (ENRRD). Two of the main impediments to a well-functioning comprehensive disaster management system are the budget shortages stemming from the country's major debt problem and the scarcity of mechanisms to socialize DM/DRR capacity building regulations, especially at the subnational levels. Cabo Verdean DM system is still focused on preparedness and response with limited national funds for DRR. While stakeholder participation in policy formulation, especially from the main public and private sector organizations, is strong in Cabo Verde, there is a need for more inclusiveness, especially from the most vulnerable groups, including the rural population, women, and others disadvantaged.
In short, the Government of Cabo Verde has a history of challenges in aligning the implementation of the legal frameworks with the national and municipal agendas with limited budgets.

SUBTHEME STATUS
ENABLING ENVIRONMENT

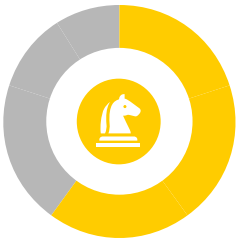
- Limited or No Capacity
- Early Capacity Development
- Achievement with Significant Limitations
- Substantial Progress with Some Limitation
- Advanced Capacity

Legal Instruments

- Legal arrangements for disaster management requirements
- Completeness of legislation to support all phases of disaster management
- National basis for disaster management legislative process
- Implementation schedule for legislation
- Legal foundation for the establishment of disaster management institutions
- Legal establishment of disaster management budgets
- Level of socialization of disaster management legislation throughout government
- Formalized legislative process, cooperation mechanisms, and means to acquire human and material resources during disasters.
- Scope of legislative requirements related to a State of Emergency declaration
- Legal authority of military in support of disaster management activities
- Legal foundation of international and cross-border disaster management engagement to include participation in regional and international disaster management frameworks
- Legal requirements for disaster management structures at subnational levels of government
- Legislative guidance and support to disaster risk reduction activities and requirements

Financial Resources

- Budget arrangements for disaster management
- Compliance with disaster management funding and legislation targets
- Scope of the disaster management budget
- Existence of dedicated emergency or contingency funds
- Current level of disaster management budget support
- Existing disaster reserve fund restrictions
- Role of grant programs to support preparedness and disaster risk reduction programs at all subnational and local levels of government
- Inclusion of training, education, and research and development in the disaster management budget
- Inclusion of funding to support capacity development at lower jurisdictional levels
- Status of a catastrophic risk insurance market
- Role of the public sector to regulate the insurance market to address market solvency
- Availability of low-interest loan availability to support households, businesses, or NGO recovery
- Government support for disaster microfinance
- Guidelines for the provision of disaster relief funds to impacted jurisdictions.

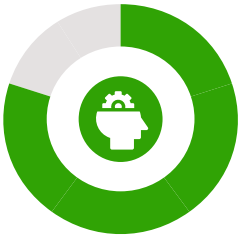


Strategies

- Existence of disaster management and disaster risk reduction strategic plans and policies
- Engagement of disaster management stakeholders in the development of strategic plans
- Level of guidance and oversight provided to disaster management stakeholders
- Policy support for the integration of disaster risk reduction
- Integration of disaster risk reduction and disaster management policies across government
- Integration of mitigation planning into DRR policy instruments
- Inclusion of gender and vulnerable groups in DM and DRR strategies and policies

Public Confidence and Political Support

- Level of support from top government officials for disaster management and disaster risk reduction efforts
- Existing committees to address disaster management and disaster risk reduction
- Integration of inter-agency and multi-stakeholder input into the legislative process
- Public support for disaster risk reduction provisions
- Public confidence in disaster management agency capabilities
- Influence of political approval ratings on disaster management decisions



Attitudes and Experience

- Practical disaster management experience at the subnational and national level
- Practical disaster management experience at the lead official(s)
- Level of public engagement with disaster management efforts
- Private sector participation in disaster management efforts
- Assessments of household preparedness

RESOLUTIONS
Resolution No.3/IX/2020 (Approves COVID-19 Contingency Plan)
Resolution No.114/2018 (Approves the National DRR Strategy)
Resolution No.10/2015 (Approves National Strategic Water and Sanitation Plan, PLENAS)
Resolution no. 11/2010 (Approves the NCP)
Decree Law 2021 (pending)
Decree Law No.61/2020 (Defines legal regime applicable to Cabo Verdean Firefighters)
Decree Law 36/2020 (COVID-19 State of Emergency Declaration)
Decree Law No.5/2019 (Loan Agreement with IBRD)
Decree Law No.29/2018 (Creates National Emergency Fund FNE)
Decree Law No.14/2016 (Approves Coastal and Adjacent Sea Management Plans, POOC_M)
Decree Law No.11/2013 (Regulates MAI Interior Framework)
Regulatory Decree No.13/2009 (Approves INMG's New statutes)
Regulatory Decree No.3/2002 (Regulates CNPC)
Regulatory Decree No. 18/99, (Establishing National Council for Civil Protection, Organic Framework of SNPC)
Regulatory Decree No.5/99 (Regulates CNPC, CNEOEPC, CMOEPC, superseded)
Cabo Verde Constitution approved 1980 (with amendments through 1992) Superseded by 2010 (4th) edition

The Key Pieces of DM-Related Legislation in Cabo Verde
(Source: PDC desk search)

FINDINGS AND ACTIONS
TO REACH ADVANCED CAPACITY

No one is better and more knowledgeable about the reality of the risks than the residents of the local area. We want to reach each citizen and provide training and awareness-raising in DRR. The more we invest in prevention, the less will be spent in the rebuilding phase if a disaster occurs. This is the change we want. **- Captain Renaldo Rodrigues, SNPC-B29**

- Cabo Verde's disaster management system is governed by three key pieces of legislation as follows:
  - The Decree Law on the SNPC (Regulatory Decree no. 18/99, December 20, 1999) – charters Serviço Nacional de Proteção Civil (SPNC) which was later changed to Serviço Nacional de Proteção Civil e Bombeiros (SNPC-B) - National Civil Protection and Fire Service
  - The National Contingency Plan (NCP) (Resolution no. 11/2010, March 15, 2010) - delineates the response structure for disaster events and operationalizes the National Operations Center of Emergency and Civil Protection (CNOEPC)
  - The Civil Protection Base Law (Law no. 12/VIII/2012, March 7, 2012) - identifies all the principal actors and their duties, establishes the principles of decentralized responsibility, and cross-departmental support across them.
- The National Strategy governs the national Disaster Risk Management System (SINAGERD) for DRR 2018-2030 (ENRRD), signed into law in 2018. ENRRD calls for a revision of the Base Law to enhance the integration of DRR through the strengthening of early warning systems, public awareness, and information management.
- Existing legislation covers all phases of DM (mitigation, preparedness, response, and recovery) and is based on a broad strategic vision.
- Cabo Verde is experiencing difficulties aligning the legal framework's implementation with the national and municipal agendas with limited budgets.
  - Strengthen the Regional Operational Commands to push the alignment (WB-GFDRR solution)
- The ENRRD promotes the following priority areas with corresponding key results to be achieved:
  - Revision, promotion, and enforcement of technical codes to construct critical infrastructure, facilities, and buildings – However, the International Code Council (ICC) reports an absence of the Cabo Verdean building code published online and stated that the regulatory authority was unclear.
    - Strengthen construction code enforcement mechanisms by fully supporting the Society of Engineers and Architects and Cabo Verde Chamber of Construction.

- ✔ Cross-cutting integration of DRR into national strategic plans for long-term sustainable development for resilient post-disaster recovery.
- ✔ Integrating of gender issues and DRR into sustainable development plans – While policies address gender (including ENRRD, the National Strategic Water and Sanitation Plan- (Plano Estratégico Nacional de Água e Saneamento, PLENAS), National Plan for Gender Equality (Plano Nacional para Igualdade de Gênero, PNIG) and the Cabo Verdean Institute for Gender Equality and Equity (Instituto Cabo-verdiano para Igualdade e Equidade do Género, ICIEG) works to improve gender equality, there is room for improvement.
- ✔ Developing financial mechanisms to integrate DRR and disaster risk governance into sustainable development strategic plans.

★ DM and DRR policy goals are integrated but not widely socialized. Many of the government partners, NGOs, businesses, and others need guidance to understand their role in these efforts. Legal guidance is inadequate for sectoral partners. Stakeholder guidance is needed in communicating the DM and DRR efforts.

★ Cabo Verde has the proper legal instruments to guide land use and urban planning and continues to update the legislative framework through amendments to existing laws. However, our desktop research did not uncover an increase in land regulations after adopting the 2017 DRR Strategy.

★ Due to its unique geographic location and cultural heritage, Cabo Verde enjoys international and regional partnerships formalized through various treaties and Acts, many of which support DM/DRR through low-interest loans, investment programs, and projects.

★ The National Council for Civil Protection (CNPC) is the standing legislative and advisory committee with a central focus on DM and/or DRR in accordance with the Base Law 2012 provisions.

★ The Constitution guarantees citizens' rights during a state of emergency. Detailed provisions exist for emergency powers by issuing decree-laws depending on the disaster situation.

★ The Fire Service was moved under the Civil Protection Service. However, the Fire Brigades' legally defined setup and accountability were not clarified.[6] Fire Services remain mostly a volunteer service in Cabo Verde, except for Praia (Praia signed its fire brigades into Law through Regulation 14/2010 that defines the roles and responsibilities of the technical and admin staff). Therefore, we recommend amending/creating the DM legislation to:

- ✔ Legally define the role of the Fire Service (that was moved under the Civil Protection Service) to ensure accountability and professionalization of Fire Services and with dedicated funding streams.

★ Base Law 2012 introduced Regional Disaster Command Centers as the intermediary organizations that make up Civil Protection Services. However, the law does not elaborate upon the exact roles and the executive powers of the Regional Commanders. There have been difficulties staffing the Regional Command Centers. Therefore, we recommend amending/creating the DM legislation to:

- ✔ Legally establish/charter the Civil Protection Regional Command Centers to provide more authority and autonomy with dedicated budgets.
- ✔ Address implementation schedules.

★ Resource shortages inhibit technical assistance on local capacity building. Better funding mechanisms are needed to teach and train the workforce that performs the civil protection functions at the local levels of the government.

★ The SNPC-B submitted a Draft Decree Law to the Ministry of Internal Affairs (Ministério da Administração Interna, MAI) to deepen collaboration and cooperation between and across national and international partners horizontally and vertically. It also details the roles of:

- ✔ The National and Regional Command structure
- ✔ The National Council of Firefighters
- ✔ Risk and Emergency Planning Department
- ✔ The Fire Department
- ✔ The Human Resources and Financial Management Department
- ✔ Civil Protection and Fire Inspection

★ DM Budgets fall short of the actual need.

★ Civil Protection budget only covers administrative and operative costs (2019 budget is approximate ~300K USD).

★ The National Emergency Fund (Fundo Nacional de Emergência, FNE), established through Decree-Law No.59 2018, covers response and relief costs. It is an autonomous contingency fund that allows internal and external funds to be mobilized through specific government agencies; however, it does not provide subnational level funds.

★ Municipalities are not required to hold a certain percentage of their budgets for DM activities, thus in the case of an extreme event, they tap into their regular budgets, and when the capacity is exceeded, they request assistance from the central government. 10% of the state budget goes to municipalities through regulated mechanisms (population, land, and poverty rates). There are no clear guidelines for state funding of relief efforts or capacity development at subnational levels.

★ The Sovereign Emergency Fund (Fundo Soberano de Emergência, FSE) provisions disaster recovery financing. The fund was created with an initial capital of €10 million and has reached a ceiling of € 50 million by Decree-Law.

★ A 0.5%-point increase in Value Added Tax (VAT) has been used to finance the 2014 Fogo Eruption Recovery; it is also the projected funding source for FNE. The creation of FNE allows Cabo Verde to go into borrowing agreements with international aid agencies such as the World Bank.

- The Government of Cabo Verde successfully supplemented disaster funds through emergency appropriations in past events, reaching 2% GDP. The government has relative flexibility to finance response actions through external financing mechanisms without the approval of the Parliament.
- Fogo Volcanic Eruption resulted in around $28 million in damages (75% direct and 15% indirect loss). However, The Cabo Verdean Government has a high debt ratio. The nominal government debt was 130% of the GDP in 2017 for Cabo Verde, a lower-middle-income country with a moderate growth rate.
- No clear guidelines exist for the provision of disaster relief funds to disaster-impacted jurisdictions.
- There is no catastrophic risk insurance market in Cabo Verde.
- Loan programs are only provided to a limited audience; and are not well-established.
- There is a government-supported microfinance strategy. However, it is early and does not specifically target disaster credit.
- Funds are limited for education, training, and awareness-raising in the official DM budgets. Grant programs exist, but they are financed externally with limited scope and are non-recurring. Therefore, we recommend:
  - Revise the legislation on national and subnational DM budget(s) provisioning the following:
    - Adequate funding to improve Cabo Verde's DM/DRR operational capacity,
    - Tied to the Civil Protection Base Law through an amendment,
    - Programmatic, administrative, and operational needs addressed,
    - Training, education, and R&D needs to be addressed,
    - Capacity development funds at national and subnational levels,
    - Guidelines for access and use,
    - Guidelines for the provision of relief funds to disaster victims,
    - Provision transfer mechanisms of calamity funds from the FNE to subnational level governments.
  - Develop a catastrophic risk insurance market with proper regulatory mechanisms for affordable premiums and market solvency and work with regional banks and private insurance companies. Require scientific risk-based modeling of hazards.
  - Create affordable formal microfinancing mechanisms through PPPs. Leverage existing disaster financing programs.
  - Establish low-interest loans available to support a household, business, or NGO recovery costs ineligible under other funding streams or options.

[1] The budget provided through the National Contingency Plan (NCP) 2010 for preparedness and response (that had a total provision of ~$3 million USD) has been superseded by National Emergency Fund.

- ★ SNPC-B leadership has solid public support based on media reports and PDC team visits and interviews.
- ★ Public confidence in DM and DRR entities has not been assessed. Political approval ratings are not collected in Cabo Verde. Household preparedness is assessed by the National Statistical Agency (INECV).
- ★ While the public is engaged in disaster preparedness efforts, organized citizen brigades are not common. Public engagement in DM efforts is not at the desired levels. We recommend:
  - ✔ Periodically collect political approval ratings; combine findings with household preparedness levels to assess core DRR/DM needs and gaps within communities, and measure, enhance public perception of DM activities, and garner citizen participation through exercises
  - ✔ Periodically conduct surveys to assess vulnerable populations' DRM/DRR needs within each jurisdiction.
  - ✔ Enhance/instill public training/education programs for pre-disaster awareness.
  - ✔ Address the needs, resource contribution capabilities, and participation of all stakeholder groups, including NGOs and the private sector.
  - ✔ Align strategic plans and policies to integrate SD, DM, and DRR through stakeholder support and input for all phases.
  - ✔ Strengthen the participation of stakeholders through the creation of committees.
  - ✔ Through legal provisions, establish a robust governance foundation for emergency preparedness-related activities.

THE DMA

DISASTER GOVERNANCE MECHANISMS

DISASTER GOVERNANCE MECHANISMS

CURRENT STATUS
DISASTER GOVERNANCE MECHANISMS

- Limited or No Capacity
- Early Capacity Development
- Achievement with Significant Limitations
- Substantial Progress with Some Limitation
- Advanced Capacity

Cabo Verde's current disaster governance mechanisms have evident achievements with some limitations.

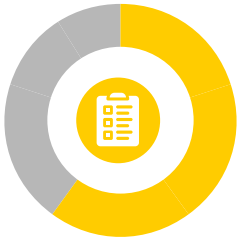
The ENRRD foresees a national system for disaster risk management (SINAGERD) by 2030 that integrates the plans based on the UNDP-UNICEF-UNFPA hazard and risk analysis study covering droughts, floods, flash floods, earthquakes, and volcanic eruptions.[20,30] The realization requires updating the existing national-level plans, the entire development and integration of municipal level plans based on hazard risk assessment studies and scenario planning, and priority setting. Coordination and accountability across vertical levels and incorporating international standards in disaster assistance and management are a work-in-progress. While the incident command structures and systems (ICS) are designed and are functioning in practice, there are implementation challenges with the National Contingency Plan.[31] Notably, the National Emergency Operations Centre (CNOEPC) and the alert levels are not fully implemented. In regard to ICS, agency responsibilities, including police and fire coordination, are informal/ad hoc. New CNOEPC has been fully operational since 2021, with the co-located multi-agency dispatch center with 24/7 surveillance. The Cabo Verde Navy has its Maritime Operations Center with the support of the US Navy. The Civil Aviation Agency (Agência de Aviação Civil, AAC) operates EOCs on a 24/7/365 basis in international airports. The alternative CNOEPC is in Mindelo.

