DISASTER RISK REDUCTION IN HAITI

SITUATIONAL ANALYSIS 2023

UN Office for Disaster Risk Reduction

CDEMA CARIBBEAN DISASTER EMERGENCY MANAGEMENT AGENCY
Resilient States · Safer Lives

MINISTÈRE DE L'INTÉRIEUR
DIRECTION DE LA PROTECTION CIVILE

Early Warnings for All

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Citation: (UNDRR, 2022) Disaster Risk Reduction in Haiti, Situational Analysis 2022, United Nations Office for Disaster Risk Reduction (UNDRR).

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Acknowledgements

This publication is the product of literature reviews and extensive contributions from valued stakeholders at the varying levels. The UNDRR gratefully acknowledges national and regional partners for their contributions, which have enabled the production of this report for Haiti. We thank the Government of Haiti, the Directorate for Civil Protection of Haiti (DPC) and its Director Dr. Jerry Chandler, and other national institutions that have supported the development and review of this document. We also thank regional partners of the Caribbean Disaster Emergency Management Agency (CDEMA) Ms. Elizabeth Riley, Dr. Andria Grosvenor and Mr. Brendon Taylor, and the United Nations Integrated Office in Haiti (BINUH) and Resident Coordinator for Haiti, for their contributions. We thank UNDRR Consultants Mr. Piero Tellerías and Ms Alana Lewis, and UNDRR ROAC colleagues Mr Carlos Uribe and Mr Jair Torres, that led and developed the present document.

We also acknowledge the work of the following organizations that have informed the contents of this report:

- Economic Commission of Latin America and the Caribbean (ECLAC)
- United Nations Development Program (UNDP)
- World Bank Group

UNDRR would like to thank all donors for their support, which enables the production of different components of the present document. UNDRR would like specially to thank the following organizations:

- Climate Risk and Early Warning Systems (CREWS)
- German Society for International Cooperation (GIZ)
- Agenzia Italiana per la Cooperazione allo Sviluppo
- United States Agency for International Development's Bureau for Humanitarian Assistance (BHA)

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List of Acronyms

AGERCA	Alliance for Risk Management and Business Continuity
BME	Office of Mining and Energy
BHA	United States Agency for International Development's Bureau for Humanitarian Assistance
BSEIPH	Office of the Secretary of State for the Integration of Persons with Disabilities
CARHA	Caribbean Public Health Agency
CAED	Coordination Framework for External Development Assistance
CAEPA	Drinking Water Supply and Sanitation Committee
CARICOM	Caribbean Community
CCPCS	Municipal Civil Protection Committees
CDEMA	Caribbean Disaster and Emergency Management Agency
CDM	Comprehensive Disaster Management
CIAT	Interministerial Committee on Land Use Planning
CODOMAR	Marine Data Observation and Operations Centre
COP	Conference of Parties
COUN	National Emergency Operations Centre
COUD	Departmental Emergency Operations Centre

COUL	Local Emergency Operations Centre
COUC	Communal Emergency Operations Centre
CNIGS	National Geospatial Information
CNGRD	National Committee for Disaster Risk Management
CCRIF	Caribbean Catastrophe Risk Insurance Facility
CSSI	Caribbean Safe School Initiative
CTEGAP	Evacuation and Temporary Shelter Management Thematic Committee
CTESP	Coordination of the Thematic Committee on Education and Public Awareness
CWP	Country Work Programme
DCT	Local Government Directorate
DPC	Directorate for Civil Protection of Haiti
DINEPA	National Directorate and Sanitation
DSNCRP	National Strategy Document for Growth and Poverty Reduction
EIC	Community Intervention Teams
EPA	Water and Sanitation Sector
GACI	International Cooperation Support Group
GASC	Civil Society Support Group
GAVI	Global Alliance for Vaccines and Immunization
GDI	Gender Development Index
GII	Gender Inequality Index
HDI	Human Development Index
HCPDN	Haiti's National Determined Contribution 2015
HRF	Haiti Reconstruction Fund
ICF	Interim Cooperation Framework
IDB	Inter-American Development Bank
IHSI	Haitian Institute of Statistics and Informatics
ILO	International Labour Organization
IOM	International Organization for Migration
JICA	Japan International Cooperation Agency
PAHO	Pan American Health Organization
PANA	National Adaptation Action Plan
PARDH	Action Plan for the Recovery and Development of Haiti
PDNA	Post Disaster Needs Assessment
PIP	Public Investment Programs
PNCC	Haiti's National Policy on Climate Change
PNGRD	Haiti's National Risk and Disaster Management Plan
PNPPS	National Policy for Social Protection and Promotion
PNRU	National Emergency Response Plan
PNS	National Health Policy
PREPOC	COVID Economic Recovery Plan

PSDH	Strategic Development Plan for Haiti
MDE	Ministry of the Environment
MEF	Ministry of Economy and Finance
MER	Monitoring, Evaluation and Reporting
MENFP	Ministry of National Education and Professional Training
MHEWS	Multi-Hazard Early Warning System
MICT	Ministry of the Interior and Territorial Collectivities
MPCE	Ministry of Planning and External Cooperation
MSPP	Ministry of Public Health and Population
MTPTC	Ministry of Public Works, Transport and Communications
NAP-CCD	National Action Program to Combat Desertification
NDCs	Nationally Determined Contributions
OFNAC	National Civil Aviation Authority
ONEV	National Observatory of Environment and Vulnerability
SEMANAH	Maritime and Navigation Service of Haiti
SIDS	Small Island Developing States
SDGs	Sustainable Development Goals
SAMOA	Small Island Developing States Accelerated Modalities of Action Pathway
SFDRR	Sendai Framework for Disaster Risk Reduction
SNGRD	National System for Disaster Risk Management
SPGRD	Permanent Secretariat for Disaster Risk Management
UEP	Ministries' Study and Programming Units
UHM	Haiti Hydrometeorological Unit
UNCDD	United Nations Convention to Combat Desertification
UNDRR	United Nations Office for Disaster Risk Reduction
UNFCCC	United Nations Framework Convention on Climate Change
UNICEF	United Nations International Children's Emergency Fund
URD	Emergency, Rehabilitation and Development Group
USAID	United Nations Agency for International Development
WFP	World Food Programme
WHO	World Health Organization
WISS	Worldwide-Initiative on Safe Schools

Haiti At A Glance

Source:
PAHO

Location	18°32'N 72°20W
Land Mass	27,750 km^2
Climate	Tropical
Population	11,402,533 (2020)
Languages	French, Haitian Creole
Human Development Index	0.510 Rank 170 (2019)
Gender Inequality Index	0.636 Rank 152 (2019)
Global Health Security Index	30.4 Rank 130 (2019)
Climate Risk Index	58.33 Rank 50 (2021)

1 OPS (2017), A propos de l'OPS/OMS Haïti, URL: https://www.paho.org/fr/haiti/propos-lopsoms-haiti

2 World Bank (2022), Haiti, URL: https://data.worldbank.org/country/HT

3 UNDP (2020), Human Development Report 2020, The Next Frontier: Human Development and the Anthropocene, Haiti, URL: https://hdr.undp.org/sites/default/files/Country-Profiles/HTI.pdf

4 *Ibidem*.

5 Global Health Security Index (2021), 2021 GHS Index Country Profile for Haiti, URL: https://www.ghsindex.org/country/haiti/

6 Eckstein D., Künzel V., Schäfer L, German Watch (2021), Global Climate Risk 2021: Who Suffers Most from Extreme Weather Events? Weather-Related Loss Events in 2019 and 2000-2019, URL: https://reliefweb.int/report/world/global-climate-risk-index-2021

Executive Summary

Disasters disrupt societies and hinder the trajectory to sustainable development and climate change adaptation. The social and economic impacts of disasters are widespread, causing death, injury, economic and environmental losses, as well as disarray at varying levels. Haiti is not exempted from these processes. The country's limited capacities that are characteristic of Small Island Developing States (SIDS) can further the social impacts of hazardous occurrences. The 2010 earthquake that ravaged Port-au-Prince, killed approximately 222,000 and left millions homeless. This 7.0 magnitude earthquake on the Richter scale caused considerable damage to housing and economic sectors in an already impoverished and vulnerable country. Similarly, the 2016 category 4 Hurricane Matthew struck the country and triggered the largest humanitarian emergency since the 2010 earthquake. Hurricane Matthew generated losses and damages estimated at 32% of Haiti's 2015 GDP. Five years after Hurricane Matthew, an earthquake killed 2,246 people and caused critical damage to infrastructure, systems and services, as well as impeded humanitarian access. The World Bank estimated the economic damage from the earthquake to be US$1.11 billion, which is equivalent to 7.8% of Haiti's 2019 GDP. These occurrences reinforce the need for deliberate efforts to reduce disaster risk and build resilience in a comprehensive manner. Policies, strategies and plans must systematically address and mainstream risk across all sectors.

This study supports the implementation of the Country Work Programme for Haiti, as well as the design and revisions of other critical national instruments including the National Adaptation Plan, the National Climate Change Policy, the Strategic Development Plan, sectoral policies, strategies and plans, and other supporting national instruments for implementing the 2030 Agenda. To this end, the report consolidates risk information for Haiti, establishing the country risk profile, analysing the hazard context, existing vulnerabilities, capacities and gaps to determine the priority areas for action and intervention in support of systemic risk governance. The review and recommendations herein will therefore be of particular interest to the stakeholders at the national, subnational, regional and global levels, including state and sectoral entities, private sector organizations, academia, donor agencies, civil society organizations, and other stakeholders interested in understanding the risk environment for Haiti in support of targeted interventions.

The findings have revealed that while geological hazards have been prevalent within the national risk landscape of Haiti, the country is also highly susceptible to hydrometeorological, environmental, chemical, biological, technological, and societal hazards. Underlying and unregulated development practices further exacerbate the risk profile of Haiti. Additionally, the threat of climate change and its cascading and systemic effects further signify the need for actions that holistically address increasing systemic risk. Much of Haiti's population, infrastructure and economic activities are concentrated on the Ouest department, especially around the urban areas of Port-au-Prince, Carrefour, Delmas and Pétion-Ville. Essential activities and infrastructure, such as schools, hospitals, and transportation, lie within the western island's coastal areas. Given the existing gaps within Haiti's disaster risk management framework, as well as its high levels of multidimensional poverty, the country is significantly vulnerable to climate change. Similarly, the COVID-19 pandemic has served as a timely reminder of the diverse and systemic nature of risk. While affecting all countries in the world, the COVID-19 pandemic has disproportionally impacted SIDS and least developed countries, exposing underlying vulnerabilities and lack of coping capacities. Therefore, disaster risk reduction must explore the systemic dimension of risk, addressing the existing vulnerabilities and lack of capacities that result in disasters.

Haiti is a signatory to several international and regional mechanisms that are part of the normative framework governing disaster risk management in the country. These include the United Nations 2030 Agenda, Sendai Framework for Disaster Risk Reduction 2015-2030, and the Paris Agreement. As a Caribbean Community (CARICOM) member and a Caribbean Disaster Emergency Management Agency (CDEMA) Participating State, the country is also party to regional mechanisms for disaster risk management such as the Caribbean Resilience Framework and the Antigua and Barbuda Declaration of School Safety. In addition, meaningful measures have been undertaken to strengthen the national framework for disaster risk management. These are evidenced within the elaboration of national policy instruments such as the National Disaster Risk Management Plan 2019-2030, the National Climate Change Policy 2019-2030, the Strategic Development Plan 2012-2030, and the 2015 Nationally Determined Contribution. Also, the country has recently launched the Post-COVID

Economic Recovery Plan 2020-2023 to support the implementation of these instruments.

While the National Disaster Risk Management Plan 2019-2030 sets the guidelines for building economic, social, health, cultural and environmental resilience in Haiti, the main institutional bodies responsible for disaster risk governance are the National Committee for Disaster Risk Management (CNGRD), Permanent Secretariat for Disaster Risk Management (SPGRD), and the Network of territorial committees (coordinated by the Civil Protection Directorate of the Ministry of the Interior and Territorial Collectivities). Within the MICT, the DPC oversees the design and implementation of the National System for Disaster Risk Management (SNGRD) and coordinates the response actions to disasters and risk management. Sectoral and local committees, as well as emergency operations centres and cooperation support groups, further enhance these institutional arrangements for disaster risk governance.

Despite these crucial progressive measures to date, this study revealed several key areas for reinforcing disaster risk management in Haiti. Disaster risk reduction governance in Haiti should be strengthened by the enforcement of updated legislation, the elaboration of permanent funding strategies and the integration of risk assessments into sustainable development and climate change adaptation planning. As indicated by Haiti's National Risk and Disaster Management Plan (PNGRD) 2019-2030, the absence of a legal framework supporting the SNGRD remains a major handicap for disaster risk management, particularly in terms of resource mobilization. Similarly, the reinforcement of disaster preparedness, mitigation, and response capacities needs to further efforts on Early Warning Systems (EWS), training and exercise strategies, recovery efforts, and the development of efficient Monitoring, Evaluation and Reporting (MER) mechanisms. To do so, Haiti must increase knowledge and capacity building efforts for comprehensive disaster management. Risk identification, modelling, mapping and analysis, as well as public awareness strategies, are both challenges and opportunities to efficiently shorten the disaster risk reduction data-policy gap. Likewise, Haiti must enhance its business continuity plans, reconstruction and recovery policies, and risk transfer mechanisms to properly implement building back better strategies. Community resilience is key to include vulnerable groups into disaster risk reduction policies and strategies. Accordingly, the implementation of a comprehensive disaster risk management framework in Haiti must integrate traditional knowledge into formal planning agendas, increase investments in vulnerable communities, and rethink disaster risk management participation mechanisms to reach excluded populations.

Target 17.E of the Sustainable Development Goals (SDGs) calls for enhancing policy coherence for sustainable development. As climate change exacerbates disaster risk, this target recognizes that climate change adaptation and disaster risk reduction must be considered as inextricably embedded in sustainable development policies and plans. As acknowledged by the National Disaster Risk Management Plan 2019-2030, climate change and disaster risk hinder the path to sustainable development. According to United Nations Secretary-General, António Guterres, *"Nothing undermines sustainable development like disasters. They can destroy decades of progress in an instant. Understanding and managing disaster risk is essential to achieving the Sustainable Development Goals"* [7]. As such, the Sendai Framework for Disaster Risk Reduction 2015-2030 and the SDGs advocate for policy coherence and support a Whole-of-Society approach. The current Strategic Development Plan 2012-2030 can be considered as an entry point for mainstreaming and harmonizing disaster risk reduction, sustainable development, and climate change adaptation agendas. Considerations for gender, climate change adaptation, information and communication technologies, and green growth should be treated as cross-cutting themes, in keeping with the Regional Comprehensive Disaster Management Strategy and Programming Framework (2014-2024).

Haiti's policies and strategies must be underpinned by the application of a systemic approach to risk. The COVID-19 pandemic and the impacts of climate change on all countries serve as the clarion call for systemic risk planning. The impacts of climate change and COVID-19 show how the challenge of addressing systemic risk go beyond conventional risk management governance. Critical system interdependencies, amplified by underlying vulnerabilities, highlight that there is a growing need to better understand cascading impacts, systemic risks and the possible political and societal responses. Ha iti, as well as its neighbouring countries in the region, are presented with an opportunity to consolidate and increase efforts to advance in systemic risk planning by ensuring that risk is integrated into national development and sectoral policies.

7 UNDRR (2022), Global Assessment Report on Disaster Risk Reduction, URL: https://www.undrr.org/gar2022-our-world-risk?utm_source=LinkedIn&utm_campaign=PreventionSavesLives

Priority Areas for the Implementation of the Country Work Programme

The existing gaps within the country disaster risk management framework were used to produce five medium term goals (outcomes) for consideration for Haiti's Country Work Programme. Under these overarching outcomes, several short-term goals (outputs) are established with the overall objective of building resilience in support of sustainable development, disaster risk reduction and climate change adaptation.

Outcome 1: Strengthened governance arrangements and policy coherence for disaster risk reduction.

1.1 Increased investments in the SNGRD and the SPGRD for the effective operationalization and implementation of DRM activities.
1.2 Strengthened DRR, sustainable development and CCA policy coherence for implementing comprehensive DRM strategies.
1.3 Key DRR policies, strategies and standards promoted, revised and enhanced.
1.4 Integration of volunteers into the SNGRD institutionalized, legalized and systematically funded.
1.5 National Building Code revised and properly enforced.
1.6 DRR legislation revised and operationalized for effective and comprehensive disaster risk management and funding.

Outcome 2: Enhanced capacities for disaster preparedness, mitigation, and response.

2.1 MHEWS enhanced to ensure that limited funding is used efficiently and behavioural and physical barriers addressed to reduce disaster risk.
2.2 Training and exercise strategies implemented, maintained and standardized.
2.3 Mitigation, preparedness, response and recovery strategies for biological hazards revised, enhanced and properly funded.
2.4 Investments in critical infrastructure for efficient DRR promoted, strengthened and implemented.
2.5 MER capacities developed, systematized and implemented to improve DRM interventions and results.

Outcome 3: Increased and sustained knowledge and capacity building for comprehensive disaster management.

3.1 Increased human capital training capacity in all areas of DRM to develop a culture of prevention.
3.2 Access to DRR educational resources validated, harmonized and systematized at national, departmental and local levels.
3.3 Risk data collection and risk assessments systematized and accessible in support of evidence-based decision-making.
3.4 Public awareness strategies developed, institutionalized, and operationalized at national, departmental and local levels.
3.5 Data and progress in reports under the Sendai Framework promoted, strengthened and institutionalized.