The draft SOP for the National Emergency Operations Center detailing the declarations and activation process has not been formalized.[32] Communications interoperability and responder training and credentialing across responder agencies remain a problem. An organizational framework has been set up for recovery operations.

Cabo Verde does not have a national-level Continuity of Government (COG) or Continuity of Operations (COOP) plan or strategy.

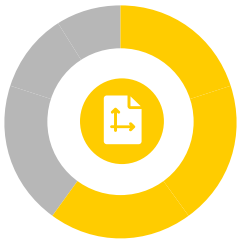
SUBTHEME STATUS
DISASTER GOVERNANCE MECHANISMS

- Limited or No Capacity
- Early Capacity Development
- Achievement with Significant Limitations
- Substantial Progress with Some Limitation
- Advanced Capacity



Plans and Standard Operating Procedures

- Inclusion of all phases of disaster management in plans and procedures
- Inclusion of Continuity of Operations and Continuity of Government in plans and procedures
- Level of coordination across government to support disaster management plans
- Clarity of roles and responsibilities in existing plans and procedures
- Definition of the Declarations Process
- Level of accessibility of plans and SOPs
- Coordination and crosswalk of minimum disaster management requirements at every level of government.
- Adoption and implementation of formalized mutual aid agreements at all levels of government to support disaster management efforts
- Clarity in process and protocols to activate and integrate external disaster assistance
- Clarity and functioning of existing protocols to process, accept and utilize donated goods and volunteer resources



Command, Control, and Coordination Systems

- Operationalization of existing incident command systems in response to disaster operations
- Existence of explicit legal and planning instrument to define the incident command and management systems and structures
- Clarity of plans and procedures on the roles and responsibilities including decision-making authorities and reporting hierarchies of the incident coordination system
- Adoption of a functional approach to planning, coordination, and response support
- Facilitation of interagency coordination during all phases of disaster management

Emergency Operations Centers

- Support for and the existence of jurisdictional sole-use, purpose-built EOCs
- Existence of dedicated EOC facilities
- Minimum standards for EOC equipment and operationalization
- Mitigation protection implemented for primary EOC from known hazards
- Accessibility of the national EOC to key government officials
- Policy and practice for minimum time to full EOC activation
- Duration of EOC operations with existing, staff, equipment, and resources
- Existence of primary and secondary EOCs
- Establishment of field-level coordination centers
- Establishment and clarity of plans and procedures to support long-term community recovery
- Communications interoperability that has been established and validated across all government
- Existence of a training and credentialing system that allows for the tracking and easy notification of human resources so they may be called upon during times of disaster.

I	Blue	Planning, Operations and Telecommunications Director	The Blue Alert characterizes routine emergencies.	Minimum
II	Yellow	SNPC-B/CNOEPC President	The Yellow Alert is declared in case of actual occurrence or prediction of a serious incident or accident.	Intermediate
III	Orange	SNPC-B/MAI President	The Orange Alert is declared in an emergency.	High
IV	Red	MAI/Prime Minister	The Red Alert is the maximum level of the CNOEPC and it means that the CNOEPC situation has been activated.	Maximum

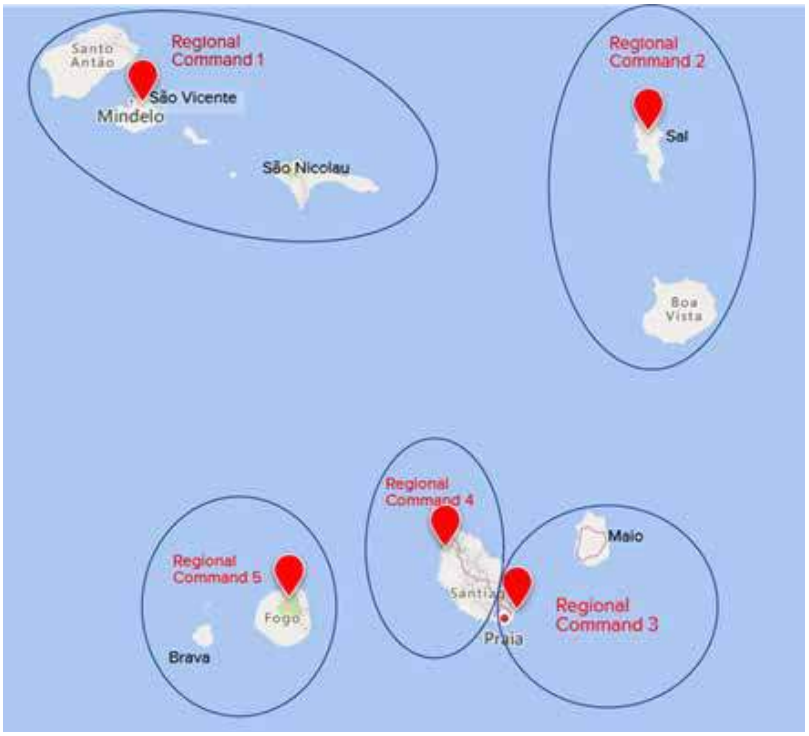
National Emergency Operation and Civil Protection Centre (CNOEPC) Structure
(Source: National Contingency Plan 2010, Section 6.1.5)

NO.	ACTIVITIES	AGENTS
First 24 hours		
1	Declares emergency, convene an emergency meeting for information sharing and mobilization	MAI
2	Activate the emergency cell	SNPC-B
3	Activate the Contingency Plan and other structures	CNOEPC
4	Send an evaluation mission at the level of affected areas	CNOEPC
5	Initiate emergency relief based on assessment	CNOEPC
First 48 hours		
6	Mobilize available emergency funds and stocks	MAI
7	Decide on the request for international support coordination strengthening. Contact SNU.	GOVERNMENT
8	Present the results of the rapid assessment to the emergency cell.	EVALUATION TEAMS
9	Review the strategic intervention plan, and the sharing of roles and responsibilities	CNOEPC
10	Convene sectoral meetings	CNOEPC
11	Implementation of a multi-sectoral response according to identified priorities	CNOPEC
12	Collect and consolidate data for bulletins (situation reports and analysis of necessities)	CNOEPC
13	Establish an information strategy aimed at the populations	CNOEPC
14	Assess the “safety” situation	CNOEPC
15	Propose post-traumatic treatment if necessary	CNOEPC
First 2 weeks		
16	Consolidate information on who does what and where. Analyze gaps and flow of material assistance	CNOEPC
17	Carry out in-depth assessments and plan a 6-month response, identify immediate consequences and induced effects	CNOEPC
18	Keep the media informed	CNOEPC
19	Identification of reception centers for the homeless	CNOEPC

Disaster Declaration and Response Matrix
(Source: National Contingency Plan Law 2010, Section 4.4.4)

SECTOR	PARTICIPATING ENTITY
Coordination	SNPC-B, New C.S.
Food	National Food Safety Agency
Agriculture	Ministry of Environment, Rural Development, and Marine Resources/ General Directorate of Agriculture, Forestry, and Livestock (DGASP)
Refugees/Displaced Persons	Ministry of Internal Affairs (MAI)
Education	Ministry of Education and Higher Education
Water/Sanitation	Ministry of Environment, Rural Development, and Marine Resources/ National Institute of Water Resources Management (INGRH)
Nutrition	INGRH
Health	Ministry of Health
Shelters	MAI
Field Management	MAI (SNPC-B)
Early Recovery	Ministry of Labor and Solidarity
Protection	Ministry of Justice
Telecommunications	Ministry of Infrastructure, Transport, and Telecommunications
Logistics	MAI (SNPC-B)
Security	MAI
Media (media, populations)	Deputy Minister of the Prime Minister
Information Management	Presidency of the Council of Ministers and the Parliamentary

Sector Lead MDAs
(Source: National Contingency Plan, Section 7.2.1) 31



Map of Regional Commands, (Source: DisasterAWARE®)

FINDINGS AND ACTIONS
TO REACH ADVANCED CAPACITY

- The ENRRD foresees a national system for disaster risk management (SINAGERD) by 2030 that integrates the plans based on the UNDP-UNICEF-UNFPA hazard and risk analysis study covering droughts, floods, flash floods, earthquakes, and volcanic eruptions.
- While the Incident Command Structures and Systems are designed and are functioning, in practice, there are implementation challenges with the National Contingency Plan, the most important one being the National Emergency Operations and Civil Protection Centre (Centro Nacional de Operações de Emergência, CNOEPC) and the alert levels not being implemented fully. The ICS, including who does what, when, and concerning police and fire coordination, are informal at times.
- The new CNOEPC was operationalized in 2020, and the multi-agency dispatch center with 24/7 surveillance. They are co-located in the same building. The Cabo Verde Navy has its Maritime Operations Center with the support of the U.S. Navy. The Civil Aviation Agency (Agência de Aviação Civil, AAC) operates EOCs on a 24/7/365 basis in international airports. The alternative CNOEPC (CNOEPCAL) is in Mindelo.
- The draft SOP for the National Emergency Operations Center detailing the declarations and activation process has not been formalized yet. (National Emergency Operations Center Standard Operating Procedures (SOP) Initial Draft February 2017 (34 pp.)
- National Contingency Plan details the declarations processes and vertical cooperation mechanisms. CNOEPC is activated on red alert, which means the scope of the emergency necessitates a national disaster declaration by the Prime Minister or the Minister of Home Affairs when the PM delegates the authority. However, in practice, the establishment of the CNOEPC and the vertical delegation of authority amongst national, regional, and municipal levels have been slow due to a lack of resources and the absence of clear guidelines.
- The NCP is due for an update to reflect the increasing climate-related events (droughts, floods, bad agricultural years), volcanic eruptions, Dengue, and Zika Epidemics, COVID-19 Pandemic, and the advances in DRR and DM, including the global, regional, and local plans, and frameworks.
- There is no revision schedule for policies, plans, or strategies.
- A reliable radio communications network to connect Police, fire brigades, and the municipal Civil Protection Services does not exist yet. Fire services use old equipment with compatibility issues. (See capabilities and resources below) World Bank-GFDRR identified the need to establish a satellite communications network to enhance DM communications.
- Responder credentialling system does not exist.

- Cabo Verde does not have a national-level Continuity of Government (COG) or Continuity of Operations (COOP) plan or strategy.
- The Post Disaster Recovery Framework (PDRF) issued in 2018 incorporates the lessons learned from the Fogo Volcano eruption 2014-2015, Hurricane Fred, and Zika and Dengue epidemics. There is a Recovery Office located within MAI, and there is an institutional arrangement. However, the flow of adequate finances during recovery seems to be a problem. UNDP plans to finish the second phase of the "Capacity Building for Resilient Recovery" project for West Africa in 2021, which may further identify challenges related to recovery.
- The City of Praia (where almost one-third of the population of Cabo Verde resides) has been preparing disaster prevention, preparation, recovery, and rehabilitation that involves a team composed of Civil Protection and Fire Departments, Environment and Sanitation, Municipal Guard, Infrastructure and Transport, Social Action and Gender of the City Council. It was financed around $300K.
- Mindelo and Sao Vicente Municipalities have preparedness plans based on performance during the rainy season related to measures such as the adequacy of the channel drainage conditions on the island. Municipal SOPs are not formalized in Mindelo. Brava has an Emergency Response Plan addressing seismic and volcanic hazards and has an evacuation plan. There is an updated plan, but it was not approved yet.
- Mindelo & Sao Vicente Municipal Official Sr. Carlos stated that a formalized response capacity-building framework is needed with plans, procedures, training, and exercises involving the military, private sector, volunteer organizations, and the public. Sr. Carlos mentioned the existence of a micro-plan that he could share.
- Volcano hazard planning is needed or needs to be updated.
- To support the vision for ENRRD and SINAGERD, we recommend the following:
  - ✔ Update the National Contingency Plan (National Response Framework/Plan) and municipal and hazard-specific plans to reflect the current realities, including recent disasters, hazard threat spectrum, findings from the major hazard studies, including the UNDP-UNICEF-UNFPA hazard and risk analysis (Systematic Inventory Evaluation for Risk Assessment – SIERA 2013, Detailed Evaluation of Urban Risk 2014; Comprehensive Hazard Assessment and Mapping in Cabo Verde 2014; Urban Risk Profiles of Ribeira Brava, Mosteiros, and Praia -2018 that were overseen by SNPC-B, conducted by Uni-CV, INMG, among others, and financed by the UN, JICA, and other major international aid organizations).
  - ✔ Establish scalable and flexible standard Incident Command Systems (ICS) structures and protocols applicable to international protocols and standards. Update and formalize the CNOEPC (NEOC) SOP. Create subnational SOPs that are compatible with the national ICS.
  - ✔ Develop and require the use of COOP and COG plans.

- ✔ Periodically update and formalize the SOP and the response frameworks to address the current needs by creating and according to standard evaluation procedures and aligning with DRM policies. Incorporate lessons learned.
- ✔ Make the subnational preparedness plans publicly accessible.
- ✔ Test and exercise governmental plans that address short- and long-term disaster recovery needs, including psychosocial recovery. Leverage the results found from the UNDP project to include in the planning.
- ✔ Prepare and legislate a National Evacuation Plan, National Emergency Communications Plan, a National Volunteer Policy, and Municipal Disaster Preparedness Plans.
- ✔ Integrate plans and policies across the national and subnational government and critical infrastructure sectors.
- ✔ Ensure to get plan input from other stakeholders, including NGOs, CSOs, and businesses.
- ✔ Provide plan guidance to localities and exercise the plans.
- ✔ Create responder credentialing systems.

★ A national forum for stakeholders is regularly held in 20 of the 22 municipalities in Cabo Verde. However, coordination of municipal plans horizontally and vertically does not exist or has challenges.

★ Mutual aid agreements exist at subnational and local levels but are not formal. Good examples exist, such as a regional plan with FAO and Civil Protection to address forest fire challenges.

★ International mutual aid agreements are in place with ECOWAS. National Association of Municipalities have direct partnership agreements with Italy, Brazil, Portugal through formal arrangements, but they have no mandate for an intra-municipality response. Their website is remotely managed from Portugal.

★ Challenges exist regarding coordinating external disaster assistance with issues surrounding a lack of exposure to international standards, including service inconsistency, documentation, response monitoring, operational framework, and oversight. Therefore, consistent with recommendations from GFDRR, we recommend the following:

- ✔ Expand Cabo Verde's membership to international DM and coordination networks,
- ✔ Prepare scalable emergency operations plans (EOPs) that include large-scale emergency scenarios requiring international aid; (see earlier recommendation)
- ✔ Implement training and exercises for international support coordination;
- ✔ Establish a better warehousing and logistical system and stock management of relief items, and detailed protocols to organize the provision of aid to remote communities with difficult access

- ★ Cabo Verde has prepared/adapted frameworks to combat Climate Change related risks, primarily:
  - ✔ National Action Plan for the Environment (Plano de Ação Nacional para o Meio Ambiente, PANA I, II),
  - ✔ National Action Plan to Combat Desertification (Plano de Ação Nacional de Combate à Desertificação, PAN-LCD)
  - ✔ National Biodiversity Strategy and Action Plan (NBSAP)
  - ✔ Plan of Action for the Integrated Management of Water Resources (Plano de Ação para a Gestão Integrada de Recursos Hídricos, PAGIRH)
  - ✔ National Strategy for Food and Nutritional Security (Estratégia Nacional de Segurança Alimentar e Nutricional, ENSAN)
  - ✔ National Agriculture Investment Plan (Plano Nacional de Investimento Agrícola, PNIA), Agriculture Strategic Development Plan (Plano Estratégico de Desenvolvimento Agrícola (PEDA) 2005-2015
  - ✔ National Action Plan for Renewable Energy (2015/2020/2030). We recommend:
    - Ensure that these plans are strategically aligned with other major disaster management plans, including response and recovery.
- ★ It was observed that the NGOs with programs and missions relevant to disaster management coordinate through informal networks instead of fully structured systems that require active memberships and registry systems. In addition to the recommendations we stated above under the Stakeholder Engagement, we recommend:
  - ✔ Define clear roles and responsibilities at each level of government in SOPs and plans, including all the relevant players and leveraging resources from the private sector and the NGOs.

THE DMA

CAPABILITIES AND RESOURCES

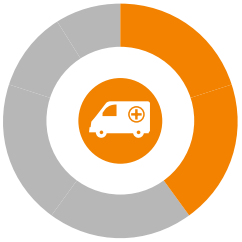
CAPABILITIES AND RESOURCES

Cabo Verde's current capabilities and resources for DM are in the stage of early capacity development with significant limitations.