Outcome 4: Strengthened arrangements for disaster recovery for building back better.

4.1 National recovery and reconstruction policies and strategies elaborated, implemented and funded to strengthen building back better capacities.

4.2 Technical capacities within national institutions in charge of DRR promoted and systematized for effective response to building back better.

4.3 Behavioural and physical obstacles for effective development and implementation of MEHWS assessed and addressed at all levels.

4.4 Business continuity initiatives and planning enhanced and operationalized across public and private sectors.

Outcome 5: Enhanced arrangements for community resilience and vulnerable groups.

5.1 Traditional knowledge incorporated into DRR formal planning agendas.

5.2 Increased and sustained investment strategies for departmental, municipal and local DRR planning.

5.3 Enhanced participation mechanisms to include communities in MHEWS planning and implementation.

5.4 Improved participation strategies to reinforce the inclusion of communities in business continuity initiatives and planning.

1. Introduction

Sustainable development requires deliberate efforts to implement disaster risk reduction and climate change adaptation policies. The Small Island Development States of the Caribbean Region are highly exposed to a range of hazards that can result in disasters due to their location, physiography and limited resource capacities, which can impede the path to development. Conscious of the intricate relationship between sustainable development goals, climate change adaptation and disaster risk reduction, the Third United Nations Conference on Disaster Risk Reduction in 2015 adopted the Sendai Framework for Disaster Risk Reduction 2015-2030. Target E of the Framework aims to "Substantially increase the number of countries with national and local disaster risk reduction strategies by 2020". For Participating States of the Caribbean Disaster and Emergency Management Agency (CEDEMA), these are referred to as Country Work Programmes (CWP). The CWP sets out the strategic direction for implementing comprehensive disaster management over a period of 3-5 years, producing a roadmap of activities and outputs based on the contextual analysis and needs of the country. The CWP comprises six major steps, commencing with the development of a Situational Analysis, also known as the Country Risk Profile.

This report presents the risk profile for Haiti with the aim of informing the implementation of the recently approved CWP for Haiti, as well as the design and revisions of other critical national instruments including the National Adaptation Action Plan 2006 (PANA), the National Climate Change Policy 2019-2030 (PNCC), Haiti's Strategic Development Plan 2012-2030 (PSDH), sectoral policies, strategies and plans, and other supporting national instruments for implementation of the 2030 Agenda. The study serves as a compendium of risk information for Haiti, establishing the country risk profile, analysing the hazard context, existing vulnerabilities, capacities and gaps to determine the priority areas for action and interventions in support of systemic risk governance. The review and recommendations will therefore be of particular interest to the stakeholders at the national, subnational, regional and global levels, including state and sectoral entities, private sector organizations, academia, donor agencies, civil society organizations, and other stakeholders interested in understanding the risk environment for Haiti in support of targeted interventions.

1.1 Human and Social Impact of Disasters

Disasters arise when conditions of exposure, vulnerability and capacity interact with hazard occurrences, causing a serious disruption in the functioning of a society or community and resulting in economic, societal, and environmental losses[8]. Between 2000 and 2019, 7,348 disaster events were recorded worldwide by EM-DAT.

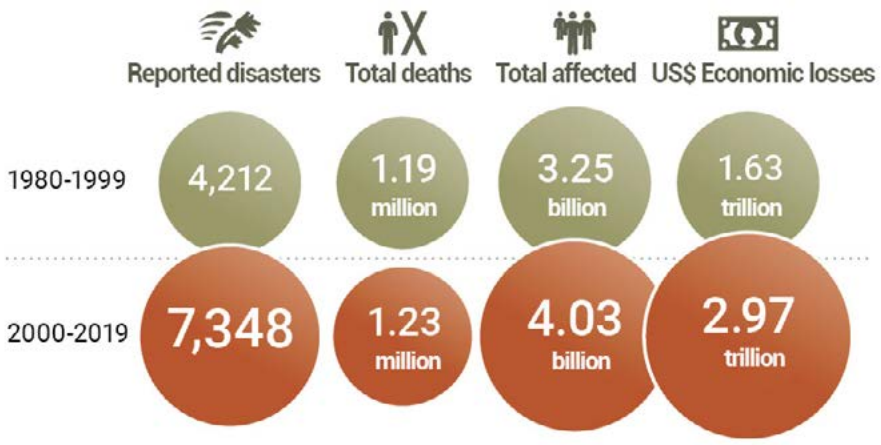


Figure 1: Disasters Impacts: 1980-1999 vs. 2000-2019[9]

In total, as seen in Figure 1, disasters claimed approximately 1.23 million lives, an average of 60,000 per year, and affected a total of over 4 billion people. Additionally, disasters led to approximately US$2.97 trillion in economic losses worldwide[10]. The human cost of disasters depends on multiple factors, including the type of hazard, its location, duration and the size, and vulnerability of the population. In this context, the geographical, demographical, and socioeconomic conditions of Haiti have influenced the soaring human and social impacts of disasters in the country.

8 UNDRR, ISC (2020). Hazard Definition & Classification Review, Technical Report, URL: https://council.science/wp-content/uploads/2020/06/UNDRR_Hazard-Report_DIGITAL.pdf

9 Ibid., p. 6.

10 UNDRR, CRED (2020), Human cost of disasters: An overview of the last 20 years 2000-2019, URL: https://www.preventionweb.net/files/74124_humancostofdisasters20002019reportu.pdf

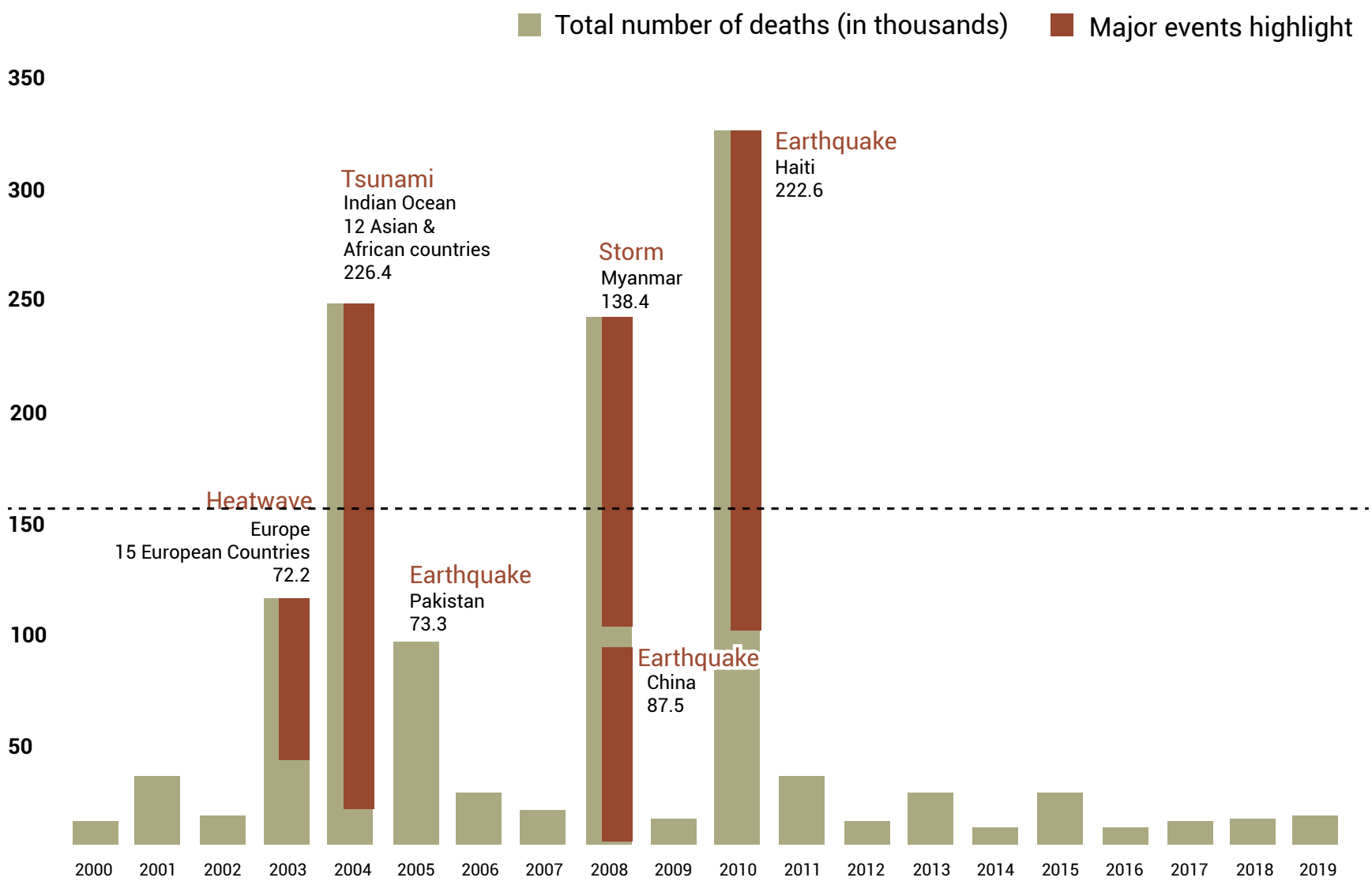


Figure 2: Total number of deaths per year with major events highlighted (in thousands) (2000-2019)[11]

Figure 2 illustrates that Haiti holds the second place for total number of people killed per year by major disasters since 2000. On Tuesday 12 January 2010, at approximately 16.53hrs local time, a 7.0 magnitude earthquake on the Richter Scale, and less than 10 km deep, was recorded off the coast of Haiti, and only 17 km from the capital Port-au-Prince[12]. The earthquake killed approximately 222,000 people and left millions homeless.

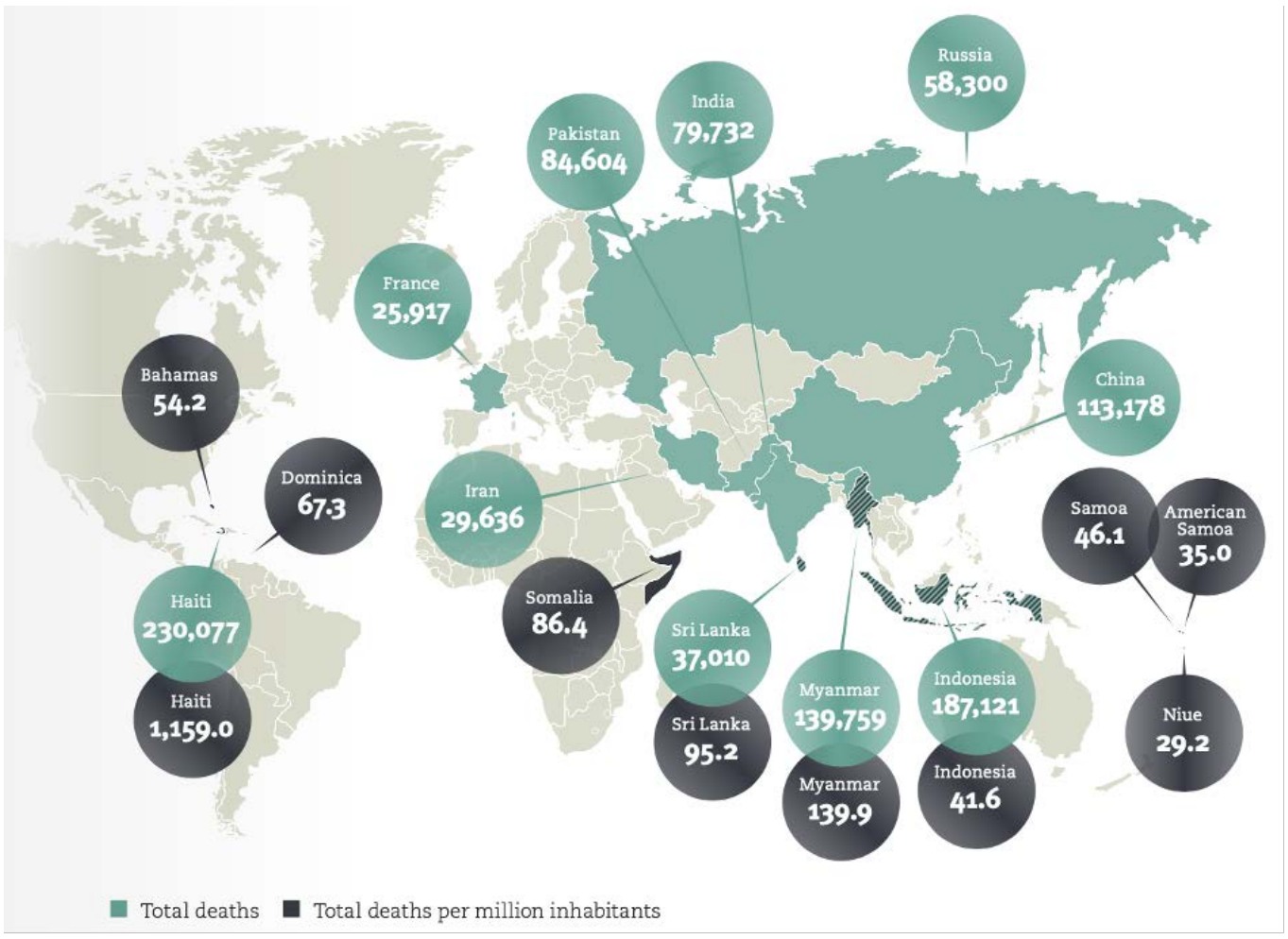


Figure 3: Top ten countries by total deaths (2000-2019) compared with the top ten countries/ territories by total deaths per million inhabitants (2000-2019)[13]

As illustrated by Figure 3, for the 2000-2019 period Haiti ranks first in the top ten list of countries/territories by

11 *Op. cit.*, UNDRR, CRED (2020), p. 14.

12 OCHA (2010), Haiti Situation Report #1, URL: https://reliefweb.int/report/haiti/haiti-earthquake-situation-report-1

13 *Op. cit.*, UNDRR, CRED (2020), p. 21.

absolute death tolls in the event of a mega-disaster. Also, even once the data for deaths is standardized by taking into account the total deaths per million inhabitants, Haiti remains in the top spot. This is largely due to the 2010 earthquake, which killed approximately 2% of the country's population in a single event.

On October 4, 2016, category-4 hurricane Matthew struck southwestern Haiti bringing heavy rainfall in the south, southeast and the northwest. The hurricane triggered the largest humanitarian emergency in the country since the 2010 earthquake, causing considerable damage to housing and agricultural sectors. The DPC reported that over 500 people lost their lives and hundreds were injured. By the end of 2016, an estimated 175,500 people were displaced and scattered in 224 temporary shelters and other buildings. Of the 2.1 million people affected by the hurricane, nearly 1.4 million were considered to be in need of humanitarian assistance, including 800,000 children and 364,000 women and girls[14]. Additionally, approximately 806,000 people were considered as being at an extreme level of food insecurity. In the badly-affected department of Grand'Anse over 90% of crops were destroyed, and significant loss of livestock was recorded[15].

With its epicentre located approximately 13 km south-east of Petit-Trou-de-Nippes, the 2021 earthquake had a major impact on the 1.5 million people living in the affected area. The damages also affected infrastructure, systems and services, as well as humanitarian access. The earthquake affected at least 800,000 people, 650,000 of whom required emergency humanitarian assistance in the departments of Sud, Nippes and Grand-Anse. The earthquake killed 2,246 people, injured 12,762, left 239 missing and many more with disabilities. The return to schools was a major challenge in these departments. The partial assessment of the impact on school infrastructure indicated that of the 3,259 schools in Sud, Nippes and Grand'Anse, nearly 18% were destroyed and 55% damaged. Additionally, according to the IOM, 38,777 people were spontaneously dispersed to at least 89 assembly points following the earthquake[16].

The human and social impacts of the ongoing COVID-19 pandemic in Haiti are detailed in the section Impacts and Institutional Response to COVID-19.

1.2 Economic Impact of Disasters

Haiti remains the poorest country in the Latin America and the Caribbean (LAC) region and among the poorest countries in the world. In 2020, Haiti had a GDP per capita of US$2,925, the lowest in the LAC region and less than a fifth of the LAC average of US$15,092. The COVID-19 pandemic has exacerbated an already weak economy, overwhelmed by social turmoil and political instability. Even before the pandemic, the economy was contracting and facing significant fiscal imbalances. Following a contraction of 1.7% in 2019, Haiti's GDP contracted by an estimated 3.8% in 2020[17]. Figure 4 demonstrates the relatively high impact disasters have on SIDS economies like Haiti, particularly of storms and earthquakes.

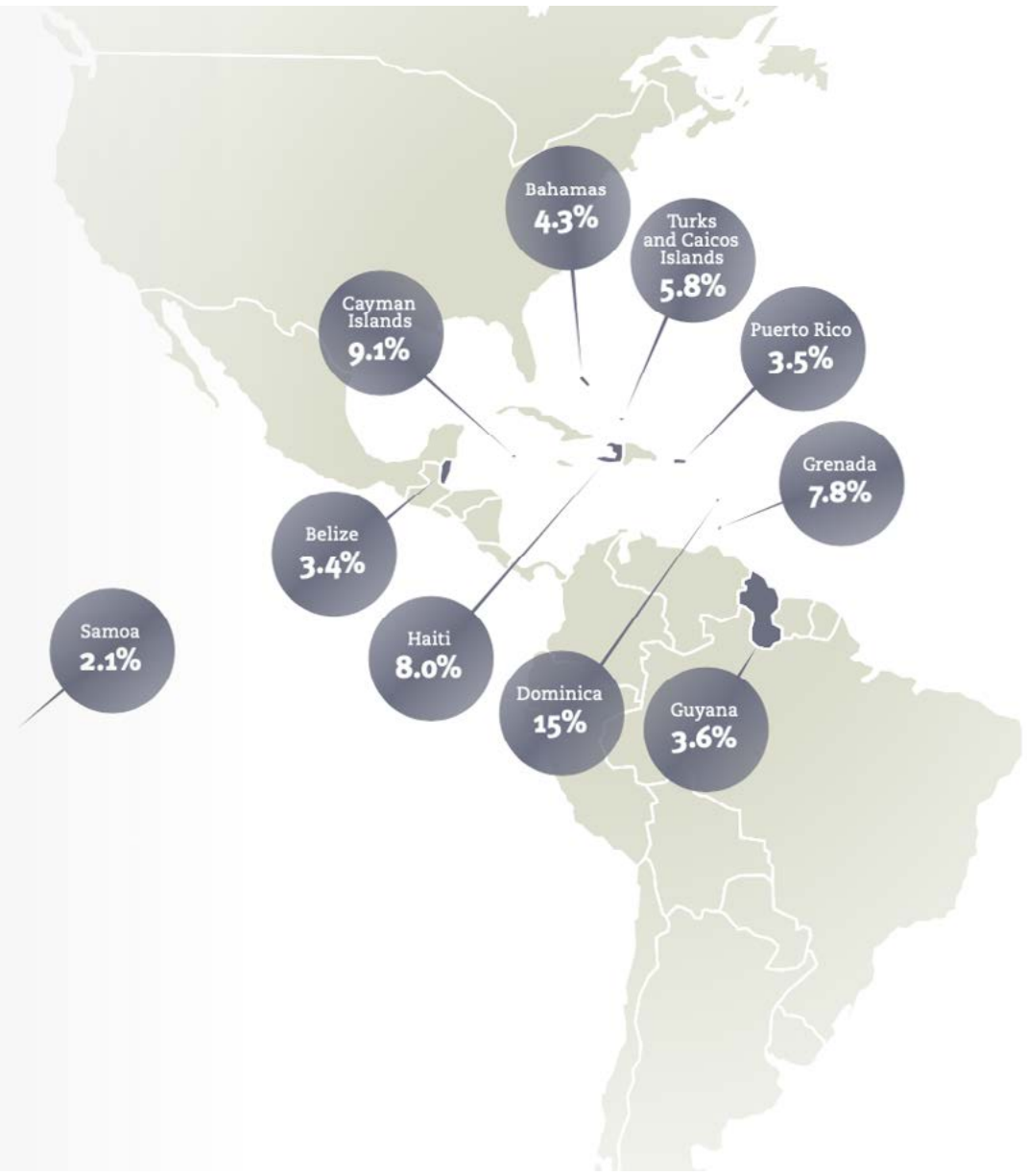


Figure 4: Top ten countries/territories by economic losses as % of GDP (2000-2019)[18]

14 OCHA, Hurricane Matthew – Situation Report No. 35 (04 March 2017), URL: https://reliefweb.int/report/haiti/haiti-hurricane-matthew-situation-report-no-35-04-march-2017

15 Action aid (2016), Hurricane Matthew in Haiti 2016, URL: https://www.actionaid.org.uk/our-work/emergencies-disasters-humanitarian-response/hurricane-matthew-haiti-2016

16 OCHA (2021), Haiti : Earthquake Situation Report No. 8 – Final (29 November 2021), URL: https://reliefweb.int/report/haiti/haiti-earthquake-situation-report-no-8-final-29-november-2021

17 World Bank (2021), Haiti: Overview, URL: https://www.worldbank.org/en/country/haiti/overview#2

18 *Op. cit.*, UNDRR, CRED (2020), p. 27.

According to 2013 economic statistics from the IHSI, the share of the main sectors of activity in the GDP is around:

- 23% for the primary sector (activities related to the extraction of natural resources): agriculture, forestry, livestock and fishing, as well as mining and quarrying, particularly in connection with the growth of the construction sector.
- 18% for the secondary sector (activities related to the processing of raw materials, which are derived from the primary sector): directly related to the reconstruction that followed the 2010 earthquake, the Building and Public Works (BTP) sector has largely contributed to the growth of the Haitian economy. This activity also includes crafts (wrought iron, vegetable fibers, wood, stone, art painting).
- 59% for the tertiary sector (economic activities that are not part of the other two, essentially services): these include trade, restaurants and hotels, financial institutions, transport and education.

Haiti's government has been repeatedly confronted with the challenge of determining the overall economic impact of disasters in order to gauge the magnitude of the event, identify priority sectors for reconstruction, understand differential geographic impacts, and identify public and private damages. However, the country lacks the capacities to promptly issue damage and loss assessments (DALA) in the aftermath of a disaster. This gap has been partially fulfilled by international assessments like the Global Rapid Disaster Damage Estimation (GRADE). As highlighted in 2018 by the Secretary-General's Special Representative for Disaster Risk Reduction, Mami Mizutori, *"Economic losses from disasters in low and middle-income countries are undermining efforts to achieve the Sustainable Development Goals and deprive governments of funds to spend on health, education, social protection and other important public needs"*[19]. Haiti's PNGRD 2019-2030 acknowledges that disasters are a major barrier to the development of the country.

In the case of the 2021 earthquake, reports[20] indicated that 2,000 people were killed, 53,815 houses were destroyed and 83,770 other buildings were damaged, including schools, health facilities and public buildings. The GRADE prepared by the World Bank estimated the economic damage from the earthquake to be US$1.11 billion, which is equivalent to 7.8% of Haiti's 2019 GDP. Other estimations assert that the economic impacts will be on a smaller scale than the 2010 tragedy. These estimations, which applied the methodology developed at the IDB, suggest a central estimate for economic damages of US$1.6 billion, or 9.6% of GDP, for this disaster.

Haiti was also affected by Hurricane Matthew, which hit the country in 2016 and caused losses and damages estimated at 32% of 2015 GDP. A GRADE report estimated the present value of Haiti's residential stock at around US$21 billion, with direct economic losses at US$402 million, or 4.5% of the 2015 GDP. For the non-residential buildings, the replacement was estimated at around US$12 billion, with direct economic losses at US$92 million, or 1% of the 2015 GDP. A loss range between US$359 million to US$841 million was estimated for the combined building stock. In addition, around US$148 million of the combined residential and non-residential building stock was estimated to have been damaged as a result of flooding linked to the hurricane[21].

As acknowledged by PNGRD 2019-2030, to stop this vicious cycle while enhancing sustainable development and poverty eradication Haiti must strengthen disaster risk prevention and mitigation. Disaster risk reduction policies, plans, programs and budgets must be resilience-oriented at all levels. Additionally, Haiti must consolidate its efforts on shifting from an event-centred response and recovery approach to a comprehensive disaster risk management that includes both Whole-of-Society and multi-hazard approaches at its core.

19 UNDRR (2018), UN says reducing economic losses from disasters has the power to transform lives, URL: https://www.undrr.org/news/un-says-reducing-economic-losses-disasters-has-power-transform-lives

20 UNICEF (2022), Haiti Humanitarian Situation Report End of Year 2021, URL: https://reliefweb.int/report/haiti/unicef-haiti-humanitarian-situation-report-end-year-2021; OCHA (2021), Haiti: Earthquake. Situation Report No. 1, URL: https://vosocc.unocha.org/GetFile.aspx?file=110221_2021-08-22_Haiti_Earthquake_SitRep1_Updated_and_Revised_Final_Version_for_RW.pdf

21 Gunasekera R., Daniell J., Pomonis A., Arias Donoso R., Ishizawa O., Stone H., World Bank (2018), Methodology Note on the Global Rapid post-disaster Damage Estimation (GRADE) approach, URL: https://www.gfdrr.org/sites/default/files/publication/DRAS_web_04172018.pdf

1.3 Social Demographic Characteristics

According to the IHSI, the Haitian population reached nearly 10 million inhabitants in 2009[22]. In 2030, Haiti had reached a population of 11,402,533 (5,626,445 male and 5,776,088 female). The population is young. In 2020, 32% of Haitians were under the age of 14 and the population growth rate was 1,2% per year[23]. While the population in Port-au-Prince was 2,843,925 in 2021, only 1,134,271 people were living in Haiti's largest city in 1990, which illustrates that people living in this urban area more than doubled in 30 years. By 2050, it is expected that the Haitian population will be 14,8 million[24].

Figure 5: Territorial Division into Ten Departments and Population Distribution[25]

In 2020, Haiti's birth rate was 24 per 1,000 people, showing a clear decrease since 1990 when this rate was 37 per 1,000 people. Similarly, Haiti's death rate went from 13 per 1,000 people in 1990 to 8 per 1,000 in 2020. Inversely, the country's life expectancy at birth went from 54 years in 1990 to 64 years in 2020 (62 years male, 67 years female). Mortality rate went from 101 infants per 1,000 live births in 1990 to 47 infants per 1,000 live births in 2020 (51 male, 42 female). Contrariwise, maternal morality ratio rose from 378 per 100,000 live births in 2000 to 531 per 100,000 live births in 2006 and to 732 in 2017. The same year, prevalence of stunting, height for age, was 21.9% of children under 5 (24% male, 19.9% female). Although total fertility rate was 2.8 births per woman in 2020, the adolescent fertility rate was 50 per 1,000 women aged 15-19 the same year and 76 per 1,000 for women aged 15-19 in 1990. In 2016, the total literacy rate was 62% of people ages 15 and above. However, this rate drops to 58% among females and rises to 65% in the case of male[26].

22 *Op. cit.*, Terrier M., Rançon, J. F., Bertil D., Chêne F., Desprats J. F., Lecacheaux S., Le Roy S., Stollsteiner P., Bouc O. (BMRGM), Raynal, M. (CIAT) (2017).

23 World Bank (2022), Population growth (annual%) – Haiti, URL: https://data.worldbank.org/indicator/SP.POP.GROW?locations=HT

24 UN, Department of Economic and Social Affairs, Population Dynamics (2019), World Population Prospects 2019: Haiti, URL: https://population.un.org/wpp/DataQuery/

25 *Op. cit.*, Terrier M., Rançon, J. F., Bertil D., Chêne F., Desprats J. F., Lecacheaux S., Le Roy S., Stollsteiner P., Bouc O. (BMRGM), Raynal, M. (CIAT) (2017).

26 World Bank (2022), Haiti, URL: https://data.worldbank.org/country/haiti

Department	Total population	Population (%)	Urban (%)	Rural (%)	Total
Artibonite	1,701,220	15.8	42.2	57.8	100.0
Centre	734,876	6.8	20.0	80.0	100.0
Grand-Anse	461,172	4.3	23.2	76.8	100.0
Nippes	337,310	3.1	17.9	82.1	100.0
Nord	1,050,922	9.8	49.7	50.3	100.0
Nord-Est	387,967	3.6	47.7	52.3	100.0
Nord-Ouest	717,707	6.7	27.5	72.5	100.0
Ouest	3,968,343	36.9	83.0	17.0	100.0
Sud	763,176	7.1	22.4	77.6	100.0
Sud-Est	662,972	5.8	15.0	85.0	100.0
Total	10,745,665	100.0	51.2	48.8	100.0

Table 1: Distribution of the population of Haiti by department and area of residence (MSPP - Year 2014)[27]

As regards ethnic groups, 95% of the population is black and 5% mulatto and white. While French and Creole are the official languages of the country, Creole is the most used language. Among the 11.4 million Haitians, 80% consider themselves as Roman Catholic, 16% as Protestant (Baptist 10%, Pentecostal 4%, Adventist 1%, other 1%), none 1%, and other 3%. Also, roughly half of the population practices voodoo[28].

In 2019, Haiti's HDI was recorded at 0.510, ranking the country 170 out of 189 countries. However, the country's HDI falls to 0.303 when the value is discounted for inequality. These values are below the average of 0.766 for countries in Latin America and the Caribbean. However, while the 2018 (published in 2019) female HDI value for Haiti was 0.477 the male HDI value was 0.536. This resulted in a Gender Development Index (GDI) value of 0.890 which placed the country in group 5, i. e. among the countries with the greatest gender disparity.

1.4 Natural and Landscape Characteristics

Haiti (Ayiti in Creole), a name of Amerindian origin, means "land of the high mountains" or "mountain in the sea". The country is located in the western third of the island of Hispaniola, which is situated in the northern Caribbean Sea. Like Cuba, Jamaica, and Puerto Rico, Haiti belongs to the Greater Antilles archipelago. This archipelago covers more than 90% of the surface of all the Caribbean islands. The surface area of Haiti is 27,750 km2 and, when the coastline of its islands is added, the length of its coastline is 1,771 km. In addition to numerous islets along this coastline Haiti has four main islands, in decreasing order of size: Gonâve Island, Turtle Island, La Grande Cayemite Island and Ile-à-Vache. To the north, the Haitian coast opens onto the Atlantic Ocean. In the south, it borders the Caribbean Sea. In the centre, the Gulf of Gonâve is situated between the North and South peninsulas.

Haiti is a predominantly mountainous country. Only 20% of the territory is located in plain areas. To the east of the Southern Peninsula, the Selle mountain has the highest peak in the country (Pic de la Selle at 2,680 m). In the west of the same peninsula, Macaya Peak in the Hotte Massif reaches 2,347 m. The centre and the north of the country are shaped by a succession of reliefs and plains: the chain of Matheux, the plain and the low valley of Artibonite, the Black Mountains, the central plateau, the northern massif, and the northern plain (which represents the collapsed north-eastern slope of the northern massif).

27 World Bank (2022), Haiti, URL: https://data.worldbank.org/country/haiti

28 Embassy of the Republic of Haiti, Washington DC (2021), Haiti at Glance, URL: https://www.haiti.org/haiti-at-a-glance/

Figure 6: Topographic and Toponymic Map of Haiti[29]

The Artibonite River is the longest river in Haiti, running approximately 320 km from its source in the Central Cordillera in the Dominican Republic to its estuary near the town of Grande Saline along the Gulf of Gonâve. The Artibonite has many tributaries in the Central Plateau, including the Guayamouc River (the alluvial plain of the Guayamouc is a very fertile region). To the east, near the border with the Dominican Republic, the Peligre Dam retains the waters of the Artibonite and form the Peligre Lake. This artificial reservoir, which covers an area of 30 km2, was created in 1956 to meet a need for irrigation and to reduce flooding. A hydroelectric plant started its activities in the area in 1971. Due to significant silting, linked to soil erosion in the drained areas, in 2015 the reservoir lost more than 56% of its original capacity.

Located in the Caribbean's Great Antilles, Haiti has a hot and humid tropical climate. Daily temperatures typically range between 19° and 28°C in the winter and 23°C to 33°C during the summer months[30]. At the top of the mountains, the temperature can vary between 18°C and 22°C. Rainfall varies not only with altitude, but also with the orientation of the mountain ranges with respect to the trade winds from the northeast. These moisture-laden winds strike the relief perpendicularly. The plains and exposed slopes receive the most abundant rainfall. Locally, the rainfall can be strongly contrasted. The southern peninsula and the northern department receive most of the rainfall (over 2,500 mm/year). On the other hand, the western side of the northern peninsula, located downwind, is the driest region with less than 1,000 mm/year (500 mm/year on average in Gonaïves).

Haiti is in the path of tropical cyclones whose maximum activity occurs between August and November. Hurricane Jeanne, in September 2004, was one of the deadliest in recent decades for Haiti. In 2008, the country had to face 4 successive cyclones. Also, the country is exposed to periods of intense drought. Additionally, Haiti is located in an active tectonic zone at the border of two crustal plates: the Caribbean tectonic plate and the North American tectonic plate. These plates are moving in relation to each other at a speed of about 2 cm/year. As illustrated by figure 7, these displacements result in continuous seismic phenomena localized mainly at two major active fault zones, the Septentrional fault system and the Enriquillo fault system.

29 *Op. cit.*, Terrier M., Rançon, J. F., Bertil D., Chêne F., Desprats J. F., Lecacheaux S., Le Roy S., Stollsteiner P., Bouc O. (BMRGM), Raynal, M. (CIAT) (2017).