Cabo Verde's emergency services at both the national and subnational levels are not equipped with material or human resources appropriate to manage known hazards due to serious/chronic lack of funding. SNPC-B has difficulty purchasing its disaster stockpiles. The system is dependent on external funding and donations.[6] Material resources designated for disaster management are insufficient and are kept at below minimum standards across the jurisdictions. The staff has limited and primarily old and donated equipment. Some of the vehicles date back to 1975. Praia municipal fire station is closest to being state-of-the-art with new vehicles. SAR equipment is inadequate and far below minimum standards. PPE shortages prevailed, but all firefighters received PPE and boots through a procurement program by the end of 2021. There are no legal frameworks or procurement mechanisms for emergency material resources. There are no contracts with DM-relevant commodity providers. The system depends on donated material which creates maintenance and repair problems. Cabo Verde's Universal access to health services is not yet ensured, with a particular lack of emphasis on disabled people on remote islands.[33] The progress of improving healthcare capacity is underway with known shortages in finance and staff training.

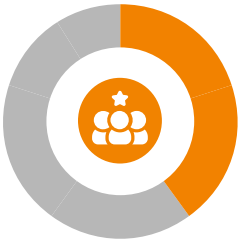
SUBTHEME STATUS
CAPABILITIES AND RESOURCES

- Limited or No Capacity
- Early Capacity Development
- Achievement with Significant Limitations
- Substantial Progress with Some Limitation
- Advanced Capacity



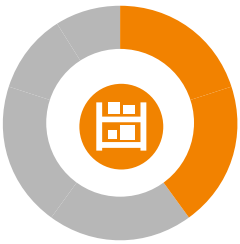
Dedicated Facilities and Equipment

- Capacity of jurisdictional emergency service facilities
- Status of maintained material resources designated to effectively respond to known emergencies and disasters in the given jurisdiction
- Access requirements to supplemental disaster management resources
- Maintenance and active management of disaster management inventories
- Status of shelter operations (suitability, maintenance, access, and equipment)
- Healthcare capacity and integration of public health and medical facilities within the national disaster management system



Human Resources

- Dedicated emergency management staff
- Dedicated disaster/catastrophe planning and civil protection staff
- Plan and process for integrating surge/supplementary disaster management staffing
- Existing surge staffing sources and levels
- Accessible and updated list of critical post-impact professionals (e.g., building inspectors, engineers, debris removal, etc.)
- Mechanisms to easily activate disaster-related technical staff



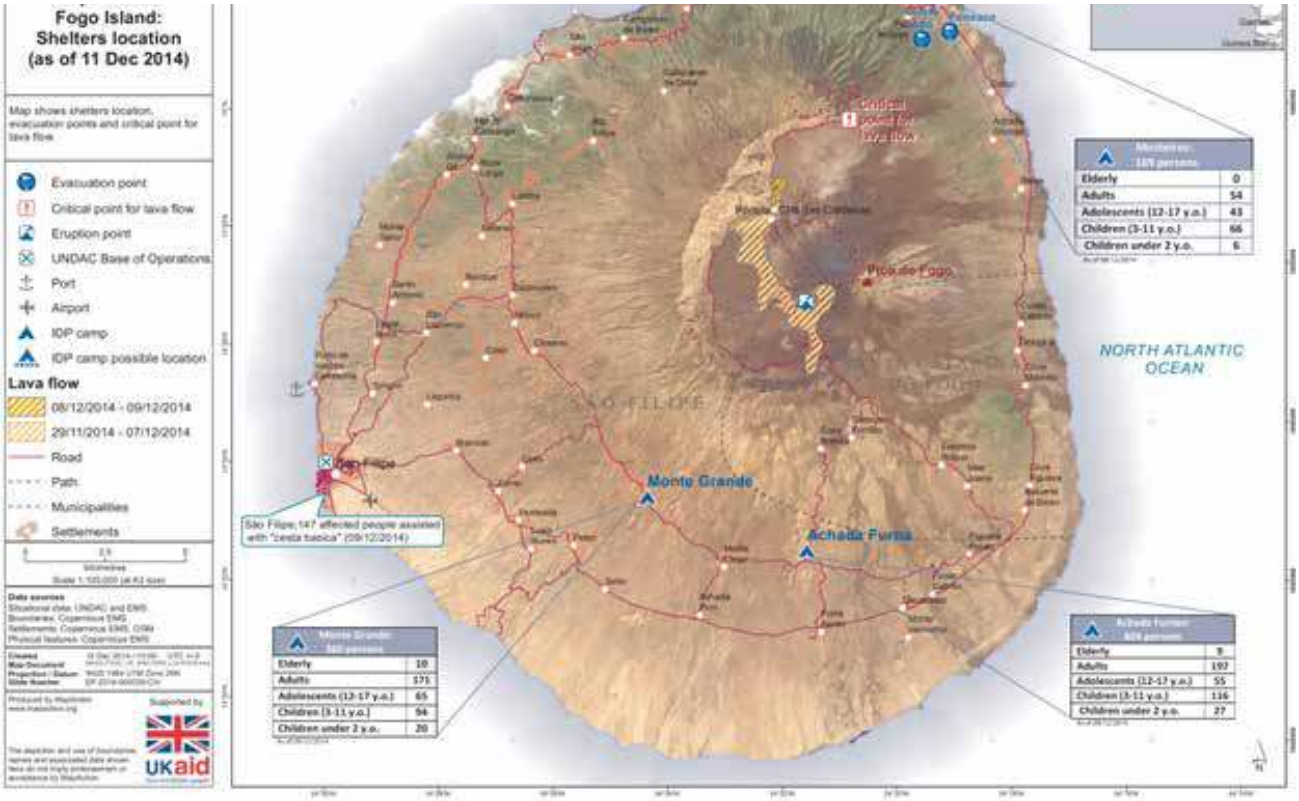
Inventory of Commodities and Supplies

- Process and methods for generating post-disaster commodity needs estimates
- Maintenance of commodity stockpiles
- Location of commodity stockpiles
- Policy and process for distribution of commodities across service areas
- Current practice and maintenance of emergency contracts with providers for critical management-related commodities
- Policy for keeping disaster management resource and supply inventories
- Update frequency of disaster management resource and supply inventories
- Disaster management and supply inventory ownership and responsibility
- Status of a national disaster logistics program

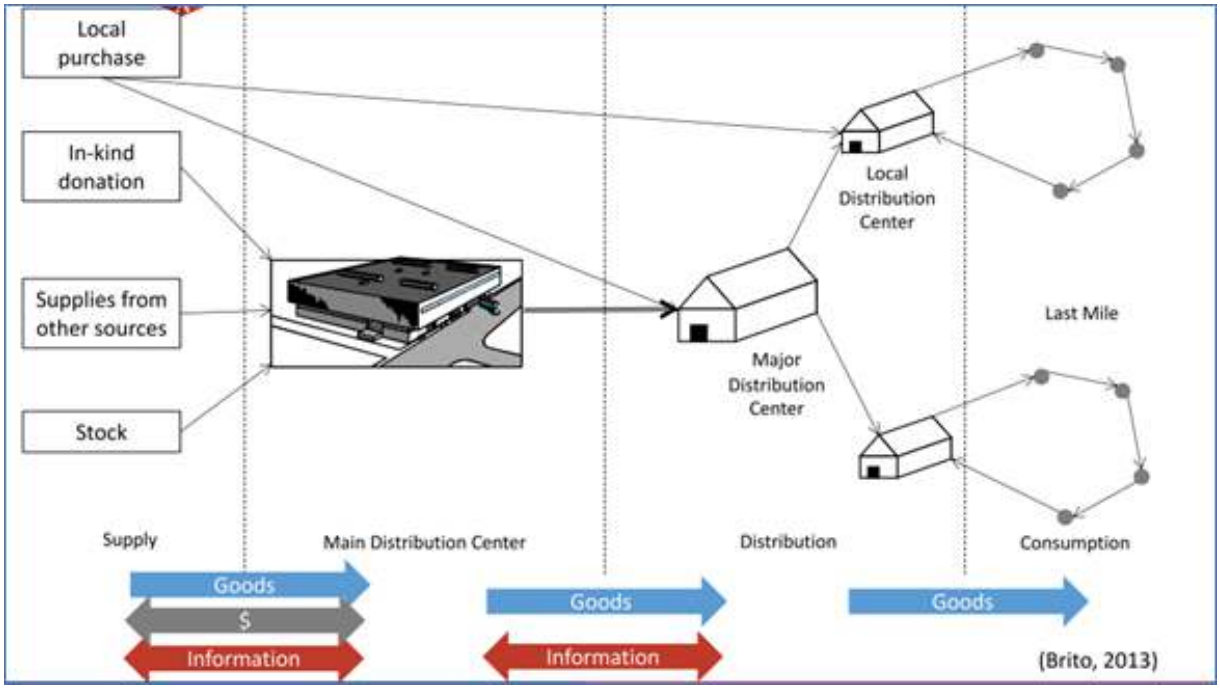
Targeted Functional Capabilities

- Support for psychosocial recovery
- National government capacity to support evacuations
- Current policy and capabilities to address post-disaster water, sanitation, and hygiene (WASH) needs
- Management of safety and security for disaster-affected populations
- Hazardous material (HAZMAT) response capacity
- National level search and rescue capabilities
- Agricultural preparedness, response, and recovery

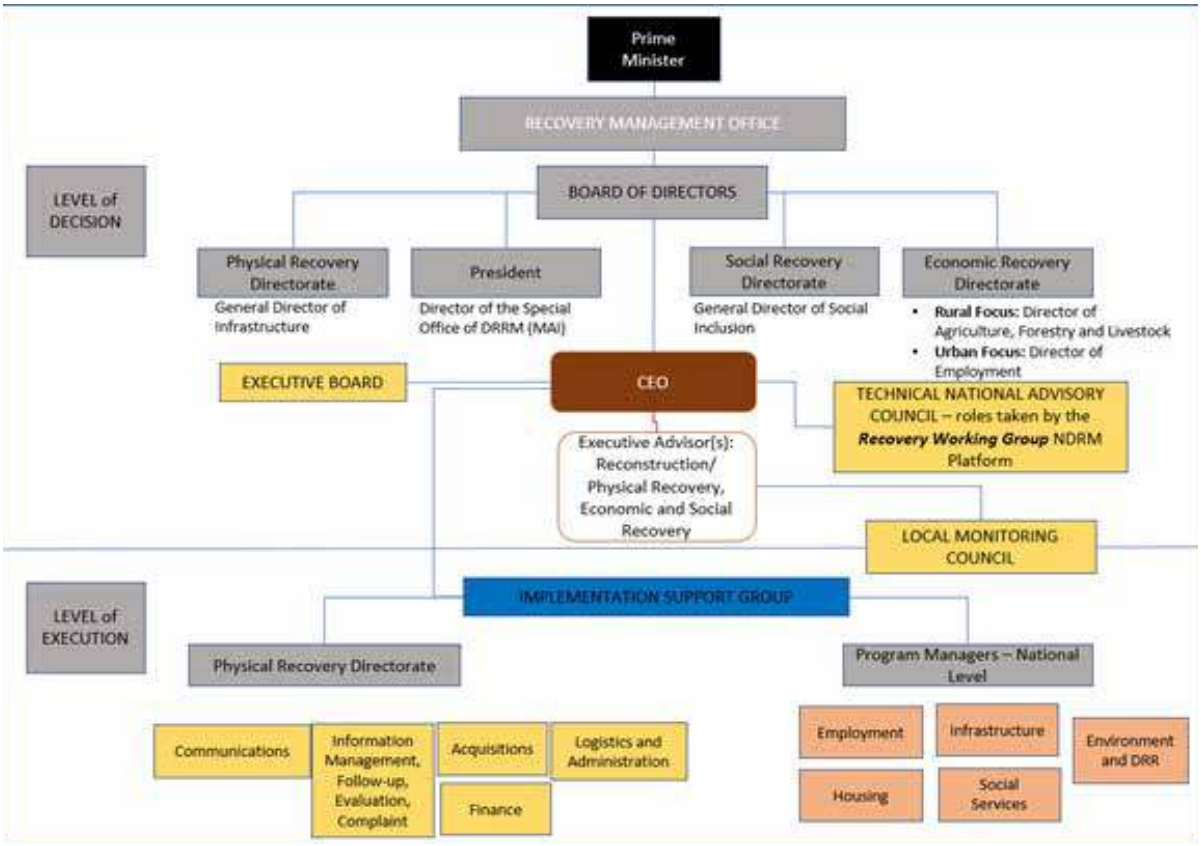
Municipal fire truck in Praia
(Photo: Joel Myhre, PDC, 2019)



2014 Pico de Fogo Volcanic Eruption Shelters and Evacuation Points
(Source: MapAction, UKAid)



Suggested Humanitarian Supply Chain Set-up
(Source: World Bank-GFDRR, 2020)



Recovery Management Office
(Source: Post-Disaster Recovery Framework, Resolution 115/2018, p.1682)

FINDINGS AND ACTIONS
TO REACH ADVANCED CAPACITY

FACILITIES AND EQUIPMENT:

- Cabo Verde's emergency services at both the national and subnational levels are not equipped with material nor human resources appropriate to manage known hazards due to a serious and chronic lack of funding. SNPC-B has difficulty purchasing its disaster stockpiles. The system is dependent on external funding and donations.
- Material resources designated for disaster management are insufficient and are kept at below minimum standards across the jurisdictions. The staff has limited and primarily old and donated equipment. Some of the vehicles date back to 1975. Praia municipal fire station is closest to being state-of-the-art with new vehicles. SAR equipment was inadequate and far below minimum standards. PPE shortages prevailed, but all firefighters received PPE and boots through a procurement program by the end of 2021.
- Coast Guard has been in the process of procuring a $5.5 million worth of plane to use in rescue operations financed through the Cabo Verde Sovereign Emergency Fund (ESF).
- There are no legal frameworks or procurement mechanisms for emergency material resources. There are no contracts with DM-relevant commodity providers. The system depends on donated material which creates maintenance and repair problems.
- There is no digital central information system to keep DM resources and supply inventories.
- Shelter arrangements are ad-hoc and improvised. There is no official database for shelters. Existing shelters are insufficient in capacity. During Fogo Eruption in 2014, 2,500 people were internally displaced and placed into shelters. UNDAC and others helped to identify shelter locations, including schools. Cabo Verde Government wants to use schools as shelters as a last resort, not to disrupt education. UNDAC assessment of Brava revealed a need for sheltering up to 6,000 residents in the case of a volcano eruption. Parks, vacant lands, and green spaces need to be identified for evacuated/IDP people.
- In the case of volcanic hazards, there is a need for more extensive facilities and more resources. The current facility used for volcanic hazard monitoring by the INMG is dual-use with Mindelo Civil Aviation.
- There is, in general, an absence of warehouse space and a lack of a central warehouse. Warehousing capacity is weak, and disaster equipment inventories are not kept up to date and not maintained as a national database.

- ★ Duplication of efforts exists in coordinating incoming relief stock (between Red Cross, Civil Protection, and others).
- ★ Transporting relief stock from the capital to the islands is a reported problem (case in point Fogo Eruption).
- ★ Based on these findings, we recommend:
  - ✔ FIRE STATIONS: Consider increasing the number of emergency services facilities by building additional fire stations that cover the response needs based on scientific data leveraging the existing studies and platforms, including the newly populated PDC's DisasterAWARE® system.
  - ✔ HAZARD MONITORING FACILITIES: Consider expanding the volcanic hazard monitoring facility building and its material and personnel resources.
  - ✔ LOGISTICS: Create a nationwide logistical warehouse system including hubs and networks (as recommended by WB-GFDRR) through the existing logistics department of the SNPC-B:
    - Hire and train personnel for logistical system setup and maintenance
    - Calculate the standard delivery time of orders based on means of transport and geolocation of islands for efficient emergency response
    - Estimate monthly consumption figures to refill stockpiles.
    - Given the high risk, carry contingency stocks for immediate response be kept with priorities given to Brava, Santa Antão, and Fogo Islands.
    - Establish a digital system for data storage and information sharing to thoroughly represent all DM material, equipment, and supply inventory from all partner agencies with DM resources.
    - Deconflict the Red Cross and the Civil Protection roles in receiving and stockpiling disaster resources. Incorporate transparent processes into plans.
    - Assign an SNPC-B liaison(s) to assess the material resources needed for emergency response and establish procurement and maintenance mechanisms at regional and subnational levels.
    - Address DM resource requirements through formalized agreements/contracts involving PPPs, NGO sector, and other stakeholders.
  - ✔ SHELTERS: Establish shelter inventory addressing suitability for use through a comprehensive assessment.
    - Keep shelter inventory to address the full capacity needs for anticipated disasters.
    - Leverage the existing hazard risk scenarios and the PDC NDPBA assessment findings to determine shelter needs.
    - Conduct inspections every three years for the suitability, especially location, sanitation, safety, and security.