30 World Bank, Climate Change Knowledge Portal (2022), Haiti: Current Climate, URL: https://climateknowledgeportal.worldbank.org/country/haiti/climate-data-historical

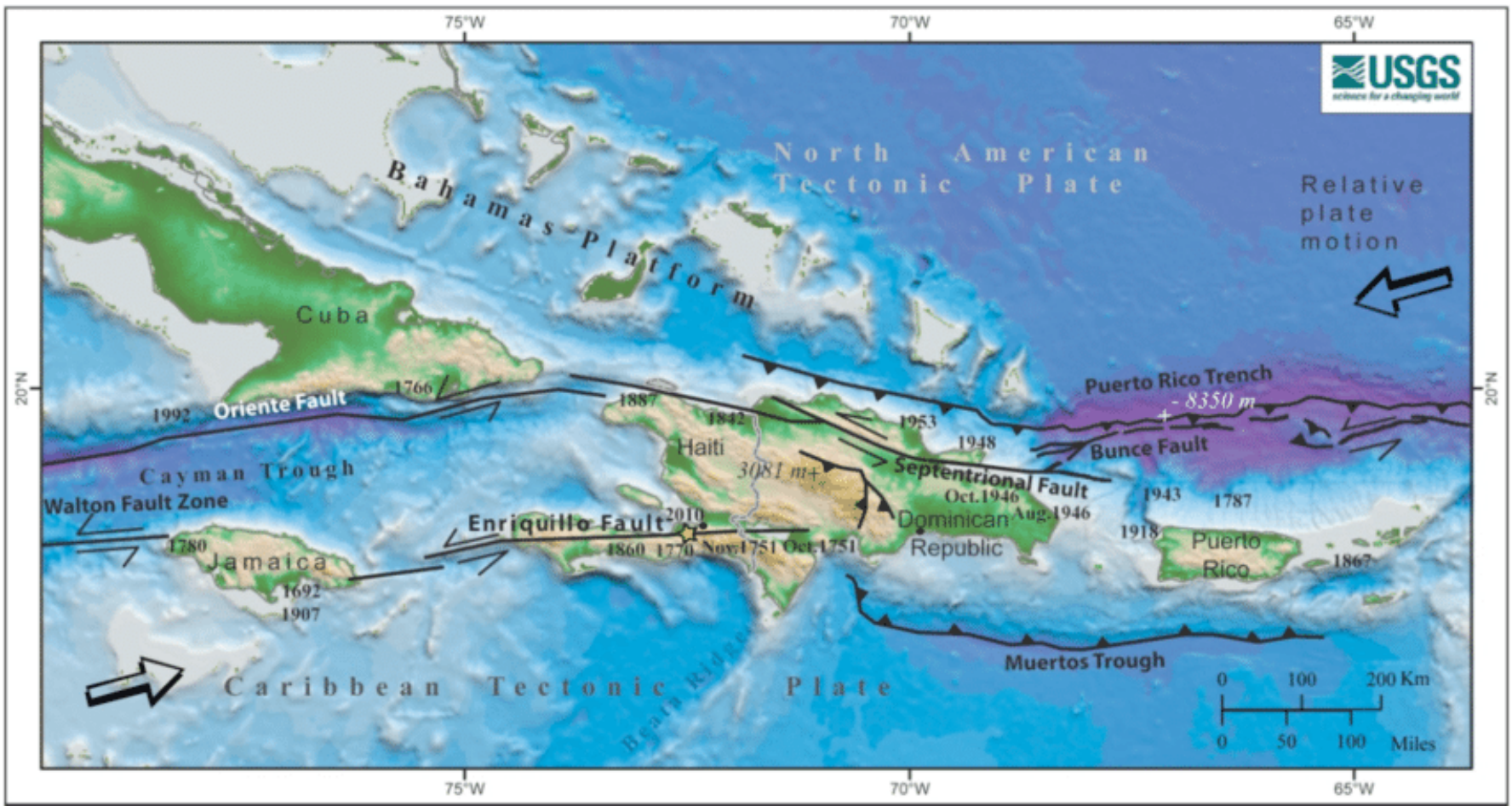


Figure 7. Geographic and tectonic setting of the island of Hispaniola, of which Haiti occupies the western third[31]

31 Des Roches R., M.EERI, Comerio M., M.EERI, Eberhard M., M.EERI, Mooney W., M.EERI, and Rix J. G., M.EERI (2011), Overview of the 2010 Haiti Earthquake, Earthquake Spectra, Volume 27, No. S1, Earthquake Engineering Research Institute, URL: https://escweb.wr.usgs.gov/share/mooney/142.pdf

2. DISASTER RISK PROFILE

Haiti's disaster risk profile is inextricably related to its political instability, increasing violence and fragility, social dynamics that have been aggravated by the current COVID-19 pandemic. Due to its geographical position on the eastern third of the island of Hispaniola in the Caribbean, the country remains highly vulnerable to natural hazards, mainly hurricanes, floods and earthquakes, of which the frequency, intensity and impact are expected to be exacerbated by climate change[32]. The country's risk context is compounded by high poverty levels, the vulnerability of its critical infrastructure, unregulated urban expansion, and the fragility of government institutions and agencies in charge of disaster risk management[33]. With almost the entire country living at risk[34], exposure and vulnerability to extreme and long-lasting events are aggravated by the lack of substantial coherence between SDG, CCA and DRR policies.

Accordingly, the World Risk Report places Haiti 22nd globally and classifies the country with a “very high" WorldRiskIndex[35]. Haiti's risk rank is due to its “very high" levels of exposure, vulnerability, and susceptibility to risk, as well as explained by the country's lack of both coping and adaptive capacities to risk. Similarly, the Inform Risk Index examines three dimensiFons of risk: hazard and exposure, vulnerability and lack of coping capacity, and ranks Haiti 18 out of 191 countries with an overall risk category of high (6.3) in 2022[36]. The Hazard and Exposure dimension assesses elements of natural and anthropogenic hazards and produces a score of 5.8 (high) out of 10 (1-10 being from very low risk to very high risk respectively[37]). The vulnerability dimension considers a country's economic, political and social characteristics that can be destabilized in the event of a hazard occurrence and gives a score of 5.6 (high) for Haiti. Lack of coping capacity, which leads to vulnerability, assesses the governance arrangements in reducing disaster risk, producing a value of 7.3 for Haiti (very high).

Haiti has been affected by a structural socio-political and economic crisis that has lasted for more than four decades. Acute humanitarian crises caused by lack of capacities to cope with sudden natural hazards (hurricanes, floods and earthquakes), and slow onset ones (drought) as well as epidemics (cholera) and pandemics (COVID-19), shape the humanitarian burden. The security situation has deteriorated significantly since 2019 with an increase of crime, delinquency, confrontations between gangs and kidnappings. In 2020, several events aggravated the humanitarian situation in the country. At the socio-political level, there have been violent popular demonstrations against corruption, the absence of a functioning legislature, and repeated strikes at the level of the judiciary. Likewise, the passage of tropical storm Laura in August 2020 caused infrastructural damage (houses, roads) and affected agriculture in the southern departments of the country[38]. Since the beginning of June 2021, the resurgence of rivalries and shifting alliances between gangs have caused the displacement of some 19,000 people in Port-au-Prince. These acts of violence and insecurity have amplified the deterioration of both the country's economic situation and the resilience of the population. Moreover, a major earthquake of magnitude 7.2 that struck the southwest of the country on August 14, 2021, and triggered a spike in international migration from Haiti to neighbour countries. As regards the health situation, COVID-19 had a severe impact on household incomes and their access to food and basic services, especially for those in precarious and vulnerable situations[39].

Appendix II outlines the risk component data available for Haiti.

2.1 Hazards

Due to its geographical position on the eastern third of the island of Hispaniola in the Caribbean, Haiti is highly exposed to hydrometeorological and environmental hazards of which the frequency, intensity and impact are expected to be exacerbated by climate change[40]. Over 93% of the country's surface and more than 96% of the population are exposed to two or more hazards, mainly hurricanes, floods, earthquakes, and landslides, but also tsunami and drought[41]. As previously illustrated

32 World Bank, 2021.

33 GFDRR, 2017.

34 GFDRR, 2016.

35 Bündnis Entwicklung Half, 2020.

36 European Commission, DRMKC-INFORM (2022), Country Risk Profile, URL: https://drmkc.jrc.ec.europa.eu/inform-index/INFORM-Risk/Country-Risk-Profile

37 Inform Risk Index Values: 0-2: Very Low; 2.1-3.5: Low; 3.6-5: Medium; 5.1-6.5: High; 6.6-10 Very High.

38 UNDRR (2021), Scaling up DRR in Humanitarian Action: Haiti Snapshot 2021, URL: https://www.undrr.org/sites/default/files/inline-files/Snapshot%20Scaling%20up%20DRR%20in%20Hum%20Action%20-%20Haiti%20-%202021.pdf

39 Handicap International (2021), Fiche pays : Haïti 2021, URL : https://handicap-international.fr/sn_uploads/country/2021_Fiche_Pays_HAITI_HI_FR.pdf

40 Oat., World Bank (2021).

41 World Bank (2018).

by Figure 7, Haiti is highly subject to geological hazards, particularly to earthquakes created by the interaction of the Caribbean and North American tectonic plates. In this area, several blocks of the Earth's crust are caught between these two large plates, which are converging towards each other at a speed of about 2 cm/year, in a northeast-southwest direction. This movement of the North American and Caribbean tectonic plates results in deformations along rupture zones (faults)[42]. PNGRD 2019-2030 discusses thoroughly the challenges posed by the seismic hazard and the measures to be implemented.

Figure 8: Natural Hazards in Haiti[43]

With reference to hydrometeorological hazards, Haiti is highly exposed to coastal flood, flash flood, fluvial flood, lightning, storm surge, tsunamis, tropical cyclones, droughts, and heatwaves. According to Think Hazard data[44], there is more than a 20% chance of potentially-damaging coastal flood waves occurring in the next 10 years and life-threatening urban and river floods are expected to occur at least one in the next 10 years. While there is just a 2% chance of a potentially-damaging tsunami occurring in the next 50 years in the country, the areas at risk for tsunami will increase as global mean sea level rise. Likewise, there is more than 20% chance of potentially-damaging wind speeds in Haiti in the next 10 years and 25% chance that at least one period of prolonged exposure to extreme heat, resulting in heat stress, will occur in the next 5 years.

The hurricane season in the North Atlantic extends from June to November. As regards the island of Hispaniola, 33 disruptive events have passed near its coasts (within 250 km) in the last 15 years, including 16 cyclones and 15 tropical storms. In this area, cyclones have a trajectory generally oriented from southeast to northwest[45]. According to the Caribbean Disaster Mitigation Project[46], the wind values potentially reached over Haiti are quite heterogeneous. The 100-year intensity ranges from about 100 km/h in the northern part of the island to over 200 km/h in the southern part. The orography also plays an important role locally, with mountainous areas being more exposed than low-lying areas. PNGRD 2019-2030 Strategic Axis 4 not only addresses earthquakes, epidemics, and droughts, but also Haiti's exposure to cyclones. PNCC 2019-2030 is presented as an effort to prepare, respond and recover from hydrometeorological hazards.

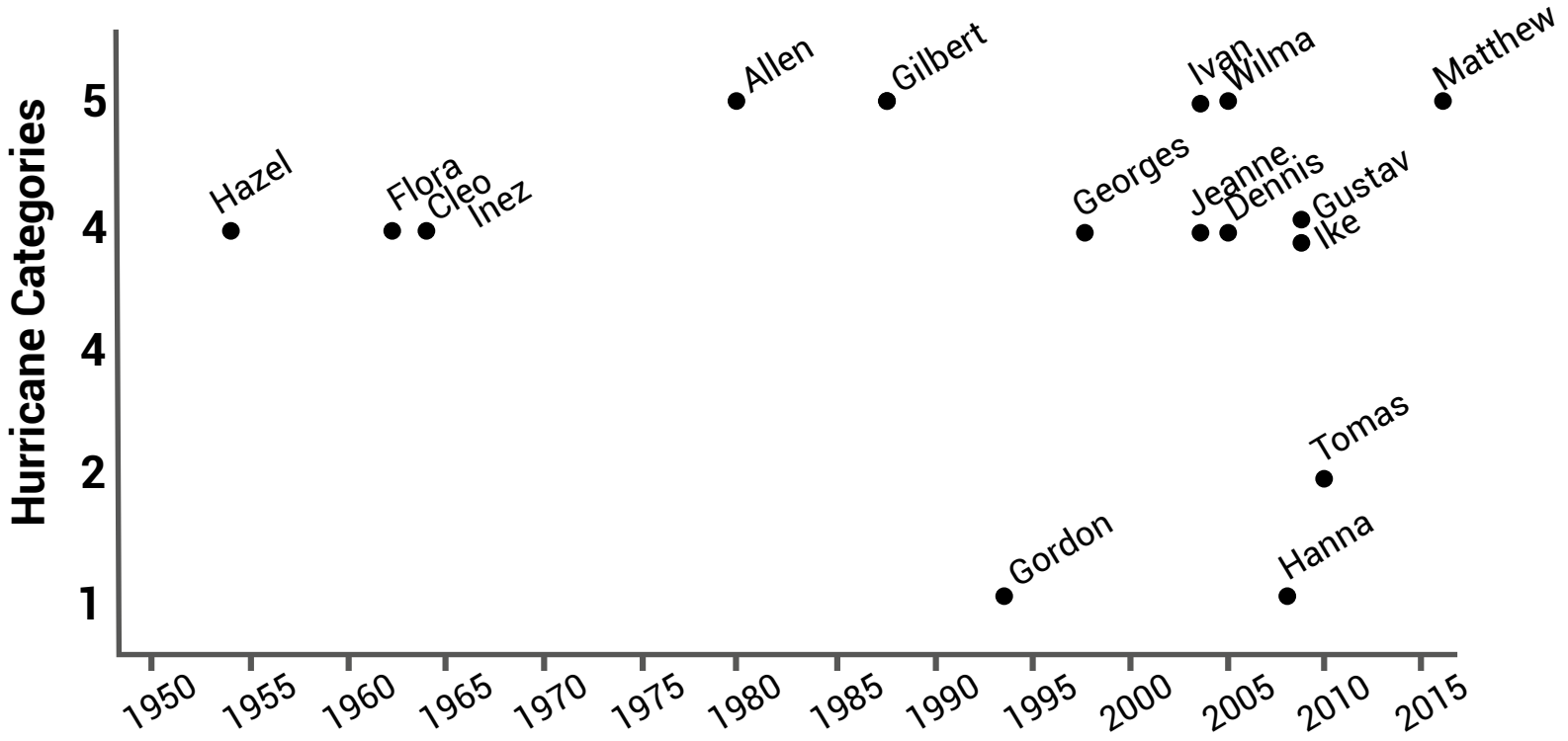
42 Terrier M., Rançon, J. F., Bertil D., Chêne F., Desprats J. F., Lecacheaux S., Le Roy S., Stollsteiner P., Bouc O. (BMRGM), Raynal, M. (CIAT) (2017), Atlas des menaces naturelles en Haïti, URL : https://fr.calameo.com/read/0057191216d35c942d25f

43 Think Hazard (2022), Haiti, URL: https://thinkhazard.org/en/report/108-haiti

44 *Ibidem.*

45 Op. cit., Terrier M., Rançon, J. F., Bertil D., Chêne F., Desprats J. F., Lecacheaux S., Le Roy S., Stollsteiner P., Bouc O. (BMRGM), Raynal, M. (CIAT) (2017).

46 Organization of American States, USAID (2000), Caribbean Disaster Mitigation Project: Final Evaluation, URL: http://www.oas.org/cdmp/document/ofdaeval.htm



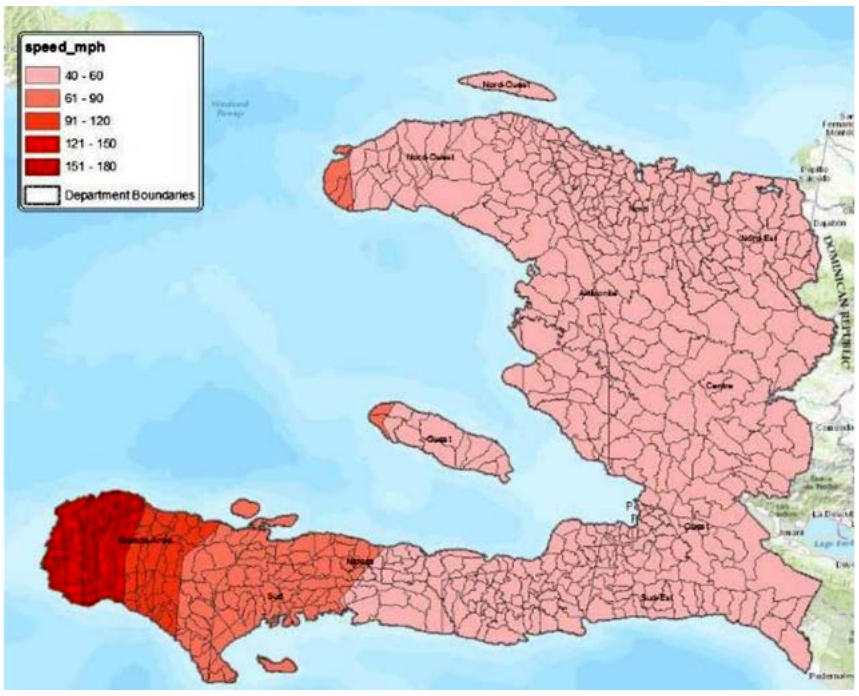
Source: National Hurricane Center https://www.nhc.noaa.gov/aboutsshws.php

Figure 9: Hurricanes in Haiti (1950-2018)[47]

47 World Bank (2020), Using Behavioral Insights to Improve Disaster Preparedness Early Warning and Response Mechanisms in Haiti, URL: https://documents1.worldbank.org/curated/en/465051578683565433/pdf/Using-Behavioral-Insights-to-Improve-Disaster-Preparedness-Early-Warning-and-Response-Mechanisms-in-Haiti.pdf

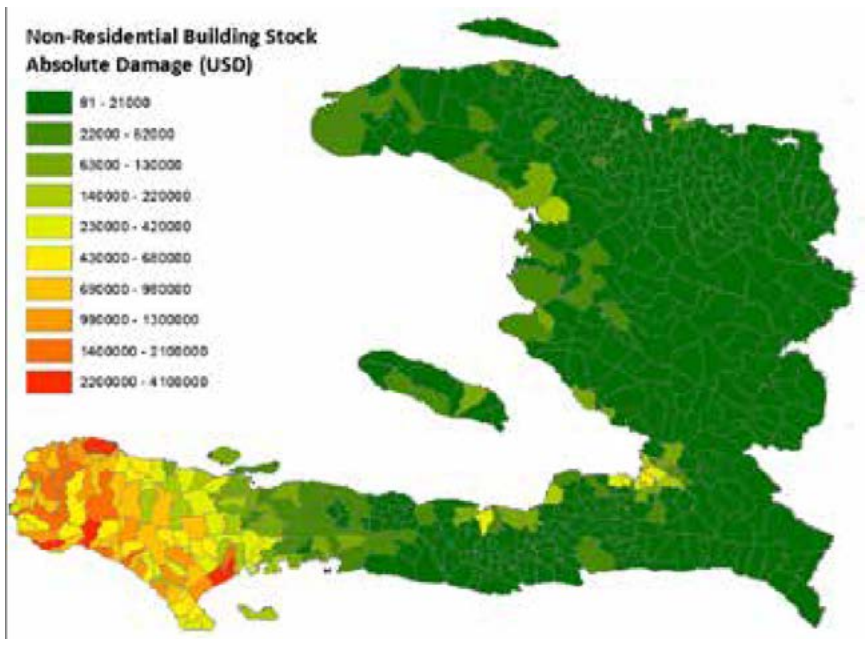
Additionally, climate change will increase the frequency of, and impacts from, extreme weather events. As illustrated by Figure 9, Haiti will likely continue in the path of higher frequency and intensity of hurricanes while more than doubling the length of the dry season[48]. This situation will make it harder for the country to fully recover after each disaster.