- Integrate IOM's Manual for the Management of Temporary Shelter into national plans and policies for disaster management.
- Make Fogo and Brava the top priority for shelter planning. (GFDRR recommendation)

HUMAN RESOURCES:

★ There is no firefighting academy in Cabo Verde. And there is a severe shortage of firefighters, with some of the islands and municipalities close to no firefighters, which makes fewer than one firefighter per 1,000 population on islands Sal, Boa Vista, and Santiago. SNPC-B trains career and volunteer firefighters. We recommend:

★ There is currently one geophysicist in Mindelo, Sao Vicente volcano monitoring facility (Dr. Bruno Faria), monitoring all 5 volcanoes located in 5 different islands. There is a need to recruit more staff with scientific credentials to assist Dr. Faria.

★ Santiago North Regional Command (one of the 5 Regional Commands) lacks material and human resources as reported in media reports.[26]

★ More than 70% of technician positions were unfilled in SNPC-B HQs as of October 2020. SNPC-B requests military support to augment staffing challenges.

★ Rosters of trained professionals for critical post-disaster needs are not kept for critical post-disaster needs.

★ Municipalities by law are required to help each other with staffing and material resource needs. National Association of Municipalities (Associação de Municípios de Cabo Verde, ANMCV) does not have the mandate to coordinate.

★ We recommend:

✔ FIREFIGHTERS: As recommended previously in the Enabling Environment analysis, the role of the Fire Service must be legally defined to ensure dedicated funding, accountability, and professionalization of fire services.

✔ CIVIL PROTECTION STAFF:

- Hire and train staff solely dedicated to civil protection planning.
- Train and maintain sufficient skilled staff and resources to manage risk assessment needs.
- Hire and train staff for HAZMAT response.
- Create/upgrade and maintain rosters of trained professionals for critical post-disaster needs.
- Increase the firefighting capacity by training, hiring, and credentialling firefighters, including volunteers.

- Leverage existing NGO, private sector, and volunteer stakeholder agreements to address surge staffing needs.

✔ SCIENTIFIC STAFF: Recruit geophysicists and earth scientists for volcanic hazard monitoring.

HEALTHCARE:

★ Public health and medical facilities are informally integrated into the nation's DM system.

✔ Medical Emergency System is not legally regulated. There is a lack of qualified personnel to attend emergency medical calls, a lack of appropriate personnel and equipment for each severity of the condition, and inconsistent/long response time for ambulances. For example, a 2019 assessment by Preparedness International found that Brava did not have a single operational ambulance, and the island was not equipped to respond to mass care incidents.[6]

✔ Psychosocial recovery capability is addressed in the Post Disaster Recovery Framework. Resource shortages impede the capability. The Hospital of São Filipe has served that function during Fogo Eruption.

✔ The National Institute for Public Health – Epidemiology and Training (Instituto Nacional da Saúde Pública, INSP) has an ArcGIS database of healthcare resources, including hospitals and healthcare personnel. However, it is not kept up to date: (https://www.insp.gov.cv/index.php/observatorio-saude/sistemas-de-informacao-geografica-em-saude#dash).

✔ Based on these findings, we recommend the following:

- Create legal instruments to regulate the emergency health care system with accountability, credibility, and service quality.
- Integrate the nation's public health and medical facilities into the DM system through training, drills, and policymaking to improve the overall national disaster management system's capabilities.
- Create/update hospital preparedness plans and coordinate those with the response frameworks at the local and national levels.
- Leverage the experience of the São Filipe Hospital to create and enhance a nationwide psychosocial recovery capability.
- Update, maintain, and leverage the INSP system and integrate it into a central database for decision-making purposes.

EVACUATION, WASH, SECURITY:

★ Fogo, Santa Antao, Maio, and Sao Tiago have been historically prone to tsunamis. Sao Vicente is subject to landslides. Sao Vicente has the Cabo Verde Coast Guard with an excellent track record of evacuating people in due time (see also RVA findings). Other challenges are that migrants from Santa Antao and Sao Nicolau come to Sao Vicente looking for work. Roads are narrow, and

shoreline populations are at risk. ENACOL is actively testing neighborhood evacuation protocols.

- CSOs reported a lack of evacuation protocols for disabled people.
- 86% of Cabo Verdeans have access to improve drinking water. While WASH is addressed in some strategic plans, provisions are vague, and no support mechanisms are defined.
- Temporary shelters lack access to proper WASH.
- The national government does not maintain a HAZMAT response capacity. There is no HAZMAT equipment and no specialized training for HAZMAT per the GFDRR findings.
- Aeronautical Maritime Service coordinates a Joint Coordination Center SAR in Mindelo (JRCC). The Coast Guard contributes personnel and equipment for marine, air, and ground in SAR operations, including national emergencies and disaster support.
- Mindelo municipality lacks SAR equipment. In general, SAR equipment is far below minimum standards.
- While agricultural preparedness is addressed in plans, note that ninety percent (90%) of food is imported from other countries like China and Portugal.
- Thus, regarding functional capabilities like security, evacuation, SAR, WASH, Cabo Verde is at a partially developed stage with some implementation barriers generally revolving around funding issues.
- Based on these findings, we recommend the following:
  - ✔ Enhance/update evacuation plans and WASH, safety, and security needs of disaster-impacted populations with particular emphasis on vulnerable populations - including the elderly, disabled, women, children, refugees, and low-income citizens, at the national subnational levels.
  - ✔ Integrate the various local evacuation plans into a national standalone evacuation plan.
  - ✔ Integrate and leverage sectoral evacuation plans (e.g., ENACOL) into the national evacuation plan.
  - ✔ Conduct regular evacuation exercises and training ahead of seasonally anticipated events.
  - ✔ Create procurement plans for remedying equipment shortages for HAZMAT and SAR.
  - ✔ Continue to increase the agricultural sector preparedness, response, and recovery capacity.

THE DMA

CAPACITY DEVELOPMENT

CAPACITY DEVELOPMENT

Cabo Verde's current capacity development status for DM shows some evident achievements with significant limitations.

Training and exercises are major gap areas. There are no structured national-level exercises, training facilities, training schedule, training catalog, exercise evaluation standards, maintenance of training records, exercise participation requirements, formalities to include stakeholders in training. There is no dedicated budget for those. There is no firefighter academy. The 1992 Law on Civil Protection that the 2012 Base Law later superseded on Civil Protection mandated the establishment of training facilities but was not implemented.[27,34]

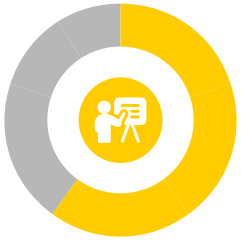
Draft Decree Law Reorganizing Civil Protection 2021 creates a planning office under SNPC-B assigning SNPC-B as the executing training and capacity building agency. DM and DRR capacity and resource assessments are conducted without any deliberative planning process. External, 3rd-party delivered training is available but on an irregular basis. Public awareness, preparedness, and resilience-building campaigns are conducted, albeit sporadically.

SUBTHEME STATUS
CAPACITY DEVELOPMENT

Limited or No Capacity
Early Capacity Development
Achievement with Significant Limitations
Substantial Progress with Some Limitation
Advanced Capacity

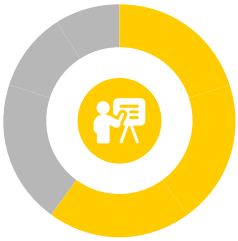
Capacity Development Plans and Strategies

- Formalized and established training and exercise requirements
- Formalized and established position-specific competency requirements
- Coordination process for the development of disaster management capacity
- Existing disaster management and disaster risk reduction capacity plans
- Process for assessment of disaster management and disaster risk reduction capacity resources
- Coordination of disaster management and disaster risk reduction efforts with regional and global efforts
- Inclusion of disaster management and disaster risk reduction in the national science and technology agenda



Training and Education Programs and Facilities

- Jurisdictional disaster management/disaster risk reduction training
- Scope of disaster management/disaster risk reduction training and education
- Standard training delivery methods
- Existence of training schedule and/or catalog
- Maintain training records
- Level of exercise program implementation and staffing
- Exercise evaluation standards
- Structured annual exercise schedule
- National-level exercises
- National support for provincial and regional exercise efforts
- Participation of government agencies with disaster management functions in the exercise process
- Disaster management stakeholder involvement in training and disaster exercises
- Higher-education support for disaster management
- Higher-education offerings
- National support for public preparedness through an established disaster management curriculum
- Existence of formalized public awareness and resilience-building programs



Monitoring and Evaluation Processes and Systems

- Procedures to guide the evaluation and revisions of plans, strategies, and SOPs
- Established review periods plans, strategies, and SOPs
- Established process to review and update disaster management legislation
- Requirements for post-disaster review and evaluation
- Incorporation of evaluations into plans, policies, and SOPs

OFFERING INSTITUTION	NAME OF THE AREA	DEGREE OFFERED
University of Cabo Verde (Uni-CV)	Environmental Management and Policies[35]	Ph.D. and Master's
	Agricultural Information Management and Precision Agriculture[36]	Master's
	Public Health[37]	Postgraduate specialization
Technical University of the Atlantic (UTA)	Economic, Legal, and Political Sciences with a specialization in Local Development and Agenda 20/30[2]	Postgraduate specialization
Jean Piaget University of Cabo Verde (UniPIAGET)	Geography and Spatial Planning[39]	Bachelor's
	Environmental Engineering and Natural Resources[40]	
Santiago University (US) **Lusófona University of Cabo Verde**	Forest Engineering[41]	Bachelor's
	Oceanography and Marine Resource Management[42]	Ph.D. and Master's
	Public and Local/Municipal Administration[43,44]	Master's and Bachelor's
Higher Institute of Legal and Social Sciences (ISCJS)	Public and Community Health[45]	Master's
	Infectious and Tropical Diseases[46]	
	Clinical Analysis and Public Health	Master's
	Public Policy and Local Development[47]	Bachelor's
	Safety and Security Management[48]	Master's
	Political Science & Public Administration[49]	Bachelor's
		Bachelor's
		Bachelor's

Higher Education degrees offered pertinent to DM and DRR in Cabo Verde

Source: Higher Education Regulatory Agency (ARES)14

FINDINGS AND ACTIONS
TO REACH ADVANCED CAPACITY

- Cabo Verde has no structured national-level exercises, training facilities, training schedule, training catalog, exercise evaluation standards, maintenance of training records, exercise participation requirements, or formalities to include stakeholders in training.
- The 1992 Law on Civil Protection that the 2012 Base Law later superseded on Civil Protection mandated the establishment of training facilities. However, it has not been fully implemented.
- Draft Decree Law Reorganizing Civil Protection 2021 creates a planning office under SNPC-B, assigning SNPC-B as the executing training and capacity building agency.
- DM and DRR capacity and resource assessments are conducted without any deliberative planning process.
- Municipalities are significantly less organized due to a lack of hazard information.
- Position-specific competencies have been identified but are not associated with training or education strategies. We recommend:
  - Institutionalize DRM training with a dedicated budget, staff, and facilities.
  - Develop a formal exercise program with dedicated staff.
  - Develop a structured annual exercise schedule.
  - Maintain training records in a centralized system.
  - Create a comprehensive DRM training and education curriculum that closely tracks emerging needs and inclusive stakeholders and would open opportunities to build capacity among individuals and organizations across sectors.
  - Create mechanisms to provide material, technical, and staffing support to subnational level training and exercises.
  - Maintain exercise evaluation standards common throughout each area.
  - Periodically assess DRM capacity and resource needs through deliberative planning.
  - Create/enhance formal public awareness programs for preparedness and resilience building.
  - Facilitate the full participation of community centers/organizations in promoting disaster awareness, preparedness, and training.
  - Establish/update training protocols for the already established position-specific competency requirements and use them as staff hiring credentials.

- ✔ Through chambers of commerce and other professional organizations, provide and integrate the private sector into disaster preparedness programs.

★ There are structured and regularly held agency and sector-specific training and exercises:

- ✔ Cabo Verde Military conducts its annual training and exercises with a budget allocated through the Military Chief of Staff. Annual exercise scenarios range from crime to hurricane to earthquake.
- ✔ CVCG and Civil Aviation Agency (AAC) have table-top exercises and training at least twice a year. Their safety staff receives firefighting training.
- ✔ ENACOL Fuel carries out simulated joint exercises with National Police and Fire Services to comply with international requirements.
- ✔ National Police has a training facility for police officers to train up to 120 participants at a time.
- ✔ Due to a lack of certified trainers in Cabo Verde, trainers come from abroad.
    - Recommendation: Integrate sector-specific plans into national and municipal response plans. There is an acknowledged need for training in the following areas:
    - Emergency medical technicians (EMTs) (WHO). (See also healthcare capacity findings above)
    - Mortality management (GFDRR).
    - Information management, communication technology, and equipment (especially radio) use among first responders (GFDRR).
    - Surface water rescue (during floods) (GFDRR).
    - Accident response (GFDRR).
    - HAZMAT (GFDRR).
    - SAR (GFDRR).
    - Hazard-specific training (GFDRR).
    - Use of rescue trucks such as extrication operations (GFDRR).
    - Rope rescue in mountainous regions such as on Tope da Coroa mountain on the island of Santa Antão, where the elevation is 1,979 meters (6,493 ft) (GFDRR).
    - Incidents involving ship collisions, fire, or other emergencies on ships (GFDRR).
    - ICS Training and Exercises for the Mindelo Municipality (PDC).

★ External training is available but not regularly:

- ✔ The Portuguese fire department conducts irregular training.
- ✔ Cabo Verde has participated in the Africom Disaster Preparedness Program in collaboration with KAIPTC and ECOWAS. WADPI has a training curriculum. In 2017 the 2-week training

consisted of 50 Cabo Verdean interagency personnel, including healthcare, environmental scientists, firefighters, law enforcement. The training covered EOC management, ICS and strategic communications, logistics, security, civil-military coordination, Ebola and Zika awareness education, first responder training, and One Health surveillance.

- ✔ Cabo Verde Coast Guard (CVCG) participates in French and Dakar exercises involving maritime security.
- ✔ Cabo Verde (with its CVCG) is one of the seven beneficiary countries of part of the Gulf of Guinea Inter-regional Network (GoGIN), which aims to build maritime security capacity in the region.
    - Recommendation: Utilize external training for train the trainer purposes.

★ The Cabo Verdean government does not have an official national S&T agenda yet. In 2017, a new Secretary of State position on Innovation and Professional Training was created under the Office of the Deputy/Vice Prime Minister. In 2018, the government promoted the first national science, technology, and innovation called "CV Next," which promoted digital innovation.

★ Uni-CV is the flagship university that contributes to DM research, innovation, and transfer of knowledge to practice. There are 10 universities accredited by the ARES, the higher education regulatory agency of Cabo Verde.

- ✔ Uni-CV created MAKAVOL Project together with the Volcanological Institute of Canary Islands (Instituto Vulcanológico das Canárias, INVOLCAN) – Institute of Meteorology and Geophysics (INMG) is actively using the MAKAVOL volcanic surveillance products.
- ✔ Uni-CV and Cabo Verde Volcanological Observatory (Observatório Vulcanológico de Cabo Verde, OVCV) noted shortages of scientific staff and equipment (see hazard monitoring facilities and staff above).
- ✔ DM relevant degree programs are limited.
- ✔ No national symposia for DM/DRR.
- ✔ Based on these findings, we recommend the following:
    - Hold a regularly occurring national/international symposium on DM and DRR with the Uni-CV as the host with support from MAI- SNPC-B and relevant MDAs and other external sponsors.
    - Empower/integrate the efforts of academia (especially Uni-CV) to offer relevant higher education programs at the bachelor's level at a minimum that supports the professionalization of DM and hosting symposia.

★ West Africa Institute (WAI) was established in Praia "to provide the missing link between policy and research in the regional integration process." It is supported by the GoCV, UNESCO, ECOWAS, West African Economic and Monetary Union (WAEMU), and the Pan-African Ecobank. WAI does not have a focus on DRR or DM. We recommend the following:

- ✔ Revisit the mission and role of WAI and explore ways to serve as S&T policy research focusing on DM and DRR as part of its ongoing mission.

★ No K-12 DRM curricula exist yet.

★ Public awareness, preparedness, and resilience-building campaigns are carried out, albeit sporadically. We recommend the following:

- ✔ Develop strategies to engage the public in preparedness and resilience-building campaigns. Leverage NGOs in the process of advocacy campaigns.
- ✔ Mainstream DRR, risk awareness, and preparedness in school curricula.

THE DMA

COMMUNICATION AND INFORMATION MANAGEMENT

COMMUNICATION AND INFORMATION MANAGEMENT

Cabo Verde's communication and information management capacity for DM is in early capacity development with significant limitations.

Risk assessments are not regularly performed, though requirements are guided by legislative and planning documents in Cabo Verde. Significant challenges exist, including a lack of standardized procedures, poor enforcement mechanisms, and gaps in resource availability. Cabo Verde relies on external assistance from international organizations such as the UN and World Bank to perform risk assessments. Vulnerability assessments are not successfully incorporated into the formal risk assessment protocols, the inclusion of climate change and local and indigenous knowledge is limited. There is no multi-hazard early warning system; hazard monitoring occurs for only some hazards, and the country does not have Doppler radar. INMG and SNPC-B mainly conduct hazard monitoring and coordination. EWS capacity also has challenges that include lack of standard procedures and testing, basic technology, lack of community training, and targeting vulnerable populations.

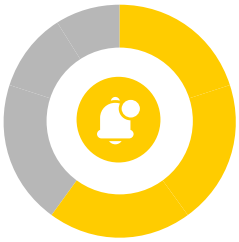
A nationally authorized assessment framework, called a Post Disaster Needs Assessment, is used but is not fully utilized in incident action planning.[19] National standards are in place for data collection and sharing, but a centralized data platform needs to be implemented to streamline data sharing of DM information. The main PIO needs to be appointed across all DM agencies, and media training and public information need to be more widely provided. Disaster communication strategies need to be formalized, documented, and tracked to focus on vulnerable populations.

SUBTHEME STATUS
COMMUNICATION AND INFORMATION MANAGEMENT

- Limited or No Capacity
- Early Capacity Development
- Achievement with Significant Limitations
- Substantial Progress with Some Limitation
- Advanced Capacity

Hazard and Risk Analysis Systems

- Risk assessment processes and standards
- Requirements for risk assessments for disaster management and disaster risk reduction planning efforts
- Skilled staff and necessary resources to manage risk assessment needs
- Vulnerability inclusion in risk assessments
- Climate change inclusion in risk assessments
- Local and indigenous knowledge inclusion in risk assessments
- Risk assessment reporting systems
- Risk mapping requirements
- Risk mapping capacity
- The current relationship between risk assessment and development decision making

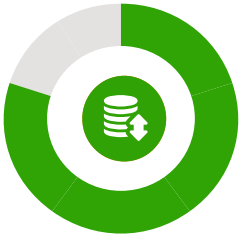


Monitoring and Notification

- Hazard monitoring
- Responsibilities for hazard monitoring activities
- Methods and technologies for hazard monitoring efforts
- Coordination of hazard monitoring
- Population coverage of hazard monitoring
- Doppler Radar coverage
- Designated agency for the consolidation and notification of early warning communication
- Standard procedure for notification and early warning
- Communication of early warnings
- Risk-targeted early warning capabilities
- Early warning system coverage
- Testing protocols of early warning systems
- Education and training of populations served by early warning systems
- Inclusion of vulnerable populations in the early warning system notification

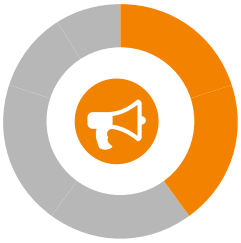
Disaster Assessment

- Disaster assessment capabilities
- Inclusion of disaster assessment requirements in the declaration process
- National assessment methodology
- Capacity to conduct assessments in the aftermath of major events
- Outcome-driven incident action plan
- Engagement of all relevant disaster management stakeholders in assessments



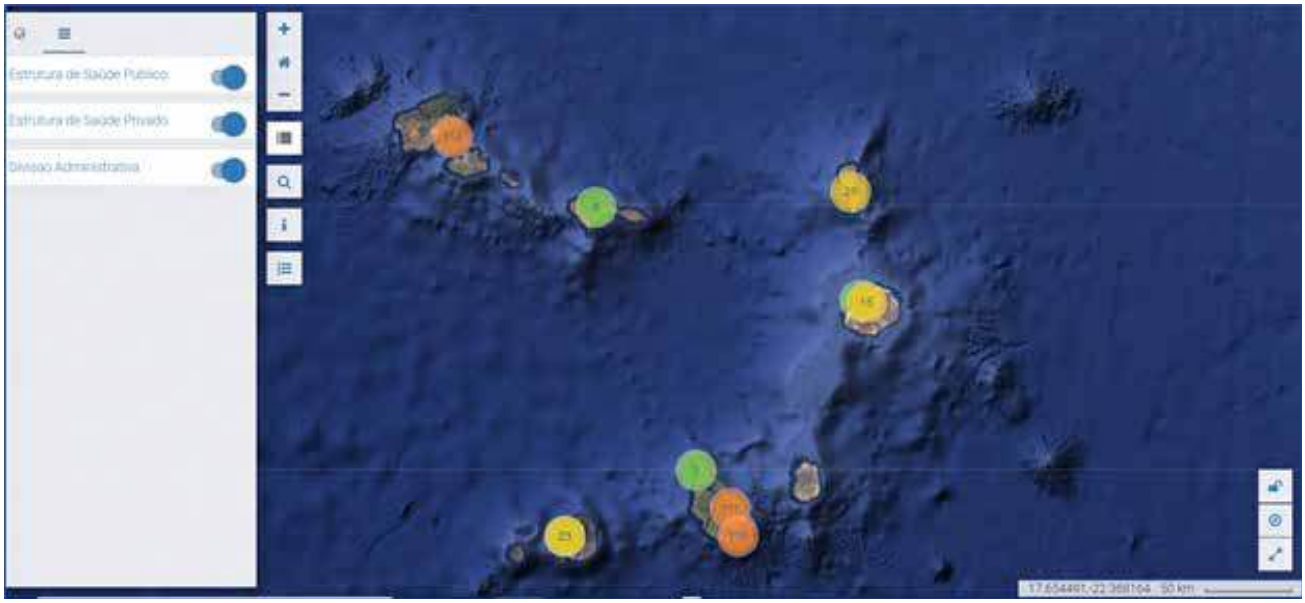
Information Collection, Management, and Distribution

- Data collection and storage standards
- Data format
- Data sharing
- Use of a GIS-based data management system for a common operating picture (COP)
- Linkage between disaster loss database and national statistics agency
- Disaster management information sharing

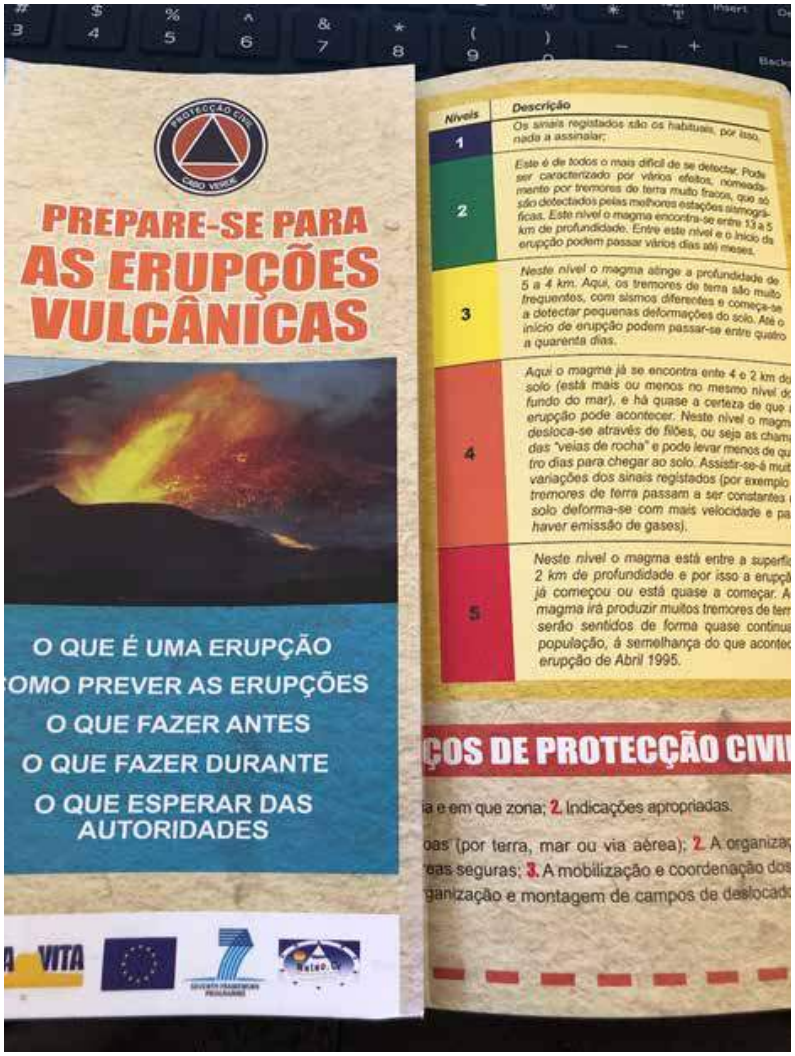


Media and Public Affairs

- Designated Public Information Officer (PIO) position within disaster management agencies
- Documented communications strategy
- Dedicated media briefing space
- Media training for staff engaged in briefings
- Processes to obtain and disseminate public information in multiple formats and channels
- Development and deployment of pre-scripted information bulletins
- Scope of the audience for public information capabilities
- Tracking of publicly generated information (social media)



INSP's GIS Tool on Health Infrastructure Network
(Source: INSP website)



Preparedness Handouts for Volcanic Alert Levels
(Source: SNPC-B, 2019)

FINDINGS AND ACTIONS
TO REACH ADVANCED CAPACITY

- Risk assessments are not regularly performed, and requirements are guided by legislative and planning documents in Cabo Verde. However, significant challenges exist, including a lack of standardized procedures, poor enforcement mechanisms, and gaps in resource availability.
- Cabo Verde relies on external assistance from international organizations such as the UN and World Bank to perform risk assessments.
- Vulnerability assessments are not successfully incorporated into the formal risk assessment protocols, the inclusion of climate change and local and indigenous knowledge is limited.
- There is also a lack of a centralized system and a reported insufficient capacity for producing and hosting risk assessments and mapping data.
- Cabo Verde does not have a multi-hazard early warning system, and hazard monitoring occurs for only some hazards. There is currently no Doppler radar.
- INMG and SNPC-B mainly conduct hazard monitoring and coordination.
- EWS capacity also has challenges that include lack of standard procedures and testing, basic technology, lack of community training, and targeting vulnerable populations.
- A nationally authorized assessment framework, called a Post Disaster Needs Assessment (PDNA), is used but is not fully utilized in incident action planning (IAP).
- National standards are in place for data collection and sharing, but a centralized data platform needs to be implemented to streamline data sharing of DM information.
- The main PIO needs to be appointed across all DM agencies, and media training and public information need to be more widely provided. Also, disaster communication strategies need to be formalized, documented, tracked, and targeted to vulnerable populations.
- Based on these findings, we recommend the following:
  - ✔ Establish and incorporate risk assessment processes and standards, including vulnerability assessments, climate change, and indigenous knowledge at the national and subnational levels.
  - ✔ Incorporate and require a risk assessment for DM and DRR planning efforts. (See also legislative)
  - ✔ Enhance capabilities to conduct disaster assessments through the development and use of nationally authorized assessment methodology, making a requirement under the declarations

process, assigning adequate resources through proper training, and engaging all relevant DM stakeholders.

- ✔ Create/adopt national standards for DM data collection, management, storage, and sharing in an entirely digitized format that can be fully shared between government NGOs and other stakeholders for decision making.
- ✔ Institute a centralized GIS-based data management system for a common operating picture and planning efforts across all DM stakeholders, to include risk and vulnerability assessments, maps, and other relevant data generated by the Uni-CV, UN risk assessment study.
- ✔ Establish/maintain risk mapping capacity and a centralized GIS system to support risk assessment reporting at the national and subnational level with adequate training of staff.
- ✔ Create/update/maintain a national disaster loss database linked to the national statistics agency, INECV.
- ✔ Centralize the coordination of hazard monitoring for alert notification/warning while keeping/assigning government agencies of Cabo Verde for specialized monitoring of hazards.
- ✔ Investigate Doppler Radar procurement options through feasibility studies and hazard studies.
- ✔ Upgrade/acquire technologies to monitor hazards and promote adoption and use of information and communications technology (ICT) among sub-sectors of the population such as the elderly, disabled, and those who are socially isolated to facilitate the timely and effective receipt and dissemination of information before, during, and after a disaster.
- ✔ Expand Common Alerting Protocols across all government agencies in Cabo Verde to include island and location-specific alerts for local hazards. Include the capability to disseminate location-specific alerts.
- ✔ Ensure/enhance EWS to target more than 75% of the population and adapt to vulnerable populations.
- ✔ Expand the efforts for hazard monitoring to meet the Sendai commitments (“The entire population is expected to be served by hazard monitoring efforts by 2024.”)
- ✔ Implement standardized practices to regularly test early warning systems for all hazards.

NATIONAL RECOMMENDATIONS

NATIONAL RECOMMENDATIONS

The following national recommendations are presented based on Cabo Verde's National Disaster Preparedness Baseline Assessment, conducted by the Pacific Disaster Center in coordination with the Ministry of Internal Affairs and its Office of Civil Protection and Fire Services (SNPC-B). The recommendations focus on strengthening the culture of disaster risk reduction through comprehensive disaster management and good disaster-risk governance.

The recommendations below focus on strengthening the culture of disaster risk reduction through:

- Advancing the formalization and integration of DRM/DRR plans.
- Strengthening disaster financing mechanisms.
- Integrating NGO/private sector actors into key DRM/DRR activities.
- Updating programs and policies to address vulnerable populations directly.
- Centralizing the role of coordinating training and education for capacity development.
- Expanding early warning, hazard monitoring, and information management capacity.
- Investing in infrastructure and development projects to strengthen resilience to hazards and long-term climate impacts.
- Reassessing progress made toward DRM/DRR goals to build a safer, more disaster-resilient nation.

These recommendations, along with the 5-year plan, can be used as a roadmap to bolster DM and DRR efforts in Cabo Verde, to deliver on its commitment to its citizens and residents, and to advance international targets under the Sendai Framework for Disaster Risk Reduction.

1 FORMALIZE DISASTER MANAGEMENT COMPETENCIES WITHIN SNPC-B.

- Ensure an established civil security career pathway and continuity in policies and planning in SNPC-B for effective DM and DRR.
- Require relevant bachelor's and/or master's degrees for key leadership positions by associating those to relevant academic offerings and with proper funding mechanisms.
- Address the short-term staffing needs in key critical DM functional areas.
- Institute and expand training programs and exercise requirements and link to all relevant DM staff competencies, including the media.
- Establish incident-specific proxy leadership, depending on the nature of the disaster.
- Legally define the role of the Fire Service (that was moved under the Civil Protection Service) to ensure accountability and professionalization of Fire Services and with dedicated funding streams.

2 STRENGTHEN THE REGIONAL OPERATIONAL COMMANDS.

- Legally establish/charter the Civil Protection Regional Command Centers to provide more authority and autonomy with dedicated budgets.
- Address implementation schedules.
- Align with SNPC-B policies and procedures.

3 FULLY IMPLEMENT A STANDARD INCIDENT MANAGEMENT SYSTEM AT ALL LEVELS OF GOVERNMENT.

- Include Incident Command System training for the management of the NEOC.
- Train EOC managers in EOC operations and establish a consistent operating and reporting schedule.
- Implement an ICS-like structure for all islands to standardize operating and reporting procedures.

4 DEVELOP A FORMAL MECHANISM TO ASSESS PROGRESS MADE TOWARD ACHIEVING DRR AND SUSTAINABLE DEVELOPMENT GOALS.

- Ensure consistency in developing, reinforcing, and implementing policies, plans, practices, and legal and institutional mechanisms towards a common agenda for sustainable growth, food security, public health and safety, environmental management, and disaster risk reduction.
- Integrate DRR with CCA coherently in national, sectoral, and local development plans and policies.
- Concretize the integration of DRR with CCA in instruments such as the Strategic Plan on Sustainable Development (Plano Estratégico de Desenvolvimento Sustentável, PEDS).
- Integrate DRR with CCA in:
  - Fiscal instruments, frameworks, and public investment systems.
  - Strategic policies, plans, and sectoral programs.
  - Decentralization frameworks and local development plans.
  - Integrate DRR efforts with CCA through partnerships with civil society organizations, the media and journalists, scientists and academics, and community leaders.
  - Require participation from all affected ministries in assessing DRR and SDGs.
  - Schedule quarterly reviews of progress on SDGs with stakeholders.