1.Speed (mph), per commune



Source: National Hurricane Center/University College Londos/ CNIG Spatial Team, October 2016

2. Estimation of infrastructure damage (USD) per commune



Source: Haiti Rapid Post-Disaster Building Economic Loss Assessment D-RAS, World Bank

Figure 10: Spatial distribution and impact of Hurricane Mathew[49]

Haiti is also exposed to environmental hazards such as air pollution, land and soil degradation, biodiversity loss, deforestation, wildfires, desertification, soil erosion, coastal erosion and shoreland change, and sea level rise. As regards wildfires in Haiti, there is a greater than 50% of encountering weather that could support a significant wildfire that is likely to result in both life and property loss in any given year.

According to Think Hazard, climate change will have a clear impact on wildfire occurrence in the country. In the areas already affected by wildfire hazard, the fire season is likely to increase in duration, and include a greater number of days with weather that could support fire spread because of longer periods without rain during fire seasons. Also, there could be an increase in the severity of fires. While PNGRD 2019-2030 acknowledges this, a clear reference to wildfire hazard in its Strategic Axes is needed.

Pertaining to soil erosion, more than 50% of Haiti's territory is subject to a significant threat of erosion and no less than 6% of the land is currently affected by irreversible erosion[50]. This alarming situation is the result of a combination of several factors: significant slopes, limited vegetation cover, heavy rainfall, inappropriate agricultural practices and deforestation. Haiti is one of the most deforested countries in the world, with an estimated forest cover of only 1-3% of the country's area[51]. While PANA 2006 discusses air pollution, land and soil degradation, biodiversity loss, deforestation, wildfires, desertification, soil erosion, coastal erosion and shoreland change, PNGRD 2019-2030 acknowledges the existence of these hazards without addressing them in a detailed manner. In 2015, while complying with the UN Convention to Combat Desertification, the Haitian government issued the Aligned National Action Program to Combat Desertification. The Program aims to improve the living conditions of the populations affected by desertification, as well as the state of ecosystems in the island, by establishing partnerships between national and international stakeholders.

With respect to chemical hazards, Haiti's population is exposed to several gases (carbon monoxide, ammonia), heavy metals (chlorine, mercury, lead), POPs, hydrocarbons, CBRNE, and other toxins (asbestos, marine toxins). The exposure to these chemical hazards is discussed in National Chemical

48 *Op. cit.*, World Bank (2018).

49 *Op. cit.*, World Bank (2020).

50 *Op. cit.*, Terrier M., Rançon, J. F., Bertil D., Chêne F., Desprats J. F., Lecacheaux S., Le Roy S., Stollsteiner P., Bouc O. (BMRGM), Raynal, M. (CIAT) (2017).

51 *Ibidem.*

and Waste Management Profile (2008). This Profile provides an assessment of Haiti's legal, institutional, administrative, and technical capacities to manage chemicals and waste. The orders of July 18, 2013 and August 9, 2012 prohibit the production, import, marketing and use of polyethylene bags and objects made of expanded polystyrene. However, the degree of enforcement of these orders is low. Also, PNGRD 2019-2030 should integrate chemical hazards in its Strategic Axes and the National Chemical and Waste Management Profile (2008) must be revised to keep up with Haiti's new challenges in this area.

Regarding technological hazards, Haiti is highly exposed to construction and structural failure, industrial failure, hazardous waste, and transportation accidents. The country does not have an institutional mechanism for oil spill prevention and response, such as a National Oil Spill Contingency Plan. Likewise, while a National Building Code was published in 2012, the Ministry of Public Works, Transport and Communications and DPC should advocate for strengthening the implementation of the Code. Transportation hazards related to road traffic and air transportation accidents are regulated by the National Police and the National Office for Civil Aviation[52]. As regards extraterrestrial and societal hazards, PNGRD 2019-2030 acknowledges them without providing many details.

Hydrometeorological	• Coastal Flood, Flash Flood, Fluvial Flood, Lightning, , Storm Surge, Tsunami, Tropical Cyclone, Drought, Heatwave,
Extraterrestrial	• Not considered in plans and policies.
Geological	• Earthquakes, Landslide, Liquefaction, Tsunami (Earthquake Trigger).
Environmental	• Air Pollution, Land and Soil Degradation, Biodiversity Loss, Deforestation, Wildfires, Dessertification, Soil Erosion, Coastal Erosion and Shoreland Change, Sea Level Rise.
Chemical	• Ammonia, Carbon Monoxide, Heavy Metals, Pesticides, Persistent Organic Polluants, Oil Pollution, Asbestos, Chlorine, Marine Toxins.
Biological	• Insect Infestation, Invasive Species, Plant Infectious Diseases, Human and Animal Infectious Diseases.
Technological	• Construction/Structural Failure, Infrastructure Failure, Industrial Failure, Hazardous Waste, Transportation Accidents.
Societal	• Civil Unrest, Violence, Financial Shock.

Figure 11: Summary of documented hazards for Haiti under the United Nations Hazard Definition and Classification Review Technical Report (2020)

52 E. g.: République d'Haïti, OFNAC (2017), Règlement de l'aviation civile, Partie 14 – Aéroport, Annexe K, Plan d'urgence, URL : https://ofnac.gouv.ht/wp-content/uploads/2020/11/RACH-Partie-14-Annexe-K-Plan-Urgence.pdf; Police Nationale d'Haïti, Manuel d'utilisateur du système d'information sur les accidents, URL : https://www.mtptc.gouv.ht/media/upload/doc/publications/StrategieNationale3.pdf

2.2 Vulnerability

Vulnerability is considered by UNDRR as the conditions determined by physical, social, economic and environmental factors or processes which increase the susceptibility of an individual, a community, assets or systems to the impacts of hazards. Key to reducing both social and physical vulnerability is the strengthening of capacities, which may include infrastructure, institutions, human knowledge and skills, and collective attributes such as social relationships, leadership and management[53]. Special attention should be given to the development of strengths, attributes and resources available within an organization, community or society to manage and reduce disaster risks and enhance resilience[54].

2.2.1 Social Vulnerability

Social vulnerability explores the socioeconomic and demographic factors that determine individuals' abilities to cope with hazards as disasters affect persons disproportionately based on these adaptive and coping capacities. Social vulnerability is determined by factors such as poverty, ethnicity, gender, age, disability, literacy, language and household circumstance. These vulnerabilities interplay with hazards and characteristics of exposure to create an intricate risk profile at individual, community and country levels.

Poverty and inequality are arguably the most well-recognized elements of social vulnerability. In Haiti, poverty is multidimensional and reduces ability to mitigate against, prepare for, respond to and recover from hazards. The country's high levels of poverty correspond to a long-lasting inability to meet basic needs and to its low purchasing power to procure essential goods and services. Thus, poverty-stricken households in Haiti are usually forced to occupy sub-standard living areas and conditions, including hazard-prone areas. The 2020 Human Development Report introduced the Multidimensional Poverty Index (MPI), which identifies multiple overlapping deprivations suffered by individuals in 3 dimensions: health, education and standard of living. The most recent survey data publicly available for Haiti's MPI estimation refer to 2016/2017. In Haiti, 41.3% of the population (4,590 thousand people) are multidimensionally poor while an additional 21.8% are classified as vulnerable to multidimensional poverty (2,430 thousand people). The Report produced a MPI value of 0.200 for Haiti, below the average for Latin America and the Caribbean (0.031) and ranking the country 170 out of 189 countries and UN-recognized territories. These results suggest that Haiti's poverty levels surpass by far its Caribbean and Latin American neighbours[55]. An up-to-date MPI estimation for Haiti is paramount to ensure the efficiency of targeted interventions addressing both social vulnerability and disaster risk reduction in the country.

The 2010 Human Development Report introduced the Inequality-Adjusted HDI (IHDI). Like all averages, the HDI masks inequality in the distribution of human development across the population at the country level. For instance, while Haiti's HDI for 2019 is 0.510, the HDI falls to 0.303 when the value is discounted for inequality. This represents a loss of 40.6% due to inequality in the distribution of the HDI dimension indices, whilst the overall loss in Latin America and the Caribbean is 22.2%. Therefore, social vulnerability and disaster risk reduction capacity building and interventions in Haiti cannot be considered without taking into account inequality as a key factor.

Directly related to poverty is the issue of unemployment and underemployment. Based on the International Labour Organization's model estimates, the World Bank presented an unemployment rate of 15.73% for Haiti in 2021. This is contrasted by neighbouring Dominican Republic (8.5%), Jamaica (9.18%) and Cuba (2.76%) that recorded lower unemployment rates under the same model. It is worth noting that, similar to other countries in the Caribbean region, Haiti's unemployment rates are considerably higher among women (18.96%) when compared to male unemployment rate (12.72%)[56]. In 2010, a national survey from the Haitian Institute of Statistics and Informatics of the Ministry of Economy and Finance revealed similar values to 2019, suggesting that the unemployment rate had not improved substantially over a decade. According to the survey, while Haiti's unemployment rate is 16.8%, there is a significant gap between urban (33.3%) and rural (9.4%) unemployment. Likewise, overall women's unemployment (19.2%) is significantly higher than men's unemployment (14.9%)[57]. Given these trends,

53 UNDRR (2022), Terminology: Vulnerability, URL: https://www.undrr.org/terminology/vulnerability

54 UNDRR (2022), Terminology: Capacity, URL: https://www.undrr.org/terminology/capacity

55 *Op. cit.*, UNDP (2020).

56 World Bank (2022), Unemployment, total (% of total labor force) (modeled ILO estimate) – Haiti, URL: https://data.worldbank.org/indicator/SL.UEM.TOTL.ZS?end=2021&locations=HT&start=2021&view=map

57 République d'Haïti, Ministère de l'Économie et des Finances, Institut Haïtien de Statistique et d'Informatique (2010), *Enquête sur l'emploi et l'économie informelle*, URL : https://www.ilo.org/public/libdoc/igo/2010/479421.pdf

the efficient implementation of the National Disaster Risk Management Plan 2019-2030 is inextricably linked to the introduction of gender considerations as a cross-cutting theme within all development strategies and actions in Haiti.

Gender considerations have been well-recognized in recent years in disaster risk reduction, sustainable development, and climate change adaptation policies. The analysis of two index illustrates significant differences between female and male social conditions in Haiti. The first one is the Gender Development Index (GDI). Introduced in 2014 by the Human Development Report, the GDI is based on the sex-disaggregated Human Development Index, defined as a ratio of the female to the male HDI. As such, the GDI measures gender inequalities in achievement in three basic dimensions of human development: health, education, and command over economic resources. The 2019 female HDI value for Haiti is 0.473 in contrast with 0.540 for males, resulting in a national GDI of 0.875 and placing Haiti among countries with low equality in HDI achievements between females and males.

The second index is the Gender Inequality Index (GII). Announced by the 2010 Human Development Report, the GII reflects gender-based inequalities in three dimensions – reproductive health, empowerment, and economic activity. Haiti has a GII value of 0.636, raking 151 out of 162 countries in the 2019 index, which suggests low human development levels due to considerable inequality between female and male achievements in the three GII dimensions. For instance, in Haiti 2.7% of parliamentary seats are held by women, 26.9% of adult women have reached at least a secondary level of education compared to 40% of their male counterparts, and 61.9% of women participate in the labour market compared to 72.8% for men. The situation is particularly worrying once compared to the Latin America and the Caribbean region, as in this region 60.4% of women and 59.7% of men have at least some secondary school education, and 31.4% of parliamentary seats are held by women[58].

Several initiatives have been launched to address these issues. In 2013, MP Marie Jossie Etienne inaugurated the Gender Equality Bureau in the Haitian Parliament. This Bureau ensures that all laws to be passed in parliament address the issue of gender justice, serves as a platform for exchange between the parliament, women's associations and civil society, and monitors compliance with the 30% quota for women in public administration[59]. In 2014, the National Action Plan for Gender Equality 2014-2020 was implemented. The Plan is structured around 6 Orientations and Measures:

- Equal rights and fair justice for women and men.
- Non-sexist education and models.
- Access to sexual and reproductive health while respecting the dignity of women.
- Elimination of all forms of violence against women and girls.
- Economic equality and equitable access to employment between women and men.
- Equal participation of women and men in decision-making bodies.

Education and literacy are also key factors to understand social vulnerability in Haiti and how this affects the implementation of disaster risk reduction policies and plans. Haiti's education system is divided in pre-primary (753,614 people), primary (1,472,337), secondary (1,628,148), and tertiary (1,074,144) levels. However, compulsory education is legally limited to the primary level, which lasts 6 years and generally runs from age 6 to 11[60]. While government expenditure on education rose from 12% in 2014 to 14.6% in 2018 (as a percentage of total government expenditure), once understood as a percentage of GDP this expenditure fell from 1.8% to 1.7% during the same period. One of the illustrations of the lack of investments on education is the 2016 Haitian literacy rate, which was 61.7% of the total population. This is particularly worrying after compared to other countries in Latin America and the Caribbean such as Costa Rica (98%), Dominican Republic (94%), El Salvador (89%), and Jamaica (88%). Literacy rate increases considerably among people aged 15-24 years (83%), age group where the gap between male (83%) and female (82%) is little. However, the literacy rate falls for the age group 25 years and older (62%), where the gap between male (65%) and female (58%) growths significantly. The decreasing of the literacy rate is even more dramatic when looking at the age group 65 years and older (15%), as only 21% of males and 10% females are literate. This situation is acutely troubling as it could hinder the local reappropriation of national disaster risk reduction, climate change

58 *Op. cit*., UNDP (2020).

59 MINUSTAH (2013), Un bureau d'équité de genre au Parlement haïtien, URL : https://minustah.unmissions.org/un-bureau-d%E2%80%99%C3%A9quit%C3%A9-de-genre-au-parlement-ha%C3%AFtien

60 Constitution of the Republic of Haiti, Article 32.3; See also: Association Enfants-Soleil (2016), Cycles scolaires et enseignements en Haiti, URL: https://www.enfants-soleil.org/spip.php?article97

adaptation and sustainable development policies and plans.

Several aspects referring to school involvement explain this situation:

- 35% of girls over six never go to school.
- 50% of primary school age children are not enrolled in school.
- 30% of children attending school leave before the third grade.
- 60% of all school children will leave school the sixth grade.
- 200,000 children are not in school.
- <1% of Haitians have graduated from college.

Likewise, numerous factors affect student's school completion: 78% of the population live on less than $2 USD a day and most families average $240 USD per year, families have several students of school age to enrol, books and materials in Haitian Creole are limited, access to school libraries is little, 85% of teachers lack basic qualifications, and 90% of schools are run with little oversight[61].

Other vulnerable groups such as persons with disabilities, elderly, children, and displaced people must not be left behind. As regards persons with disabilities, the Office of the Secretary of State for the Integration of Persons with Disabilities (BSEIPH) is committed to ensuring that the special needs of persons with disabilities are addressed in normal times and in disaster situations[62]. Recent experiences have shown that disaster risk reduction programs are not always accessible and do not allow automatically the inclusion and participation of vulnerable populations, particularly persons with disabilities. Haitian persons with disabilities and older people are particularly vulnerable as they face social, cognitive, institutional and accessibility barriers[63]. To counter this situation, interventions aiming the inclusion of persons with disabilities in disaster risk management should be implemented at the individual, community, departmental and national levels.