5 UPDATE POLICIES TO ENSURE NGOS, PRIVATE SECTOR PARTNERS, OTHER SECTORAL ORGANIZATIONS, AND ACADEMIA ARE COMPREHENSIVELY ENGAGED IN GOVERNMENT DISASTER MANAGEMENT EFFORTS IN A COORDINATED AND COMPLEMENTARY MANNER.

- Formally integrate them into plans. Formalize and build relationships with key partners in these sectors.
- Develop/strengthen municipal-level response plans. Ensure plan coordination across all levels of the government.
- Fully engage higher education institutions in the technical committees through Memoranda of Understanding (MOUs) and proper funding mechanisms and tie these to

the Science and Technology (S&T) agenda.

- Expand the activities of NGOs and private sector partners and formalize them to operate at the subnational levels to address specific needs of populations.
- Create a formal NGO Association whose program/mission areas include DM. Document their previous activities and leverage their resources to incorporate them into preparedness plans, eliminating redundancies in the services provided.
- Define clear roles and responsibilities at each level of government in SOPs and plans, including all the relevant players and leveraging resources from the private sector and the NGOs.
- Leverage NGOs in raising disaster risk awareness in local communities emulating on the previous work of The Women's Organization of Cabo Verde (Organização das Mulheres de Cabo Verde, OMCV)
- Include academia in DM through linking DM research, and training needs to academic programs.

6 REVISE LEGISLATION ON NATIONAL AND SUBNATIONAL DM BUDGET(S).

- For example, ensure adequate funding to improve DM/DRR operational capacity and training, education, and R&D needs.
- Revise the legislation on national and subnational DM budget(s) provisioning the following:
  - Adequate funding to improve Cabo Verde's DM/DRR operational capacity.
  - Tied to the Civil Protection Base Law through an amendment.
  - Programmatic, administrative, and operational needs addressed.
  - Training, education, and R&D needs addressed.
  - Capacity development funds at national and subnational levels.
  - Guidelines for access and use.
  - Guidelines for the provision of relief funds to disaster victims.
  - Provision of transfer mechanisms to distribute calamity funds from the FNE to subnational level governments.

7 DEVELOP A NATIONAL RISK TRANSFER STRATEGY FOR NATURAL HAZARDS.

- Develop a catastrophic risk insurance market with proper regulatory mechanisms for affordable premiums and market solvency, working with regional banks and private insurance companies.
- Improve data collection and information sharing capacities among agencies to monitor risk.
- Require scientific risk-based modeling of hazards.

8 CREATE AFFORDABLE FORMAL MICROFINANCING MECHANISMS THROUGH PPPS.

- Leverage existing disaster financing programs.
- Establish low-interest loans available to support household, business, or NGO recovery costs ineligible under other funding streams or options.

9 ENGAGE THE PUBLIC TO SUPPORT DM EFFORTS TO REDUCE DEPENDENCY ON THE GOVERNMENT.

- Through legal provisions, establish a robust foundation for government-led emergency preparedness related activities engaging the public, private sector, NGOs and government agencies.
- Periodically collect political approval ratings and combine findings with household preparedness levels to assess communities' core DRR/DM needs and capacity gaps.
- Enhance the public perception of DM activities and encourage citizen participation through exercises.
- Periodically conduct surveys to assess vulnerable populations' DRM/DRR needs within each jurisdiction.
- Enhance/instill public training/education programs for pre-disaster awareness.
- Address the needs, resource contribution capabilities, and participation of all

stakeholder groups, including NGOs and the private sector.
- Align strategic plans and policies to integrate SD, DM, and DRR for all phases through stakeholder support and input.
- Strengthen the participation of stakeholders through the creation of committees.

10 CREATE CONTINUITY OF OPERATIONS/CONTINUITY OF GOVERNMENT PLANS FOR ALL LEVELS OF GOVERNMENT.

- Require evacuation plans for all islands.
- Require annual exercises to test evacuation plans.
- Ensure pre-disaster and post-disaster evacuation procedures are addressed.
- Develop COOP/COG plans for all islands.
- Exercise COOP/COG plans annually.
- Share ministerial and departmental COOP/COG plans to reduce overlapping requirements and increase inter-operability during continuity operations.

11 UPDATE EXISTING PLANS AND DEVELOP PLANS AND PROCEDURES FOR ALL PHASES OF DISASTER MANAGEMENT

- Standardize planning guidance and develop associated templates for multiple hazards covering all disaster management phases and accounting for unique geographical challenges of the archipelago.
- Prepare and legislate a National Evacuation Plan, National Emergency Communications Plan, a National Volunteer Policy, and Municipal Disaster Preparedness Plans.
- Update the National Contingency Plan (National Response Framework/Plan) and municipal and hazard-specific plans to reflect observations and lessons from recent disasters, hazard threat spectrum, findings from the major hazard studies, including the UNDP-UNICEF-UNFPA hazard and risk analysis (Systematic Inventory Evaluation for Risk Assessment – SIERA 2013, Detailed Evaluation of Urban Risk 2014; Comprehensive Hazard Assessment and Mapping in Cabo Verde 2014; Urban Risk Profiles of Ribeira Brava, Mosteiros, and Praia - 2018 that were overseen by SNPC-B, conducted by Uni-CV, INMG, among others, and financed by the UN, JICA, and other

major international aid organizations.)

- Establish scalable and flexible standard Incident Command Systems (ICS) structures and protocols applicable to international protocols and standards. Update and formalize the CNOEPC (NEOC) SOP. Create subnational SOPs that are compatible with the national ICS.
- Build the plans and procedures on the scientific evidence provided in the NDPBA Assessment.
- Include a whole-of-community approach, clearly identifying roles for government, private sector, non-governmental organizations, and the public.
- Develop mitigation plans and investigate funding mechanisms for mitigation projects.
- Develop preparedness plans to include risk and vulnerability assessments, long-range training and exercise plans, and staffing plans.
- Test and exercise governmental plans that address short- and long-term disaster recovery needs, including psychosocial recovery. Leverage the results from the UNDP project and include them in planning efforts.
- Ensure the following climate change related plans are strategically aligned with all other major plans including response and recovery:
  - National Action Plan for the Environment (Plano de Ação Nacional para o Meio Ambiente, PANA I, II),
  - National Action Plan to Combat Desertification (Plano de Ação Nacional de Combate à Desertificação, PAN-LCD)
  - National Biodiversity Strategy and Action Plan (NBSAP)
  - Plan of Action for the Integrated Management of Water Resources (Plano de Ação para a Gestão Integrada de Recursos Hídricos, PAGIRH)
  - National Strategy for Food and Nutritional Security (Estratégia Nacional de Segurança Alimentar e Nutricional, ENSAN)
  - National Agriculture Investment Plan (Plano Nacional de Investimento Agrícola, PNIA), Agriculture Strategic Development Plan (Plano Estratégico de Desenvolvimento Agrícola, PEDA) 2005-2015
  - National Action Plan for Renewable Energy (2015/2020/2030).
- Integrate plans and policies across the national and subnational government and critical infrastructure sectors to include tourism and agriculture.
- Include planning inputs from an expansive stakeholder base, including NGOs, CSOs, and businesses.
- Provide plan guidance to localities and exercise the plans.
- Create responder credentialing systems.

12 STRENGTHEN MULTI-HAZARD MONITORING AND EARLY WARNING CAPABILITIES

- Expand Cabo Verde's membership to international DM and coordination networks.
- Prepare scalable emergency operations plans (EOPs) that include large-scale emergency scenarios requiring international aid.
- Implement training and exercises for international support coordination.
- Establish a better warehousing and logistical system and stock management of relief items, and detailed protocols to organize the provision of aid to remote communities with difficult access.

13 ENHANCE CABO VERDE'S DISASTER FACILITIES AND EQUIPMENT QUALITY AND QUANTITY THROUGH PROPER FUNDING MECHANISMS.

- FIRE STATIONS: Consider increasing the number of emergency services facilities by building additional fire stations that cover the response needs based on scientific data leveraging the existing studies and platforms, including the PDC DisasterAWARE® system.
- HAZARD MONITORING FACILITIES: Consider expanding the volcanic hazard monitoring facility building and its material and personnel resources.
- WAREHOUSE & LOGISTICS: Consistent with recommendations outlined by the World Bank Global Facility for Disaster Reduction and Recovery, create a nationwide logistical warehouse system including hubs and networks through the existing logistics department of the SNPC-B:
  - Conduct routine warehouse inventorying and stocking.
  - Evaluate commodity distribution plans.
  - Increase the number of storage facilities throughout the islands to reduce the isolation of resources.
  - Hire and train personnel for logistical system setup and maintenance
  - Calculate the standard delivery time of orders based on means of transport and geolocation of islands for efficient emergency response
  - Estimate monthly consumption figures to refill stockpiles
  - Carry contingency stocks for an immediate response, with priorities given to Brava, Santa Antão, and Fogo Islands given the high risk.

- Establish a digital system for data storage and information sharing to thoroughly represent all DM material, equipment, and supply inventories from all partner agencies with DM resources.
- Deconflict the Red Cross and the Civil Protection roles in receiving and stockpiling disaster resources. Incorporate transparent processes into plans.
- Assign one or more SNPC-B liaisons to assess the material resources needed for emergency response and establish procurement and maintenance mechanisms at regional and subnational levels.
- Address DM resource requirements through formalized agreements/contracts involving PPPs, NGO sector, and other stakeholders.

14 IMPROVE AND EXPAND THE NATIONAL SHELTER SYSTEM.

- Establish a shelter inventory addressing suitability for use through a comprehensive assessment and keep shelter inventory to address the full capacity needs for anticipated disasters.
- Leverage existing hazard risk scenarios and findings from the PDC NDPBA to determine shelter needs.
- Conduct suitability inspections annually to evaluate shelter inventory location, sanitation, safety, and security.
- Integrate IOM's Manual for the Management of Temporary Shelter into national plans and policies for disaster management.
- Make Fogo and Brava the top priority for shelter planning. (GFDRR recommendation)
- Evaluate shelters annually and include shelter capacity in planning documents.
- Include minimum functional capacity recommendations for shelters, i.e., staffing, resources, space, logistics, WASH.
- Practice evidence-based decision-making to ensure evacuation and sheltering consider hazard exposures and vulnerabilities based on RVA results.
- Build community centers that can serve as shelters and potentially storage facilities, especially remote islands.
- Minimize the use of schools as shelters.

15 BUILD HUMAN RESOURCE CAPACITY ACROSS THE NATION TO SUPPORT DM EFFORTS.

- FIREFIGHTERS:
  - Increase the firefighting capacity by training, hiring, and credentialling firefighters, including volunteers.
  - Ensure dedicated funding streams for fire services.
- CIVIL PROTECTION STAFF:
  - Hire and train staff solely dedicated to civil protection planning.
  - Train and maintain sufficient skilled staff and resources to manage risk assessment needs.
  - Hire and train staff for HAZMAT response.
  - Create/upgrade and maintain rosters of trained professionals for critical post-disaster needs.
  - Leverage existing NGO, private sector, and volunteer stakeholder agreements to address surge staffing needs.
  - Promote the development and use of island-pairing arrangements and other similar mechanisms to address disaster-related technical staffing requirements.
  - Provide dedicated personnel for tracking SDGs, training, exercises, planning, and tracking international NGOs operating in the country.
- SCIENTIFIC STAFF: Recruit geophysicists and earth scientists for volcanic hazard monitoring.

16 ENHANCE THE HEALTHCARE CAPACITY AND QUALITY ACROSS THE ARCHIPELAGO FOR INCREASED ACCESS AND DISASTER RESILIENCE.

- Create legal instruments to regulate the emergency health care system with accountability, credibility, and service quality.
- Integrate the nation's public health and medical facilities with the DM system through training, drills, and policymaking to improve the overall national disaster management system's capabilities.
- Create/update hospital preparedness plans and coordinate those with the response frameworks at the local and national levels.
- Leverage the experience of the São Filipe Hospital to create and enhance a nationwide psychosocial recovery capability.
- Update, maintain, and leverage the INSP system and integrate it into a central database for decision-making purposes.

17 ENHANCE FUNCTIONAL CAPABILITIES INCLUDING EVACUATION, SECURITY, WASH, HAZMAT, AND SAR

- Enhance/update evacuation plans and WASH, safety, and security needs of disaster-impacted populations, emphasizing the vulnerable, including elderly, disabled, women, children, refugees, and low-income citizens at the national and subnational levels.
- Integrate the various local evacuation plans into a national standalone evacuation plan.
- Integrate and leverage sectoral evacuation plans (e.g., ENACOL) into the national evacuation plan.
- Conduct regular evacuation exercises and training ahead of seasonally anticipated events.
- Create procurement plans for remedying equipment shortages for HAZMAT and SAR

18 INSTITUTE AND EXPAND TRAINING PROGRAMS AND EXERCISE REQUIREMENTS AND LINK COMPETENCIES TO KEY LEADERSHIP POSITIONS AND RELEVANT DM STAFF.

- Prioritize funding for dedicated training staff and resources at the national and island/municipal levels.
- Increase training availability by developing a structured annual training schedule and catalog that supports comprehensive training throughout the year.
- Establish a training curriculum for a diverse audience of stakeholders, through partnerships with academic and non-governmental actors, to address a comprehensive and expanding set of training and education requirements for the country's disaster management and disaster risk reduction needs
- Create a long-term exercise plan that is coordinated with national planning efforts.
- Develop an internal capability to design and execute exercises.
- Conduct quarterly tabletop exercises to evaluate plans and training.
- Conduct an annual National Level Exercise involving all ministries, municipalities, NGOs, CSOs, academia, and government leadership.
- Develop and support island-level exercise planning and execution capabilities.
- Utilize external training for train the trainer purposes.

19 INCLUDE DRM IN S&T AGENDA AND LEVERAGE ACADEMIA FOR KNOWLEDGE GENERATION SPECIFIC TO CABO VERDE.

- Revisit the mission and role of WAI and explore ways to serve as S&T policy research focusing on DM and DRR as part of its ongoing mission.
- Hold a regularly occurring national/international symposium on DR and DRR with the Uni-CV as the host with support from MAI- SNPC-B and relevant MDAs and other external sponsors.
- Empower/integrate the efforts of academia (especially Uni-CV) to offer relevant higher education programs at the bachelor's level at a minimum that supports the professionalization of DM and hosting symposia.
- Develop strategies to engage the public in preparedness and resilience-building campaigns. Leverage NGOs in the process of advocacy campaigns.
- Mainstream DRR, risk awareness, and preparedness in school curricula.

20 STRENGTHEN CONSTRUCTION CODE ENFORCEMENT MECHANISMS.

- Empower the Society of Engineers and Architects and Cabo Verde Chamber of Construction for the generation/adoption of the latest design and building standards applicable to Cabo Verde.
- Ensure building codes properly reflect hazard zones and are enforced to prevent crowding and reduce risk in disaster-prone areas. Work to build new infrastructure that uses the latest technology and international best practices to reduce environmental impacts.
- Fully enforce building codes, especially in coastal areas.
- Provide funding for staffing assistance in code compliance.

21 DEVELOP RELIABLE COMMUNICATIONS NETWORKS TO CONNECT POLICE, FIRE BRIGADES, AND THE MUNICIPAL CIVIL PROTECTION SERVICES.

- Consider establishing a satellite-accessible network to enhance DM communications between islands.

22 ESTABLISH RISK AND VULNERABILITY ASSESSMENT REQUIREMENTS IN DM AND DRR PLANNING EFFORTS NATIONALLY AND FOR EACH MUNICIPALITY.

- Establish and incorporate risk assessment processes and standards, including vulnerability assessments, climate change, and indigenous knowledge at the national and subnational levels.
- Incorporate and require a risk assessment for DM and DRR planning efforts.
- Utilize training to ensure nationwide communication and adherence to a consistent risk assessment standard.
- Formalize requirements for risk assessment and risk mapping at all levels of government.
- Recruit and train additional staff to fulfill comprehensive risk assessment and mapping needs at national and subnational levels.
- Formalize the inclusion of climate change criteria in risk assessments through collaboration with relevant stakeholders, mainly through research associations with the academic and private sectors. Align with national and international climate change adaptation strategies.
- Institutionalize methods and standards for effective data collection and storage at all levels of government to increase the availability and quality of base data for effective risk mapping at both the national and subnational levels.
- Endorse the use of risk assessment results to support evidence-based decision-making in all phases of disaster management.

23 INCREASE INFORMATION ACCESS AND SHARING AMONG ALL DM STAKEHOLDERS BY DEVELOPING OR PROMOTING A COP PLATFORM.

- Create/adopt national standards for DM data collection, management, storage, and sharing in an entirely digitized format that can be fully shared between government NGOs and other stakeholders for decision making.
- Institute a centralized GIS-based data management system for a common operating picture and planning efforts across all DM stakeholders, to include risk and vulnerability assessments, maps, and other relevant data generated by the Uni-CV, UN risk assessment study.
- Establish/maintain risk mapping capacity and a centralized GIS system to support risk assessment reporting at the national and subnational level with adequate training of staff.
- Create/update/maintain a national disaster loss database linked to the national statistics agency, INECV.
- Centralize the coordination of hazard monitoring for alert notification/warning while keeping/assigning government agencies of Cabo Verde for specialized monitoring of hazards.

24 INSTITUTIONALIZE STANDARDS FOR DAMAGE AND NEEDS ASSESSMENTS; ADOPT A METHODOLOGY AND CONDUCT TRAINING.

- Enhance capabilities to conduct disaster assessments by developing and using a nationally authorized assessment methodology, making them a requirement under the declarations process, assigning adequate resources and trained personnel, and engaging all relevant DM stakeholders.
- Conduct training at the national and municipal levels to ensure that post-disaster assessments and data are standardized and compatible.
- Establish official requirements for non-governmental stakeholder involvement in disaster assessments to promote greater interagency collaboration.

25 INVEST IN TECHNOLOGIES FOR HAZARD MONITORING AND EARLY WARNING AND ESTABLISH PROTOCOLS AROUND THEM TO BUILD CAPACITY FOR RESILIENCE.

- Investigate Doppler Radar procurement options through feasibility studies and hazard studies.
- Upgrade/acquire technologies to monitor hazards and promote adoption and use of information and communications technology (ICT) among sub-sectors of the population such as the elderly, disabled, and those who are socially isolated to facilitate the timely and effective receipt and dissemination of information before, during, and after a disaster.
- Expand Common Alerting Protocols across all government agencies in Cabo Verde to include island and location-specific alerts for local hazards. Include the capability to disseminate location-specific alerts.
- Enhance EWS to target more than 75% of the population and adapt as needed to reach vulnerable populations.
- Expand the efforts for hazard monitoring to match the Sendai commitments ("The entire population is expected to be served by hazard monitoring efforts by 2024.")
- Implement standardized practices to test early warning systems for all hazards regularly.

26 INVEST IN DATA AND TECHNOLOGY TO SUPPORT UPDATED FLOOD HAZARD MAPPING.

- Recent flood events, such as the September 2020 floods affecting the islands Santiago and Brava Islands, are not captured in existing flood exposure maps for Cabo Verde. Invest in data, research, and technology, such as high-resolution elevation models, to support probabilistic flood exposure mapping to contemporary and future hazards for the entire country.
- Incorporate climate variability, including projected changes to precipitation and sea-level rise, to anticipate future flood impacts across the municipalities.
- Document post-disaster flood extents and damages and incorporate observations and lessons learned to inform future hazard mapping.

27 BUILD ECONOMIC RESILIENCE AT THE INDIVIDUAL, HOUSEHOLD, MUNICIPAL, AND NATIONAL LEVELS.

- Continue to promote social programs that provide equitable and affordable access to basic needs, including water, food, sanitation, education, and electricity, to alleviate regional asymmetries in poverty and quality of life.
- Reduce reliance on external debt and foreign remittances by expanding and diversifying economic opportunities in each island and municipality. Prioritize and link economic opportunities to sectoral (e.g. water, health, energy, agriculture) sustainable development and climate adaptation, including domestic agriculture and fishing strategies, inter-island transportation, communications technology, sustainable energy, and water.
- Invest in human capital by expanding access to higher education and facilitating education and training programs linked to sustainable development priorities for the nation's economic diversity, growth, and profitability.

28 INCREASE ACCESS, AVAILABILITY, AND SUSTAINABILITY OF CLEAN WATER AND SANITATION.

- Given Cabo Verde's susceptibility to drought, continue to promote public education for sustainable practices and water conservation among the population.
- Invest in infrastructure to increase clean water production, delivery, and storage, including dams, wastewater recycling, pressurized water and sewer networks, and desalinization, for affordable household and agricultural consumption.
- Strengthen collaboration between government, non-governmental organizations, and social service agencies to address rural disparities in access to clean water and sanitation infrastructure.

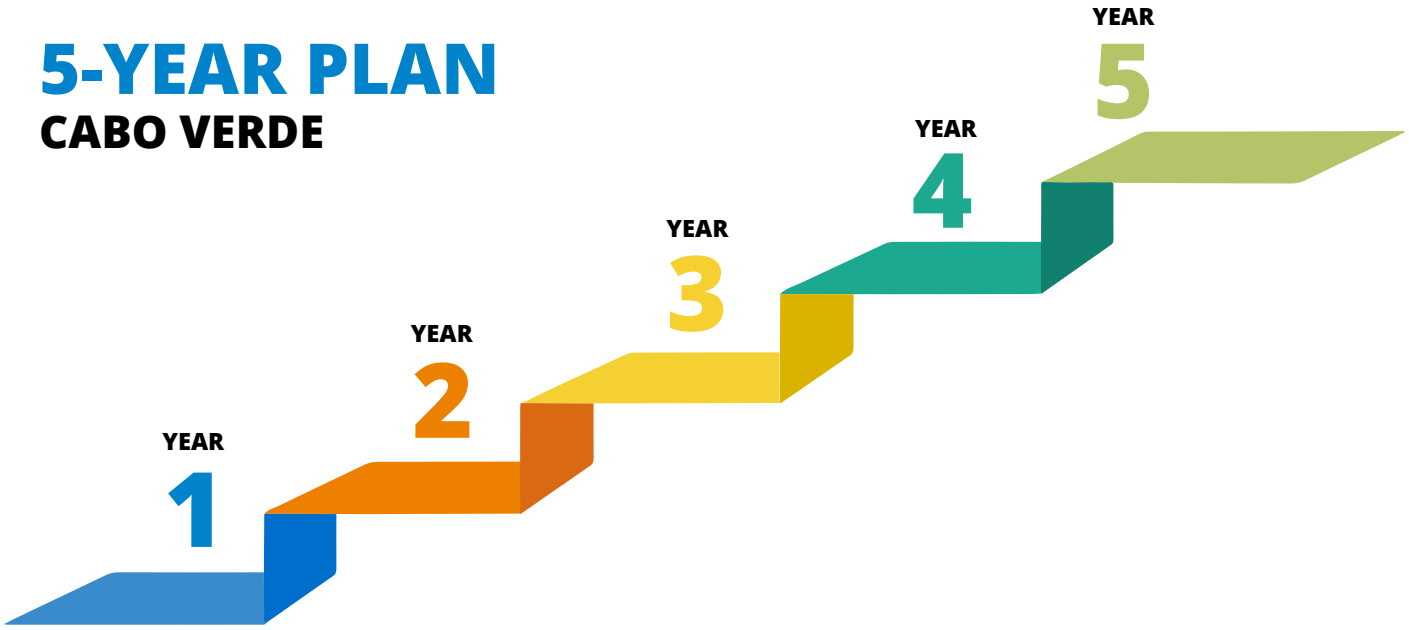
29 REDUCE MARGINALIZATION AND PROMOTE GENDER EQUALITY.

- Continue efforts to monitor and reduce gender-based discrimination and bias. Promote policies that support economic and educational opportunities for women, including equal income, employment, land and homeownership, and access to credit.
- Actively engage women and other marginalized groups in disaster management, community plans, and other decision-making processes. Provide equal opportunities throughout society to reduce disparities and incorporate feedback mechanisms into policies and programs to ensure effective implementation.

30 REASSESS PROGRESS MADE TOWARD DRR AND RESILIENCE GOALS.

- Update the NDPBA, including both the RVA and DMA analyses, to track progress toward reducing vulnerabilities, increasing coping capacities, and building disaster management capabilities supporting Cabo Verde's Disaster Risk Reduction and Sustainable Development Goals for a more resilient nation.

5-YEAR PLAN
CABO VERDE



Formalize disaster management competencies within SNPC-B.

Update policies to ensure NGOs, the private sector partners, other sectoral organizations, and academia are comprehensively engaged in government disaster management efforts in a coordinated and complementary manner.

Revise legislation on national and subnational DM budget(s).

Engage the public to support DM efforts to reduce dependency on the government.

Enhance Cabo Verde's operational framework and disaster service capacity to meet international standards.

Build human resource capacity across the nation to support DM efforts.

Institute and expand training programs and exercise requirements and link to competencies to key leadership positions and relevant DM staff.

Develop reliable communications networks to connect police, fire brigades, and the municipal Civil Protection ser-vices.

Institutionalize standards for damage and needs assessments.

Establish risk and vulnerability assessments requirements in DM and DRR planning efforts nationally and for each municipality.

Build economic resilience at the individual, household, municipal, and national levels.

Increase access, availability, and sustainability of clean water and sanitation.

Reduce marginalization and promote gender equality.

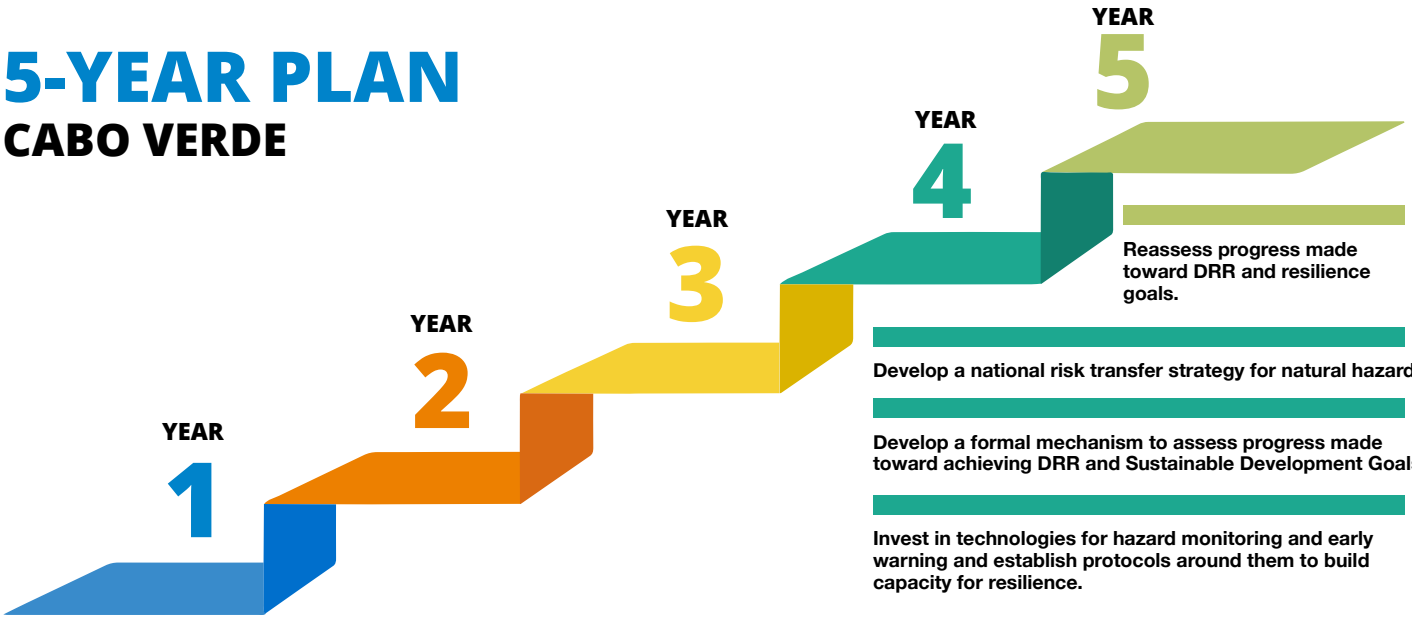
Enhance functional capabilities including evacuation, security, WASH, HAZMAT & SAR

Update existing plans and develop plans and procedures for all phases of disaster management

Strengthen the Regional Operational Commands.

Fully implement a standard incident management system at all levels of government.

5-YEAR PLAN
CABO VERDE



Reassess progress made toward DRR and resilience goals.

Develop a national risk transfer strategy for natural hazards.

Develop a formal mechanism to assess progress made toward achieving DRR and Sustainable Development Goals.

Invest in technologies for hazard monitoring and early warning and establish protocols around them to build capacity for resilience.

Create affordable formal microfinancing mechanisms through PPPs.

Create Continuity of Operations/Continuity of Government plans for levels of government.

Enhance the healthcare capacity and quality across the archipelago for increased access and disaster resilience.

Enhance the quality and quantity of Cabo Verde's Disaster Facilities & Equipment through proper funding mecha-nisms.

Improve and expand the national shelter system.

Strengthen construction code enforcement mechanisms.

Include DRM in S&T Agenda and leverage academia for knowledge generation specific to Cabo Verde.

Increase information access and sharing among all DM stakeholders by developing or promoting a COP platform.

Invest in data and technology to support updated flood hazard mapping.

MUNICIPAL RISK PROFILES

SUBNATIONAL ASSESSMENT RESULTS

https://www.pdc.org/wp-content/uploads/NDPBA-CPV-Subnational-Profiles-Merged.pdf

MUNICIPAL RISK PROFILES

Risk profiles developed for each municipality in Cabo Verde offer a more detailed understanding of risk at the subnational level. Subnational profiles are available as a supplement to this report and describe drivers of vulnerability, coping capacity, and resilience at the municipal level; provide a relative comparison of each municipality within the overall country context; and offer strategic, data-driven recommendations.
Each municipal recommendation looks at one of the top four drivers of resilience through the lens of the existing national disaster management structure in Cabo Verde. Recommendations are designed to be concise, actionable, and supported by available data.

APPLYING RESULTS

Characterizing risk in terms of multi-hazard exposure, vulnerability, and coping capacity, the RVA provides the necessary justification to support policy decisions to protect lives and reduce losses from disasters. The RVA results allow decision-makers to examine the drivers of risk for each municipality in Cabo Verde, providing evidence to support the identification, assessment, and prioritization of investments that will have the most significant impact on disaster risk reduction. The NDPBA RVA results establish a subnational foundation for monitoring risk and vulnerability over time and enhance the DRR decision making process through improved access to temporal and spatial data for all municipalities in Cabo Verde.

NDPBA

APPENDIX A

RESOURCES

APPENDIX A
RVA METADATA

Multi-Hazard Exposure			
Subcomponent: Raw Exposure			
Indicator	**Source(s)**	**Year**	**Description**
Raw Multi-Hazard Population Exposure	Pacific Disaster Center	2021	Raw multi-hazard population exposure represents an estimation of the number of people exposed to one or more of the six hazards.

Notes

Population data (2021) from PDC's AIM 3.0. Hazard exposure zones were calculated as follows:

Drought: Hazard zones are based on drought hazard mapping published in the 2014 report: Comprehensive Hazard Assessment and Mapping in Cape Verde. Drought susceptibility hazard zones are based on geographic and climate factors; precipitation; altitude; and the Normalized Difference Vegetation Index or NDVI (amount of biomass). Hazard zones ranged from "low" to "high." Areas of "moderate" and "high" drought susceptibility were used as inputs for exposure analysis.

Flood: Hazard zones are based on flood hazard mapping published in the 2014 report: Comprehensive Hazard Assessment and Mapping in Cape Verde. The zones were derived based on hydrological, meteorological, and land use data, geology, altimetry (DEM), and the hydrographic network. Hazard zones ranged from "very low" to "very high." Areas with "moderate" to "very high" exposure to flooding were used as input for exposure analysis.

Forest Fire: Hazard zones are based on forest fire susceptibility mapping published in the 2014 report: Comprehensive Hazard Assessment and Mapping in Cape Verde. Hazard zones depicting susceptibility to forest fire were defined using a Multicriteria Analysis based on land use/occupation; slope; proximity to road network; altitude; and exposure. Hazard zones ranged from "very low" to "very high." Areas of "moderate," "high" and "very high" susceptibility were used as inputs for exposure analysis.

Earthquake Induced Landslides: Hazard zones are based on earthquake-induced landslide hazard mapping published in the 2014 report: Comprehensive Hazard Assessment and Mapping in Cape Verde. Hazard zones were developed based on landslide susceptibility mapping using inventories of slope movement and factors predisposing slopes to mass movement including, altitude, slope, exposure, flat curvature, lithology, and land use/occupation. The assessment of slope movement triggered by seismic activity resulted in four hazard classes based on peak ground acceleration (PGA) values with a 10% probability of exceedance in 50 years, where: Low = PGA<0.05g, Moderate = PGA 0.05-0.07g, High = PGA 0.07-0.1g, and Very High = PGA >0.1g. Areas of "moderate," "high" and "very high" susceptibility were used as inputs for exposure analysis.