In 2012, the Minister Delegate for Human Rights and the Fight against Extreme Poverty, Marie Carmèle Rose Auguste, declared that *"Women and people with disabilities are not sufficiently involved in public decision-making that affects them".* Similarly, the Secretary of State for the Integration of People with Disabilities, Gérald Oriol, defended "the idea that a society is a complex ordered whole that cannot deprive itself of one of its parts without weakening itself[64]. Haiti's ratification of the UN Convention on the Rights of Persons with Disabilities in 2009[65], as well as the International Labour Organization Discrimination (Employment and Occupation) Convention No. 111 in 1976[66], had led to the adoption of a series of legislative, administrative and social measures aiming the inclusion of persons with disabilities. For instance, the law on the Integration of Persons with Disabilities entered into force on May 21, 2014, and the law ensuring physical accessibility of public buildings on July 3, 2018[67]. In 2019, the BSEIPH advocated for access to work for people with disabilities based on international commitments and the two national laws quoted above. The National Disaster Risk Management Plan 2019-2030 addresses these concerns through Strategic axis 1, which aims to develop the citizens' capacity to identify and map risks in the face of major hazards taking into account gender and disability considerations.

Lastly, despite meaningful national, regional and international efforts to date, healthcare remains a challenge to efficiently implement the National Disaster Risk Management Plan 2019-2030. The average life expectancy in Haiti is 64 years, below the average of 70 years for CARICOM countries and other Latin-American countries as Argentina (77 years), Brazil (76 years) and Bolivia (72 years)[68]. Infectious diseases continue to challenge the national development context, as indicated by the fact that the tuberculosis effective treatment coverage in 2017 is just 53.80%, pneumococcal conjugate vaccines (PCV3) immunization coverage among 1-year-olds is only 37.12%, and rotavirus vaccines completed dose (RotaC) immunization coverage among 1-year-olds is 51%. In addition to this challenge, neonatal mortality rate (24.77 per

61 Partners in Literacy Haiti (2022), Literacy in Haiti, URL: https://haiti-literacy.org/literacy-in-haiti/

62 PNGRD 2019-2030, p. iii.

63 Ibidem, p. 13.

64 MINUSTAH (2012), Droits de l'Homme : pour une meilleure implication des femmes et des personnes handicapées dans la vie publique hattienne, URL : https://minustah.unmissions.org/droits-de-l%E2%80%99homme-pour-une-meilleure-implication-des-femmes-et-des-personnes-handicap%C3%A9es-dans-la-vie

65 UN, Department of Economic and Social Affairs, Disability (2022), Convention on the Rights of Persons with Disabilities, URL: https://www.un.org/development/desa/disabilities/convention-on-the-rights-of-persons-with-disabilities.html

66 ILO (2017), C111- Discrimination (Employment and Occupation) Convention, 1958 (No. 111), URL: https://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:12100:0::NO::P12100_Ilo_Code:C111

67 United Nations Human Rights (2018), Committee on the Rights of Persons with Disabilities examines report of Haiti, URL: https://www.ohchr.org/en/press-releases/2018/02/committee-rights-persons-disabilities-examines-report-haiti

68 World Bank (2022), Life expectancy at birth, total (years) – Haiti, URL: https://data.worldbank.org/indicator/SP.DYN.LE00.IN?locations=HT

1000 live births), infant mortality rate (46.66 per live births) and under-five mortality rate (60.48 per 1000 livre births) are particularly high when compared, for example, to neighbouring Dominican Republic (23.43, 27.87, and 33.76 respectively)[69]. Other issues such as the lack of contraceptive methods conditions the health profile of Haiti and deters the pursue of equality between females and males. While the Haitian contraceptive prevalence is 34% of married women ages 15-49, the Dominican Republic one reaches 70% and the Jamaican 73%[70].

2.2.2 Physical Vulnerability

Physical vulnerability considers “the conditions determined by physical processes which increase the susceptibility of an individual, a community, assets or systems to the impacts of hazards"[71]. Haiti's geographic location in the path of Atlantic hurricanes, combined with the topography of its western region from which all major river systems flow to the coast, makes the country particularly vulnerable to hydrometeorological disasters. The country lies in the middle of the hurricane belt, with 1,771 km of coastline, making Haiti subject to severe storms during the regular hurricane season, especially between June and December[72]. Landslides are common along all river valleys where years of deforestation have left the upper reaches of the wester basins bare. The major natural hazards that threaten Haiti are cyclones, floods, droughts, and landslides, with floods leading as the greatest threat and contributor to vulnerability. The country's most populated cities are all nestled in the valley along the coast, exposed to the flush rainwater coming down from the steep hills to the urban areas. Widespread deforestation in the upper areas reaches of these valleys which, coupled with lacking drainage infrastructure, creates an environment conducive to flooding.

Physical process	Physical vulnerability trend
Hurricanes	Over the past 30 years, the country has been hit by six hurricanes, and while most of this small island nation is affected, the West and South Departments lie in the path of the strongest hurricanes.
Floods	Port-au-Prince is particularly vulnerable to flooding, with a large portion of its inhabitants residing on flood plains in poorly constructed housing. Waste management is under-developed, leading to increased risk from water-borne diseases.
Deforestation	High deforestation rates, coupled with intense rainfall, make landslides commonplace and particularly dangerous in the steep sloping lands.
Droughts	The North-West, Artibonite, North-East, and Central departments frequently experience repeated droughts, brought about by a combination of erratic rainfall patterns coupled with limited water management infrastructure.

Table 2: Physical Vulnerability Trends in Haiti[73]

Regarding major infrastructures, Haiti has today:

- 6 public airports and 2 international airports (Port-au-Prince and Cap-Haïtien: direct flights to the French Antilles, the Bahamas, Canada, Cuba, Panama, the Dominican Republic, and the United States).
- 2 ports in compliance with international standards, Port-au-Prince and Cap-Haïtien. 17 coastal ports, 8 of which are open to foreign trade.
- 1 public electricity supply company, Electricité d'Haïti (EDH).
- 4,500 km of roads classified as "national", "departmental" and "local", including roads under construction[74].

69 WHO, The Global Health Observatory (2022), Haiti, URL: https://www.who.int/data/gho/data/countries/country-details/GHO/haiti?countryProfileId=8dfd3be5-73db-48ec-abf4-13464e5b5884

70 World Bank (2022), Contraceptive prevalence, any method (% of married women ages 15-49) – Haiti, URL: https://data.worldbank.org/indicator/SP.DYN.CONU.ZS?locations=HT

71 Amended from United Nations Officer for Disaster Risk Reduction.

72 PAHO, Haiti: Haiti's vulnerability to natural disasters, URL: https://www.paho.org/english/DD/PED/reginfohaiti.htm

73 World Bank, Climate Change Knowledge Portal (2022), Haiti, URL: https://climateknowledgeportal.worldbank.org/country/haiti/vulnerability

74 Op. cit., Terrier M., Rançon, J. F., Bertil D., Chêne F., Desprats J. F., Lecacheaux S., Le Roy S., Stollsteiner P., Bouc O. (BMRGM), Raynal, M. (CIAT) (2017).

Buildings are poorly constructed and building codes are sparsely enforced, making Haiti's building infrastructure highly vulnerable to hazards[75]. For instance, most of the times shelters do not abide by building codes and standards, which is often due to unenforced regulations. The Government of Haiti, through the DPC, must enforce laws on building codes and norms to enhance preparedness and response capacities among the Haitian population. The National Building Code of Haiti, elaborated in 2012 and published in 2013, establishes the minimum provisions required to achieve two set of objectives:

- **Users:** safety, health and general well-being.
- **Buildings:** accessibility, structural resistance and stability (regardless of the stresses and hazards considered), sanitation, lighting, ventilation, energy efficiency and fire protection[76].

For instance, the housing typologies in the departments affected by Hurricane Matthew in 2016 were mostly single-family, concrete block, unreinforced masonry walls with light wooden roof structures covered by metal sheets, with some thatch and straw roofing. There were also light wood frame houses enclosed in metal sheeting or other wooden, fibrous materials[77].

Despite the availability of a building code that includes several hazards present in the country, lack of enforcement hinders the development of hazard resistant infrastructure in Haiti and exacerbates the emergence of unregulated practices. The damages suffered by the infrastructure in urban and peri-urban areas surrounding the epicentre of the earthquake of January 12, 2010, illustrate the building deficiencies across the country. As revealed by National Agricultural Investment Plan for Haiti (2010), irrigation canals, storage and processing centres were massively damaged in the plains around Gressier, Léogâne, Petit Goâve and Grand Goâve and in the mountainous regions of Bainet, La Vallée de Jacmel, Côte-de-Fer, Jacmel, Cayes-Jacmel and Marigot. Similarly, dry and wet seasons have revealed several limitations in the physical infrastructure across Haiti which contributes significantly to the country's vulnerabilities. For instance, Haiti's road network is highly deficient, which entails that many areas with high production potential throughout the country are landlocked and practically inaccessible during the dry and wet season[78].

Resilient urban growth in Haiti is hampered by important gaps in basic services, increasing exposure to disasters, and ineffective land-use planning. This situation is key if we consider that in 2020 57% of Haiti's population live in cities and towns, illustrating a major shift from 1950s when 84% of Haitians used to live in the countryside[79]. Additionally, approximately 133,000 Haitians move to urban areas each year. However, the potential benefits of urbanization have been hampered by the country's immense challenges of connecting, planning, and financing, all of which require immediate action. Three main set of actions are required to enhance resilience in the country:

- Tackle infrastructure gaps and prepare for future urban growth by investing in basic services, improving data, and fostering local cooperation.
- Address transport efficiency and affordability in coordination with land-use planning and transport systems.
- Strengthen municipal financing to close infrastructure and services gaps and to accommodate the growing urban population[80].

Disasters disrupt urban planning programs and divert State and international support in Haiti towards immediate reconstruction requirements. The permanent lack of infrastructure and services has limited the economic benefits of urbanization in the country. For example, an estimated 35% of urban residents do not have access to treated water and nearly two-thirds do not have access to improved sanitation facilities. This is particularly worrying as Haitian cities are exposed to natural hazards, especially if we consider that nearly two-thirds of them are concentrated in high-risk seismic zones and about half are at risk of flooding. While most of the government's efforts since 2010 have

75 World Habitat (2018), Promoting Local Building Cultures in Haiti, URL: https://world-habitat.org/world-habitat-awards/winners-and-finalists/promoting-local-building-cultures/; See also: UNOPS (2022), Building a Resilient Haiti, URL: https://www.unops.org/news-and-stories/stories/building-a-resilient-haiti

76 République d'Haïti (2012), Code national du bâtiment d'Haïti, URL : https://www.mtptc.gouv.ht/media/upload/doc/publications/CNBH_fusion.pdf

77 Op. cit., Gunasekera R., Daniell J., Pomonis A., Arias Donoso R., Ishizawa O., Stone H., World Bank (2018).

78 République d'Haïti, Ministère de l'agriculture, des ressources naturelles et du développement rural (2010), Plan national d'investissement agricole, URL : http://extwprlegs1.fao.org/docs/pdf/hai146377.pdf

79 World Bank (2022), Urban population (% of total population) – Haiti, URL: https://data.worldbank.org/indicator/SP.URB.TOTL.IN.ZS?locations=HT

80 World Bank (2018), Briefing Results: Understanding the Future of Haitian Cities, URL: https://www.worldbank.org/en/results/2018/06/26/understanding-the-future-of-haitian-cities

been focused on reconstruction, Haiti's must keep working on consolidating the inclusion of disaster risk reduction planning into new construction programs so to prevent widescale damage[81].

2.3 Exposure

Exposure refers to the "situation of people, infrastructure, housing, production capacities and other tangible human assets located in hazard-prone areas"[82]. Measures of exposure can include the number of people or types of assets in an area. These can be combined with specific vulnerability and capacity of the elements exposed to any particular hazard to estimate the quantitative risks associated with that hazard in the area of interest[83].

According to PNGRD 2019-2030, data from the Risk Management Index (INFORM) ranks Haiti as the most vulnerable country in the Caribbean region and 14th in the world. Concretely, nine out of ten Haitians are reportedly exposed to at least two natural hazards. As previously detailed, a series of factors associated to Haiti's social and physical vulnerabilities contribute to Haiti's high levels of exposure to multiple hazards.

	Cyclone	Flood	Drought	Erosion and Desertification	Landslide	Tsunami	Earthquake
Arbonite							
Centre							
Grande-Anse							
Nippes							
Nord							
Nord-Est							
Nord-Ouest							
Sud							
Sud-Est							
Ouest							

Color	Level of exposure
	High
	Moderate to High
	Moderate
	Weak

Table 3. Levels of Exposure to Natural Hazards in each Department in Haiti[84]

As illustrated by Table 3, levels of exposure to natural hazards are not equally distributed in Haiti. The Grand-Sud, which includes the departments of Arbonite, Sud, and Ouest are highly exposed to cyclones, and all of the departments are highly exposed to erosion and desertification. Similarly, floods often strike the Artibonite, Nord, Nord-Est, Sud, and Ouest departments. However, the level of exposure to this natural hazard in the Grand-Anse, Nippes, and Nord departments is considered as moderate.

81 Economist Intelligence (2018), Haiti struggles to address urbanization challenges, URL: https://country.eiu.com/article.aspx?articleid=866651470&Country=Haiti&topic=Economy

82 United Nations General Assembly (2016), Report of the open-ended intergovernmental expert working group on indicators and terminology relating to disaster risk reduction, URL: https://digitallibrary.un.org/record/852089?ln=fr

83 UNDRR (2022), Terminology: Exposure, URL: https://www.undrr.org/terminology/exposure

84 Op. cit., Terrier M., Rançon, J. F., Bertil D., Chêne F., Desprats J. F., Lecacheaux S., Le Roy S., Stollsteiner P., Bouc O. (BMRGM), Raynal, M. (CIAT) (2017).

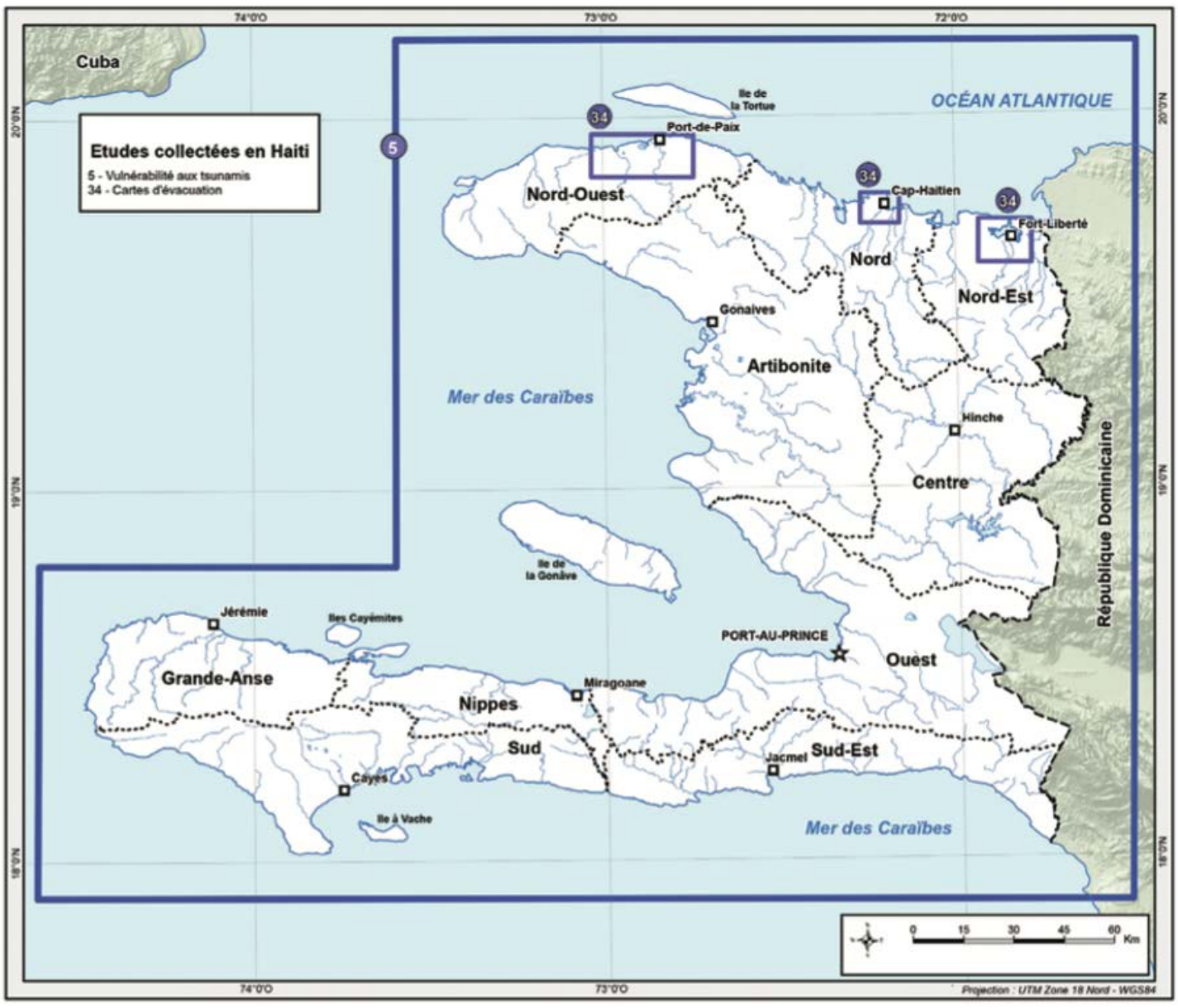


Figure 12: Tsunami Hazard in Haiti[85]

As exemplified by Table 3 and Figure 12, when compared to the other departments, the Nord-Ouest, Nord, and Nord Est departments appear as highly exposed to tsunamis. Likewise, droughts do not impact each department evenly (Table 3 and Figure 13). While the Arbonite and Nord-Ouest departments are highly exposed to droughts, the level of exposure to this natural hazard in the Grand-Anse, Nippes, and Sud-Est departments is moderate.