Precipitation Induced Landslides: Hazard zones are based on precipitation-induced landslide hazard mapping published in the 2014 report: Comprehensive Hazard Assessment and Mapping in Cape Verde. Hazard zones were developed based on landslide susceptibility mapping using inventories of slope movement and factors predisposing slopes to mass movement including, altitude, slope, exposure, flat curvature, lithology, and land use/occupation. The assessment of slope movement triggered by precipitation considered the distribution of maximum monthly precipitation calculated for a return period of 100 years based on available precipitation records and using the distribution function of Gumbel extremes. The spatialization of information used the Regression Kriging methodology, with the exception of Boa Vista Island, where an RBF function was used. The severity of precipitation was classified into four classes according to maximum monthly precipitation values with a return period of 100 years, where: Low = < 250 mm, Moderate = 250-500 mm, High = 500-750 mm, and Very High = > 750 mm. Areas of "moderate," "high" and "very high" susceptibility were used as inputs for exposure analysis.

Volcano: Hazard zones are based on volcano hazard mapping published in the 2014 report: Comprehensive Hazard Assessment and Mapping in Cape Verde. Volcano hazard zones were derived based on historical occurrences, geology, altimetry (DEM), hydrographic network, and altitude wind regime (time series). Volcano hazard zones are available for three islands: Fogo, Santo Antão, and Brava. Hazard classes ranged from "negligible" to "moderate." Areas with "very low" to "moderate" exposure to the volcano hazard were used as input for exposure analysis.

APPENDIX A
RVA METADATA

Multi-Hazard Exposure			
Subcomponent: Raw Exposure			
Indicator	**Source(s)**	**Year**	**Description**
Raw Multi-Hazard Economic Exposure	Pacific Disaster Center	2021	Raw multi-hazard economic exposure represents an estimation of the replacement cost of economic stock exposed to one or more of six hazards.
Notes			
Refer to hazard information above. Cumulative value of capital stock exposed to one or more of six hazards.			

Multi-Hazard Exposure			
Subcomponent: Raw Exposure			
Indicator	**Source(s)**	**Year**	**Description**
Raw Multi-Hazard Critical Infrastructure Exposure	Pacific Disaster Center	2021	Raw multi-hazard Critical Infrastructure Exposure represents a cumulative raw count of critical infrastructure locations (Airports, Ports, Hospitals & Clinics, Fire Stations, Police Stations, Schools & Colleges, Shelters, Bridges, Communication Towers, Dams, Places of Worship, and Water & Wastewater Facilities) exposed to multiple hazards, including drought, flood, forest fire, earthquake induced landslide, precipitation induced landslide and volcano.
Notes			
See above for detailed description of hazard zones			

APPENDIX A
RVA METADATA

Multi-Hazard Exposure			
Subcomponent: Relative Exposure			
Indicator	**Source(s)**	**Year**	**Description**
Relative Multi-Hazard Population Exposure	Pacific Disaster Center	2021	Relative Multi-Hazard Population Exposure represents the cumulative raw count of person units exposed to multiple hazards, per capita.
Notes			
See above for detailed description of hazard zones			

Multi-Hazard Exposure				
Subcomponent: Relative Exposure				
Indicator	**Source(s)**	**Year**	**Description**	**Notes**
Relative Multi-Hazard Economic Exposure	Pacific Disaster Center	2021	Relative Multi-Hazard Economic Exposure represents the cumulative value of economic capital stock exposed to multiple hazards, divided by total economic capital stock value of the municipality.	See above for detailed description of hazard zones.
Relative Multi-Hazard Critical Infrastructure Exposure	Pacific Disaster Center	2021	Relative Multi-Hazard Critical Infrastructure Exposure represents an average of the percentage of critical infrastructure locations (Airports, Ports, Hospitals & Clinics, Fire Stations, Police Stations, Schools & Colleges, Shelters, Bridges, Communication Towers, Dams, Places of Worship, and Water & Wastewater Facilities) exposed to multiple hazards, including drought, flood, forest fire, earthquake induced landslide, precipitation induced landslide and volcano.	See above for detailed description of hazard zones.

APPENDIX A
RVA METADATA

Vulnerability			
Subcomponent: Economic Constraints			
Indicator	**Source(s)**	**Year**	**Description**
Population Below Poverty Line	Cabo Verde Instituto Nacional de Estatística (INE); Inquérito às Despesas e Rendimento das Famílias (IDRF) de 2015: Anuário Estatístico de Cabo Verde (AECV), 2017.	2015	Proportion of the population below the poverty line.
Age Dependency Ratio	Cabo Verde Instituto Nacional de Estatística (INE):	2019	Percentage of households withAno television.
Unemployment Rate	Cabo Verde Instituto Nacional de Estatística (INE):	2018	Percentage of households with no radio.
GINI Index	Cabo Verde Instituto Nacional de Estatística (INE); Inquérito às Despesas e Rendimento das Famílias (IDRF) de 2015	2015	Gini Index by municipality. Gini Index is a measure of income inequality.
Percent of Households Owning a Vehicle	Cabo Verde Instituto Nacional de Estatística (INE): Inquerito Multi-Objectivo Continuo, 2019	2019	Net school matriculation rate for children aged 6-17 years.

Vulnerability			
Subcomponent: Clean Water Access Vulnerability			
Indicator	**Source(s)**	**Year**	**Description**
Percent of Population with Access to Clean Water	Cabo Verde Instituto Nacional de Estatística (INE): Inquerito Multi-Objectivo Continuo, 2019	2019	Percent of the population with access to improved safe water source, by municipality.
Percent of Households with Access to Wastewater System	Cabo Verde Instituto Nacional de Estatística (INE): Inquerito Multi-Objectivo Continuo, 2019	2019	Percentage of households with access to a wastewater system (public sewage or septic tank), by municipality.
Average Time to Collect Water	Cabo Verde Instituto Nacional de Estatística (INE): Inquerito Multi-Objectivo Continuo, 2019	2019	The average time necessary for households to collect water, by municipality.

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Vulnerability			
Subcomponent: Information Access Vulnerability			
Indicator	**Source(s)**	**Year**	**Description**
Adult Literacy Rate	Cabo Verde Instituto Nacional de Estatística (INE): Inquerito Multi-Objectivo Continuo, 2019	2019	Literacy Rate for the population aged 15 and older in Cabo Verde, by municipality.
Average Years of Schooling	Cabo Verde Instituto Nacional de Estatística (INE): Inquerito Multi-Objectivo Continuo, 2019	2019	Percentage of households with access to improved sanitation facilities.
Percent of Households with Internet Access	Cabo Verde Instituto Nacional de Estatística (INE): Inquerito Multi-Objectivo	2019	Percent of households with internet in Cabo Verde by municipality.
Percent of Households with TV Access	Cabo Verde Instituto Nacional de Estatística (INE): Inquerito Multi-Objectivo Continuo, 2019	2019	Percent of households with access to TV in Cabo Verde by municipality.
Percent of Households with Radio Access	Cabo Verde Instituto Nacional de Estatística (INE): Inquerito Multi-Objectivo Continuo, 2019	2019	Percent of households with access to radio in Cabo Verde by municipality

Vulnerability			
Subcomponent: Vulnerable Health Status			
Indicator	**Source(s)**	**Year**	**Description**
Infant Mortality Rate	Cabo Verde Minis-try of Health and Social Security; Instituto Nacional de Estatistica (INE): Cabo Verde Minis-try of Health and Social Security Sta-tistical Report 2018	2010	Percentage of the population that is disabled in Cabo Verde, by munici-pality.
Disabled Popula-tion	Cabo Verde Insti-tuto Nacional de Estatística (INE): IV General Popula-tion and Housing Census - 2010 Cen-sus Main Indicators by Residence and Municipality	2010	Percentage of the population that is disabled in Cabo Verde, by munici-pality.
HIV Incidence	Cabo Verde Minis-try of Health and Social Security: Cabo Verde Minis-try of Health and Social Security Sta-tistical Report 2018	2018	HIV incidence rate per 100,000 per-sons in Cabo Verde, by munici-pality.
TB Prevalence	Cabo Verde Minis-try of Health and Social Security: Cabo Verde Minis-try of Health and Social Security Sta-tistical Report 2018	2018	Prevalence rate of Tuberculosis per 100,000 persons in Cabo Verde, by Health Delega-tion.

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Vulnerability			
Subcomponent: Population Pressures			
Indicator	**Source(s)**	**Year**	**Description**
Average Population Change	Cabo Verde Instituto Nacional de Estatística (INE): Inquerito Multi-Objectivo Continuo, 2019	2010-2020	The average annual percentage population change between 2010 and 2020 in Cabo Verde, by municipality.
Net Migration Rate	Cabo Verde Instituto Nacional de Estatística (INE): IV Recenseamento Geral da População e de Habitação - CENSO 2010 Principais Indicadores por Meio de Residência e Concelho	2010	Net Migration Rate per 1,000 persons.
Youth Bulge	Cabo Verde Instituto Nacional de Estatística (INE): Inquerito Multi-Objectivo Continuo, 2019	2019	The ratio of youth population (ages 15-24) to the adult population (ages 15 and older) in Cabo Verde, by municipality.

Vulnerability			
Subcomponent: Environmental Stress			
Indicator	**Source(s)**	**Year**	**Description**
Livestock Density per Hectare	Cabo Verde Instituto Nacional de Estatística (INE); Ministry of Agriculture and Environment (MAA) General Agricultural Census 2015 (definitive results - December 2018); 2010 INE Census for land area.	2015	The density of livestock (cattle, sheep, goats and swine) per hectare of land in Cabo Verde, by municipality.
Use of Firewood as Primary Cooking Fuel	Cabo Verde Instituto Nacional de Estatística (INE): Inquerito Multi-Objectivo Continuo, 2019	2019	Percentage of households using firewood as their primary cooking fuel in Cabo Verde, by municipality.
Loss in Tree Cover (2001-2020)	Global Forest Watch:	2001-2020	Percent tree cover loss in Cabo Verde over the period 2001-2020 based on a threshold of 30% canopy cover, by region.

APPENDIX A
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Vulnerability			
Subcomponent: Gender Inequality			
Indicator	**Source(s)**	**Year**	**Description**
Parity in Secondary Education Enrollment	Cabo Verde Instituto Nacional de Estatística (INE): INE Statistical Yearbook, Cabo Verde, 2017	2017	Gender parity in secondary education enrollment, by municipality.
Female to Male Labor Participation	Cabo Verde Instituto Nacional de Estatística (INE): Municipal Statistical Reports 2016-2018. INE; IMC 2016-2018 (Inquerito Multi-Objectivo Continuo)	2016-2018	The ratio of females to males participating in the labor force, by municipality.
Female Seats in Local Government	Cabo Verde National Election Commission: Eleicoes Municipais 2020 Paridade do Genero Candidaturas Eleitos e Votantes	2020	The percentage of municipal city council seats occupied by women as a result of the 2020 local election.

Coping Capacity			
Subcomponent: Economic Capacity			
Indicator	**Source(s)**	**Year**	**Description**
Economic Activity Rate	Cabo Verde Instituto Nacional de Estatística (INE) - Indicadores de Mercado de Trabalho - IMC 2019 (2º Semestre)	2018	Percentage of the population aged 15 and older that are economically active in Cabo Verde, by municipality.
Average Annual Expenditures per Capita	Cabo Verde Department of Demographic and Social Statistics: Survey on Family Expenses and Revenues	2015	The average annual expenditures in Cape Verdean Escudos (CVE) per capita, by municipality.
Financial Service Locations per 10,000 persons	Open Street Map; Instituto Nacional de Estatística (INE) (2019 Population)	2020	The number of financial service locations (including banks, atms, post offices, money exchange) per 10,000 people, by municipality.

APPENDIX A
RVA METADATA

Coping Capacity			
Subcomponent: Emergency Services Capacity			
Indicator	**Source(s)**	**Year**	**Description**
Average Distance to Police Station	Pacific Disaster Center (PDC); Open Street Map (OSM)	2021	Average distance (km) to the nearest main police station from populated area of each municipality.
Firefighters per 10,000 persons	Serviço Nacional de Proteção Civil e Bombeiros (SNPC-B) reported in the GFDRR. (2020) document: "Cabo Verde Emergency Preparedness and Response Diagnostic: Building a Culture of Preparedness."	2020	Firefighters per 10,000 persons in Cabo Verde, by municipality.
Distance to Hospital	Open Street Map; Cabo Verde Ministry of Health; Pacific Disaster Center	2021	Average distance to hospital (km) from nearest populated area in each municipality.

Coping Capacity			
Subcomponent: Governance			
Indicator	**Source(s)**	**Year**	**Description**
Voter Participation	Cabo Verde National Election Commission: Eleicoes Municipais 2020 Paridade do Genero Candidaturas Eleitos e Votantes	2020	The percentage of registered voters in each municipality that participated in the 2020 local election.
Proper Waste Disposal	Cabo Verde Instituto Nacional de Estatística (INE): Estatísticas do Ambiente - 2016	2016	Percentage of the population using proper garbage disposal methods (either collected by garbage truck or placed in containers), by municipality.
Crime Rate	Cabo Verde Polícia Nacional	2018	Crimes (against persons and property) reported per 10,000 persons in Cabo Verde, by municipality.

APPENDIX A
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Coping Capacity			
Subcomponent: Environmental Capacity			
Indicator	**Source(s)**	**Year**	**Description**
Natural Protected Areas	United Nations Environment Programme World Conservation Monitoring Centre (UNEP-WCMC) and the International Union for Conservation of Nature (IUCN)	2021	The percentage of land area designated as protected in each municipality.

Coping Capacity			
Subcomponent: Health Care Capacity			
Indicator	**Source(s)**	**Year**	**Description**
Physicians per 10,000 Persons	Instituto Nacional de Estadística y Censo (INEC) - Anuário Estatístico de Cabo Verde (AECV), 2018.	2016	Doctors per 10,000 persons in Cabo Verde, by municipality.
Nurses per 10,000 Persons	Instituto Nacional de Estadística y Censo (INEC) - Anuário Estatístico de Cabo Verde (AECV), 2018.	2016	Nurses per 10,000 persons in Cabo Verde, by municipality.
Immunization Coverage	Instituto Nacional de Estadística y Censo (INEC), Servicios de Salud: Año 2017; MINSA Indicadores Basicos de Salud, 2016	2018	The percentage of children under age 1 that are fully vaccinated in Cabo Verde, by municipality.
Hospitals per 10,000 Persons	Hospitals: Open Street Map; Cabo Verde Ministry of Health; Pacific Disaster Center. Population: Instituto Nacional de Estatística (INE): Inquérito Multiobjectivo Contínuo (IMC) 2019	2021	Hospitals per 10,000 persons in Cabo Verde, by municipality.

APPENDIX A
RVA METADATA

Coping Capacity			
Subcomponent: Energy Capacity			
Indicator	**Source(s)**	**Year**	**Description**
Electricity Access	Cabo Verde Instituto Nacional de Estatística (INE): Inquerito Multi-Objectivo Continuo, 2019	2019	The percentage of households with electricity access, by municipality.
Gas Access	Cabo Verde Instituto Nacional de Estatística (INE): Inquerito Multi-Objectivo Continuo, 2019	2019	The percentage of households with access to liquid propane or gas for cooking by municipality.

Coping Capacity			
Subcomponent: Communications Capacity			
Indicator	**Source(s)**	**Year**	**Description**
Households with Fixed Phones	Cabo Verde Instituto Nacional de Estatística (INE): Inquerito Multi-Objectivo Continuo, 2019	2019	The percentage of households with fixed phones, by municipality.
Population with Mobile Phones	Cabo Verde Instituto Nacional de Estatística (INE): Inquerito Multi-Objectivo Continuo, 2019	2019	The percentage of the population with mobile phones, by municipality.

Coping Capacity			
Subcomponent: Transportation Capacity			
Indicator	**Source(s)**	**Year**	**Description**
Distance to Port	Pacific Disaster Center (PDC); National Geospatial Intelligence Agency (NGA) UN-ICAO and OurAirports.	2021	Average distance (km) to the nearest port or airport facility from populated areas in each municipality.
Road Density	Open Street Map; Pacific Disaster Center (PDC)	2021 (Roads data 2018)	Density of the road network in Cabo Verde, by municipality.

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