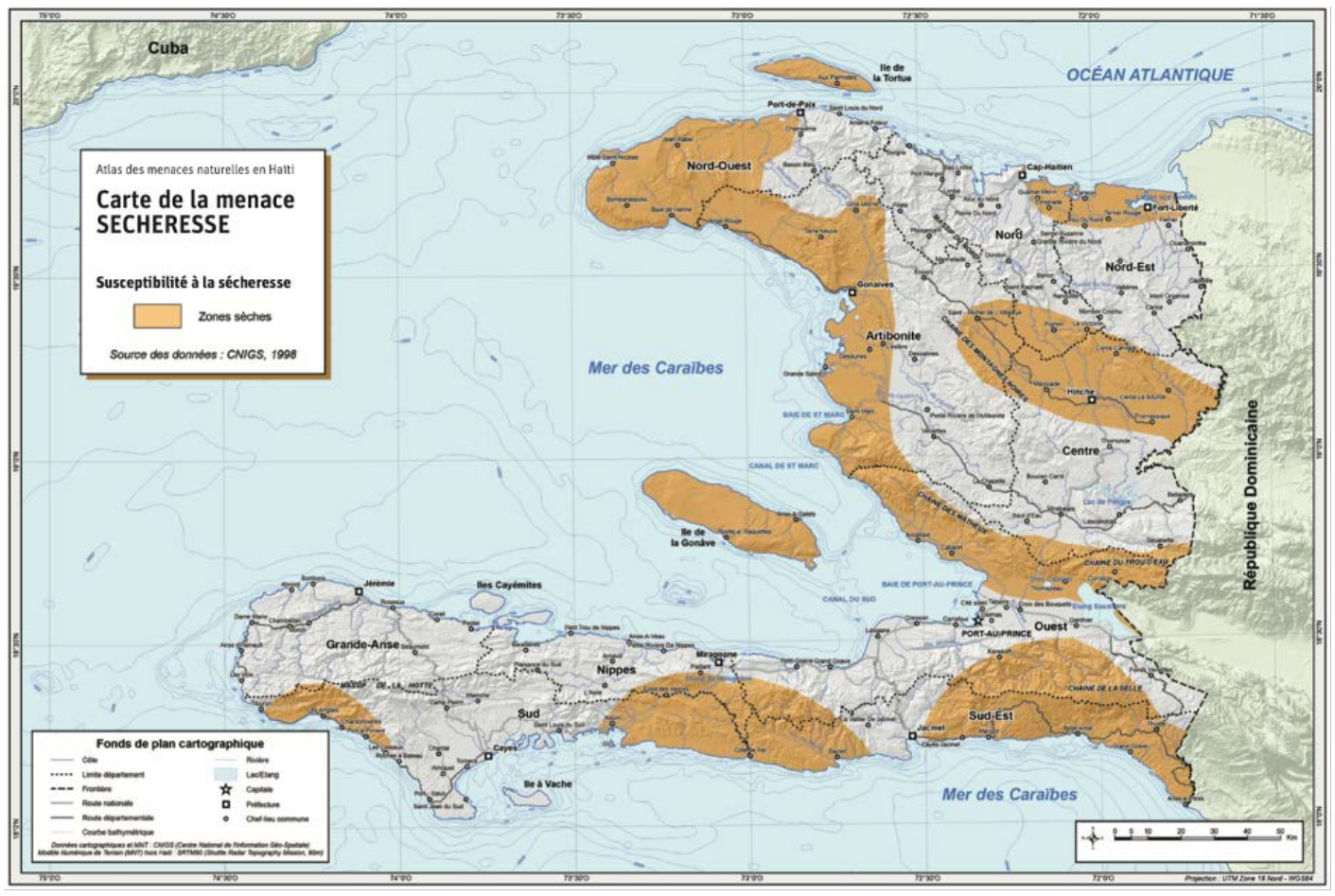
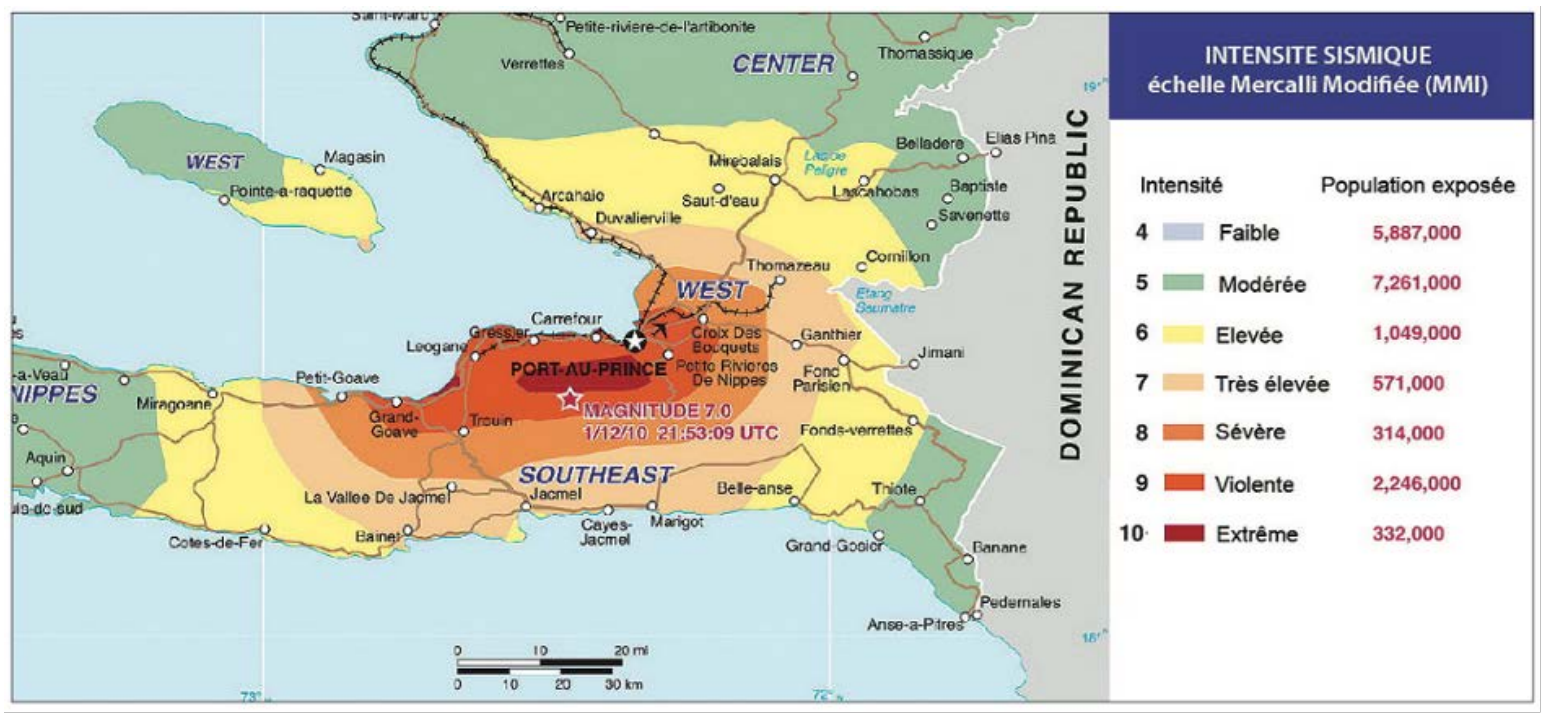


Figure 13: Drought Hazard in Haiti[86]

85 *Ibidem.*

86 *Ibidem.*

Finally, earthquake hazard does not strike uniformly the Haitian territory (Table 4 and Figure 14). While the Grande-Anse, Nippes, Nord, Nord-Est, Nord-Ouest, Sud, Sud-Est, and Ouest departments are highly exposed to earthquakes, the level of exposure for the Arbonite and Centre departments is moderate to high. The 2010 earthquake illustrates that the intensity level of this hazard is not uniform across the territory, the Ouest and Sud-Est departments having been severely hit (Figure 14). The impact of this earthquake was even more devastating as it struck the densely populated capital of Haiti, Port-au-Prince. Overall exposure will be the highest in departments where relatively many households and critical infrastructure are situated, such as the Artibonite, Nord, Nord-Ouest, Ouest, and Sud departments.



Intensity (MMI)	Population exposed
4 Weak	5,887,000
5 Moderated	7,261,000
6 High	1,049,000
7 Very high	571,000
8 Severe	314,000
9 Violent	2,246,000
10 Extreme	332,000

Figure 14: Seismic Intensity Map of the Earthquake of January 12, 2010[87]

87 Ibidem.

3. GOVERNANCE FRAMEWORK

3.1 International Framework

3.1.1 Sustainable Development Goals 2030

The United Nations General Assembly adopted the 2030 Agenda for Sustainable Development which incorporates 17 Sustainable Development Goals (SDGs) in 2015. The SDGs serve as a call to action for countries to implement and to ensure peace and prosperity for all persons. The Agenda recognizes that poverty eradication must be accomplished through a holistic approach with considerations for health, education, environmental sustainability, and climate change.

In 2015, Haiti signed the 2030 Agenda for Sustainable Development. In 2017 the Government of Haiti and the United Nations Country Team signed the joint work plans 2017-2018 as part of the Development Assistance Framework 2017-2021. During this period, this framework guided the partnership between the United Nations and the Government of Haiti to advance the SDGs and to reach the status of emergent country by 2030. While the country has not reported a specific legal framework for the 2030 Agenda, the institutionality for its development lies on the Ministry of Planning and External Cooperation, the Strategic Development Plan for Haiti 2012-2030, the Communal Development Plan of Haiti, and the SDG Territorialization strategy[88]. Although PSDH 2012-2030 precedes the 2030 Agenda, SDGs can be directly linked to multiple PSDH 2012-2030 Grand Chantier and programs across varying activities[89]. Haiti is also party to the Addis Ababa Action Agenda that provides a financing framework to foster universal, inclusive economic prosperity and improve people's well-being while protecting the environment[90].

Figure 15: The United Nations Sustainable Development Goals (2015)

88 Regional Observatory on Planning for Development (2022), Haiti, URL: https://observatorioplanificacion.cepal.org/en/countries/haiti

89 . g. Grand Chantier 1 (SDG1, 6, 7, 9, 11, 15): programs 1.1 (SDG11), 1.2 (SDG7, 12, 13, 14, 15), 1.3 (SDG11, 14), 1.4 (SDG 11), 1.5 (SDG9, 11), 1.6 (SDG7), 1.7 (SDG4, 9), 1.8 (SDG6). Grand Chantier 2 (SDG 2, 8, 11, 12, 14, 17): programs 2.1 (SDG8, 16), 2.2 (SDG2), 2.3 (SDG14), 2.4 (SDG8, 9), 2.5 (SDG1, 3, 4, 7, 8, 11), 2.6 (SDG8, 12, 14), 2.7 (SDG7, 12), 2.8 (SDG8). Grand Chantier 3 (SDG3, 4, 5, 8, 11): programs 3.1 (SDG4, 8), 3.2 (SDG4, 5), 3.3 (SDG3), 3.4 (SDG4, 11), 3.5 (SDG1, 11), 3.6 (SDG4, 16), 3.7 (SDG8), 3.8 (SDG10), 3.9 (SDG5). Grand Chantier 4 (SDG16): programs 4.1 (SDG16), 4.2 (SDG16), 4.6 (SDG16), 4.7 (SDG16).

90 OECD (2015), Third International Conference on Financing for Development: OECD's contribution, URL: https://www.oecd.org/dac/financing-sustainable-development/ffdandtheoecd.htm

3.1.2 Sendai Framework for Disaster Risk Reduction 2015-2030

The Sendai Framework for Disaster Risk Reduction 2015-2030 was adopted at the Third United Nations World Conference on Disaster Risk Reduction, held in Japan in 2015. The Framework replaced the previous Hyogo Framework for Action 2005-2015: Building the Resilience of Nations and Communities to Disasters, and provides countries with concrete actions to reduce disaster risk. It recognizes that the State has the primary role to reduce disaster risk but that the responsibility must be shared with other stakeholders including local government, the private sector and communities. The Sendai Framework establishes four priority areas for action and seven targets (comprising 38 indicators) through which member countries can measure their progress. Like much of the global community, Haiti has adopted the Sendai Framework. Haiti's National Risk and Disaster Management Plan 2019-2030 is thought to be an important contribution to advancing in the achievement of the Sendai Framework, particularly target E which aims to significantly increase the number of countries with national and local disaster risk reduction strategies. Similar to the Sendai Framework, the PNGRD 2019-2030 calls for a resilient perspective in Haiti while promoting sustainable and inclusive development[91].

Figure 16: Priority Areas for Action under the Sendai Framework for Disaster Risk Reduction 2015-2030

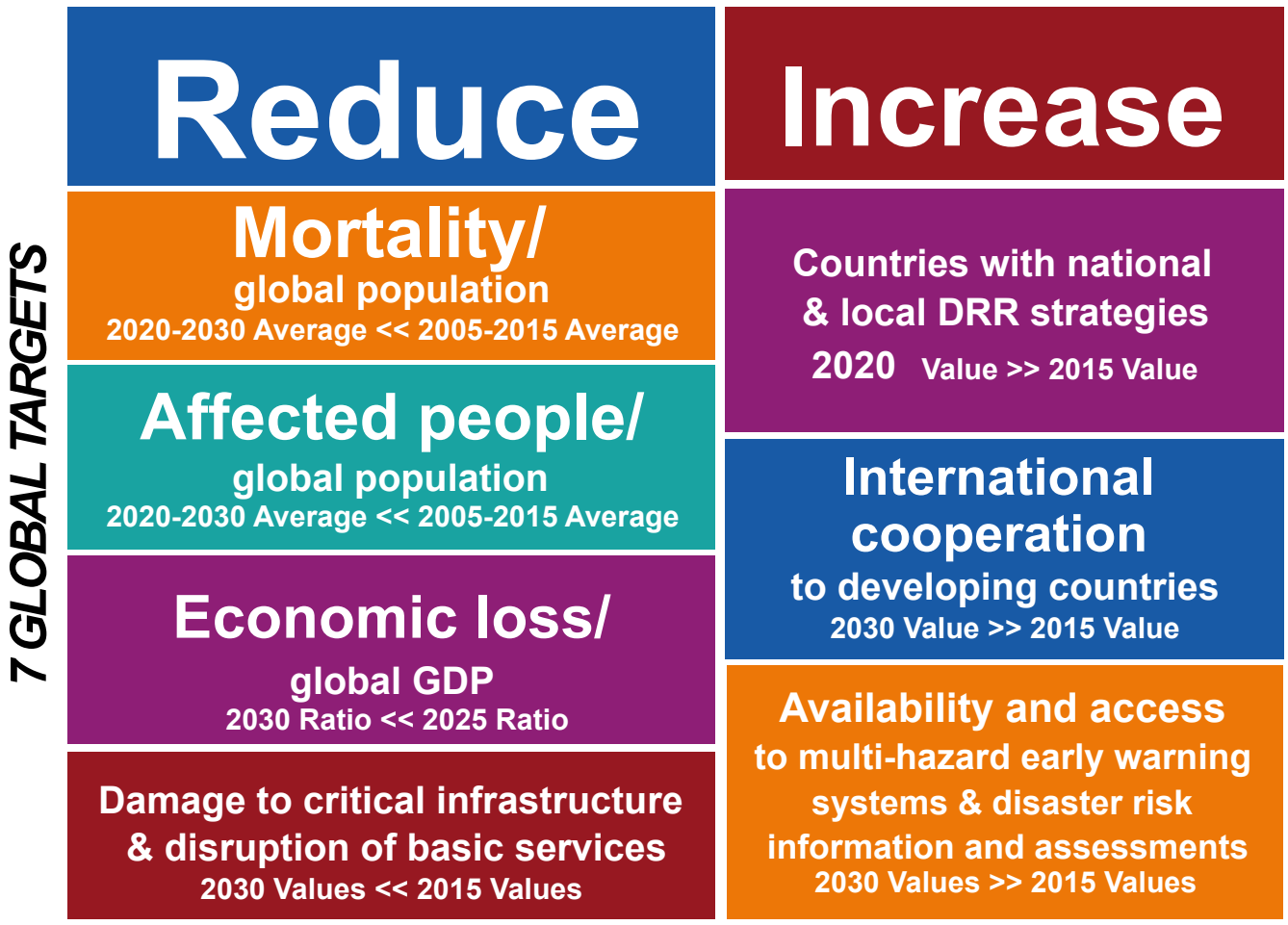


Figure 17: Seven Global Targets under the Sendai Framework for Disaster Risk Reduction 2015-2030

91 UNDRR (2020), Haiti approves a new Risk and Disaster Management Plan, URL: https://www.undrr.org/news/haiti-approves-new-risk-and-disaster-management-plan

3.1.3 The Paris Agreement on Climate Change 2015

In response to the growing global threat of climate change the Conference of Parties (COP) 21, held in December 2015 at Paris-Le Bourget, launched the first legally binding agreement that brings all nations into a common cause to undertake ambitious activities to mitigate against and adapt to climate change. Recognizing the impacts anthropogenic activities have on climate change, the Agreement was established to limit global warming to well below 2 degrees Celsius (ideally to 1.5 degrees Celsius), compared to preindustrial levels. This is imperative for Small Island Developing States (SIDS) where climate change impacts are significant. Under the Paris Agreement, countries undertake Nationally Determined Contributions (NDCs) in response to climate change. In September 2015 Haiti presented its NDCs, which sets the guidelines for the Haitian State actions over the next fifteen years to adapt to climate change and reduce its greenhouse gas emissions by 31% compared to a trend scenario by 2030[92].

3.1.4 Small Island Developing States Accelerated Modalities of Action (SAMOA) Pathway 2014

The SAMOA Pathway 2014 was instituted to promote sustainable development within these SIDS due to their unique challenges while confronting climate change consequences. The framework establishes thematic areas to promote sustainable development within SIDS. These include: climate change, inequality, green and ocean-based economy, sustainable energy, food security and waste management. Although Haiti's National Risk and Disaster Management Plan 2019-2030 does not mention SAMOA Pathway, the Plan aligns to its commitment through the Strategic Development Plan for Haiti 2012-2030 which promotes the need for an integrated approach to sustainable development in the country.

3.1.5 Basel Convention 1989

Haiti has signed but not ratified the Basel convention to reduce the transboundary movements of hazardous waste, to minimize the generation of waste, and to prohibit their shipment to other countries. Even if Haiti adheres to the principles of the convention, its non-ratification means that the country is not legally compelled to take actions to limit the generation and to improve the management of hazardous waste[93].

92 République d'Haïti, Ministère de l'Environnement (2015), Contribution Prévue Déterminée au niveau National, URL : http://extwprlegs1.fao.org/docs/pdf/hai192006.pdf

3.2 Regional Framework

3.2.1 Caribbean Disaster Emergency Management Agency Agreement

In 1991, Caribbean countries established the Caribbean Disaster Emergency Response Agency. The Agency is responsible for coordinating emergency response and relief efforts to Participating States. In 2009, the organization underwent a change of name to become the Caribbean Disaster Emergency Management Agency (CDEMA), a sign acknowledging the comprehensive approach of the Agency as disaster management underwent a paradigm shift from response-centric to comprehensive. As a CDEMA Participating State, Haiti has committed to comprehensive disaster management and adopted the Regional Comprehensive Disaster Management Strategy and Results Framework (2014-2024) in 2014, which is aligned to the Sendai Framework for Disaster Risk Reduction. CDEMA has also produced Contingency Plans which outline immediate and coordinated response mechanisms at the regional level, in response to hazard events affecting Participating States.

The strategic objective of the Comprehensive Disaster Management Strategy and Programming Framework (2014-2024) is the integration of disaster management considerations into the development planning and decision-making process of CDEMA's Participating States. The strategic period of 10 years reflects the reality that meaningful developmental change at the community and sectoral levels takes time. Additionally, the CDM Strategy 2014-2024 places increased focus on integrating disaster risk reduction and climate change considerations and their impact on vulnerable groups. Ultimately, CDM Strategy 2014-2014 focuses on a strategically aligned and integrated risk management approach, where climate change considerations are positioned as a vehicle for implementation of this agenda whilst strongly centred on actions which enhance public-private partnerships.

93 Brangeon, S., Observatoire du Groupe URD Haïti (2015), La gestion des déchets des acteurs de l'aide. Étude de cas : Haïti, URL : https://www.careemergencytoolkit.org/wp-content/uploads/2017/03/35_21.pdf

3.2.2 Caribbean Resilience Framework

Members of the Caribbean Community (CARICOM) adopted the Caribbean Resilience Framework in 2018. Aligned to the CDEMA's Comprehensive Disaster Management Strategy, the framework establishes five pillars of resilience that must be addressed to reduce vulnerability to hazard impacts:

- Social Protection of the Marginal and Most Vulnerable.
- Enhancing Economic Opportunity.
- Safeguarding Infrastructure.
- Environmental Protection.
- Operational Readiness and Recovery.

3.2.3 Antigua and Barbuda Declaration of School Safety

In 2019, during the Second Caribbean Ministerial Forum on School Safety, Haiti adhered to the Antigua and Barbuda Declaration on School Safety. The Declaration supported the Caribbean Safe School Initiative (CSSI), which is the suggested framework to advance on school safety on the Caribbean. The initiative is the Caribbean contribution to the Worldwide-Initiative on Safe Schools (WISS) and among Caribbean countries. Ministries of Education are expected to lead the implementation supported by international, regional and national partners[94].

The CSSI is supported by the Declaration, currently endorsed by 18 Caribbean countries and which establishes the following key commitments:

- Engage in the multi-stakeholder "Worldwide Initiative for Safe Schools (WISS)", by supporting the implementation of the Comprehensive Safe School Framework and the Model Safe School Program in the Caribbean for public and private facilities at all levels.
- Build resilience in the education sector.
- Source financial and other resources from the national, regional, and the international community, from public and private sectors, to be channelled towards strengthening efforts in DRR linked to the education sector.
- Coordinate with national and regional disaster management bodies to integrate the tenets of Comprehensive Disaster Management (CDM) into education policies and plans and to ensure alignment with existing national and regional disaster risk reduction and climate change resilience building strategies.
- Strengthen the coordination and cooperation mechanisms among stakeholders at the community, national, regional and international levels.
- Build stronger collaboration among the Ministries of Education in the Caribbean with relevant private sector entities, non-governmental organizations as well as other regional and international entities.
- Define and put in place a framework to track and measure progress on the implementation of the actions identified in the Road Map on School Safety to be authorized by the Minister of Education[95].

3.2.4 Agreement Establishing the Caribbean Public Health Agency

In 2011, Caribbean Community Member States (of which Haiti belongs), signed the Intergovernmental Agreement that established the Caribbean Public Health Agency (CARHA). In doing so, member countries committed to the establishment of a regional umbrella agency that inter alia promotes and develops measures for the prevention of disease in the Caribbean and supports the Caribbean Community in preparing for and responding to public health emergencies. Under the Agreement, Ministers of Health from all member countries that form the Council committed to promoting policies and programs to protect health and prevent disease, including the implementation of improved health infrastructure.

3.3 National Framework

This section outlines the major national policy instruments, plans and strategies that contribute to the governance framework for disaster risk reduction, climate change adaptation and sustainable development in Haiti.

3.3.1 Haiti's Strategic Development Plan 2012-2030

Haiti's Strategic Development Plan is the instrument guiding public and private actions until 2030, including those of international partners, to tackle the country's main development challenges. The plan was designed to make Haiti an emerging country by 2030, on the basis of national vision and development guidelines; the plan is a long-term

94 UNDRR (2022), Caribbean Safe School Initiative, URL: https://www.undrr.org/caribbean-safe-school-initiative-cssi#intro

95 UNDRR (2017), Antigua and Barbuda Declaration School Safety in the Caribbean, URL: https://www.undrr.org/sites/default/files/inline-files/Declaration_CSS_Ministerial_Forum_ENG.pdf

road map for bringing about a lasting and significant improvement in the quality of life and standards of the people.

The implementation of the Plan is guided by the following four sustainable development pillars:

- **Economic reform and reconstruction:** to be achieved through strong economic growth, based on an increase in farming, manufacturing, and tourism potential, the creation of businesses, and foreign direct investment.
- **Regional development and planning:** to achieve a balanced development of the territory and careful management of natural resources and biodiversity.
- **Social reform:** using national resources for the development of all, with a focus on social cohesion, solidarity among regions and social groups, and the preservation of Haiti's cultural identity.
- **Reform of the Haitian government institutions and departments:** to make them more attentive to the needs of the population, especially its most impoverished segments, and more accountable and fairer to Haitians[96].

The PSDH 2012-2030 suggests development orientations and strategies, and details the content of the *Grand Chantiers* for the Recovery and Development of Haiti outlined in the Action Plan for the Recovery and Development of Haiti (PARDH) to transform it into an emerging country by 2030. The four *Grand Chantiers* of the PSDH are: Territorial, Economic, Social and Institutional Refoundation, which have 32 development programs, with their own sub-programs and projects. The monitoring system refers to a single information system for the management and evaluation of development, which allows, among other things, the monitoring of actions undertaken and the evaluation of progress made[97].

3.3.2 The National Disaster Risk Management Plan 2019-2030

In the context of sustainable development and the fight against poverty the Haitian government made disaster risk management a priority through the validation, in 2001, of the first National Risk and Disaster Management Plan. Since then, the National Disaster Risk Management System (SNGRD), which oversaw the establishment of this first Plan, made significant progresses. These are mainly related to coordination, public information, strengthening of intervention capacities, development and dissemination of prevention methods and tools, risk reduction and disaster response in the response to disasters in urban and rural areas.

The Sendai Framework for Disaster Risk Reduction 2015-2030, the 2030 Agenda for Sustainable Development, and the Comprehensive Disaster Management Strategy and Programming Framework (2014-2024), have set new objectives and targets in this area. Consequently, in 2015 the Haitian government decided to review the first National Risk and Disaster Management Plan and articulate it to Haiti's Strategic Development Plan 2030 (PSDH 2012), as well as to national and sectoral development plans. The Haitian National Disaster Risk Management Plan 2019-2030 integrates climate change and human security. It emphasizes gender awareness, inclusion of persons with disabilities and universal access during the response and reconstruction phases. Investment protection, risk transfer, public and community governance of disaster risk, volunteering, and accountability are also incorporated to the plan.

As illustrated by Figure 18, the National Disaster Risk Management Plan 2019-2030 is broken down into four strategic axes, which are aligned with the Sendai Framework, whose priorities for action are:

- Improving knowledge of disaster risks.
- Strengthening disaster risk governance.
- Developing and using financial mechanisms for building the resilience of communities, public and private structures.
- Improving preparedness for effective response and early recovery after a disaster[98].

96 IMF (2014), Haiti: Poverty Reduction Strategy Paper, IMF Country Report No. 14/154, URL: https://sustainabledevelopment.un.org/index.php?page=view&nr=1451&type=504&menu=139

97 République d'Haïti, Ministère de la Planification et de la Coopération externe (2013), Plan Stratégique de Développement d'Haïti, URL : https://observatorioplanificacion.cepal.org/sites/default/files/plan/files/Haiti_PLAN_STRATÉGIQUE_de_developpement.pdf

98 République d'Haïti (2019), Plan national de gestion des risques de désastre 2019-2030, URL : https://www.preventionweb.net/files/72907_plannationaldegestiondesrisquesdeds.pdf

Figure 18: PNGRD 2019-2030 Strategic Axes

3.3.3 National Climate Change Policy 2019-2030

Haiti's National Policy on Climate Change (PNCC 2019-2030) is a broad policy expected to provide environmental and societal answers to the anthropogenic climate change processes endangering the Haitian development efforts and fight against poverty. In compliance with the Sendai Framework for Disaster Risk Reduction 2015-2030, PNCC 2019-2030 acknowledges that climate change is a major challenge hindering the socioeconomic development of the country.

Haiti is particularly vulnerable due to its level of poverty, the weakness of its institutional and macroeconomic framework, and the susceptibility of its strategic socioecological systems to climate factors. As an attempt to promote a framework favourable to a more effective fight against climate change, Haiti has considered it appropriate to provide its populations with a national policy on this area. PNCC 2019-2030 was built on the will to set Haiti on the path of green growth by 2030, especially through key socio-economic sectors oriented towards the adoption of low-carbon technologies.

PNCC 2019-2030 is piloted by six principles:

- Decentralization.
- Participation and concertation.
- Transversality and holistic approach.
- Transparency, Accountability and liability.
- Common but differentiated responsibility.
- Precaution.

Additionally, this plan is based on four pillars:

- Institutional strengthening.
- Improved governance.
- Endogenous climate financing.
- Efficiency in actions to fight climate change.

These four pillars are supported by a set of cross-cutting and sectoral measures[99].

3.3.4 Haiti's Nationally Determined Contribution 2015

Haitian National Determined Contribution 2015 offers relevant information about the country's effort to tackle climate hazards for the 2016-2030 implementation period. In September 2015 Haiti presented its NDCs, which sets the guidelines for the Haitian State actions over the next fifteen years to adapt to climate change and reduce its greenhouse gas emissions by 31% compared to a trend scenario by 2030[100]. Numerous stakeholders contributed to the development of this document, which is expected to address the needs and interests of the Haitian people whilst in line with Haiti's Strategic Development Plan 2012-2030, the National Adaptation Action Plan 2006 (PANA) and the Second National Communication to the United Nations Framework Convention on Climate Change (2013). Since 2019, PNCC 2019-2030 furthered PANA 2006 and integrated the contributions made by the Haitian NDC 2015.

Through this Contribution, Haiti intends to: (i) improve its resilience to climate change-related disasters; (ii) respond to losses and damages caused by extreme weather events; and (iii) contribute to the global effort to limit the increase in global temperature to below 2 degrees Celsius. Haitian NDC 2015 links the fight against global warming to the objective of becoming an emerging country by 2030 set in the PSDH 2012-2030. Accordingly, Haitian NDC is articulated around five issues considered as priorities for the country:

- Integrated resources and watershed management.

99 République d'Haïti (2019), Politique nationale de lutte contre les changements climatiques, URL : https://mde.gouv.ht/phocadownload/PNCC-HAITI-2019%20Final.pdf

100 *Op. cit.*, République d'Haïti, Ministère de l'Environnement (2015).

- Integrated management of coastal areas and rehabilitation of infrastructures.
- Preserving and strengthening food security, in particular through the development of the bioeconomy.
- Developing the energy transition to reduce dependence on fossil fuels.
- Focusing on information, education and awareness.

The commitments made by this NDC represented an overall financing requirement of US$ 25.387 billion.

3.3.5 National Adaptation Action Plan 2006

The National Adaptation Action Plan (PANA) was developed in 2006. PANA 2006 presents an analysis of the vulnerabilities of different sectors: forestry, agriculture, livestock, fisheries, infrastructure and habitat, water resources, soils, and coastal zones. This vulnerability analysis led to the identification of a set of 10 adaptation options considered as relevant. From these 10 options, 8 were prioritized as follows:

- Option 1: Watershed management and soil conservation.
- Option 2: Coastal zone management.
- Option 3: Natural resource development and conservation.
- Option 4: Preservation and strengthening of food security.
- Option 5: Water protection and conservation.
- Option 6: Construction and rehabilitation of infrastructure.
- Option 7: Waste management.
- Option 8: Information, education and awareness[101].

3.3.6 Other national policies and sectoral plans

Haiti's national framework on disaster risk reduction, climate change adaptation and sustainable development has been developed in accordance with other national policies and sectoral plans.

3.3.6.1 National Action Plan for Gender Equality 2014-2034

The National Action Plan for Gender Equality 2014-2020 is the result of a process initiated in 2009 based on a social and institutional dialogue between multiples stakeholders. Between 2012 and 2013 a series of workshops, as well as regional and national consultations, were organized to integrate the population and legitimize the Plan.

The Plan is organized around 6 Orientations and Measures that can contribute to the implementation of DRR policies and plans in the country:

- Equal rights and fair justice for women and men.
- Non-sexist education and models.
- Access to sexual and reproductive health while respecting the dignity of women.
- Elimination of all forms of violence against women and girls.
- Economic equality and equitable access to employment between women and men.
- Equal participation of women and men in decision-making bodies.

3.3.6.2 Strategic Framework for Volunteers in the National Disaster Risk Management System 2017

The Strategic Framework for Volunteers in the National Disaster Risk Management System (2017) aims to better structuring volunteering actions in Risk and Disaster Management, as well as the enhancement of preparation and implementation of the law on volunteering in Haiti. The Framework was presented in 2017, establishing the guidelines for strengthening volunteering in risk and disaster management for the next five years.

The Framework advocates for the following four priorities[102]:

- The need for a common vision on volunteerism in risk and disaster management.
- The establishment of lines of action concerning the recruitment, management, retention and training of volunteers in risk and disaster management.
- The establishment of a framework for monitoring and evaluating the impact of volunteering in risk and disaster management.
- Advocacy for a legal framework on volunteering.

101 République d'Haïti (2006), Plan d'action national d'adaptation, URL : https://unfccc.int/resource/docs/napa/hti01f.pdf

102 OCHA Services, Reliefweb (2017), Vers l'institutionnalisation du volontariat en gestion des risques et désastres en Haïti, URL : https://reliefweb.int/report/haiti/vers-linstitutionalisation-du-volontariat-en-gestion-des-risques-et-d-sastres-en-ha-ti

3.3.6.3 Ten-Year Education and Training Plan 2019-2029

In compliance with commitments made at the One Planet Summit in 2017, the Ten-Year Education and Training Plan 2019-2029 was released in July 2018. The plan seeks both to protect the environment in Haiti from a degradation process that began in the early 1960s and accelerated in the 1980s. To do so, the Plan helps the State to reframe and guide actions on the education and training sectors until 2029. It is organized in four chapters:

- **The economic and social context at the national and international levels:** it focuses on the new commitments in terms of development as well as the necessary efforts in education and training.
- **The Plan:** it presents how the Plan was designed to reinforce the efforts already made or underway to close the significant gaps on education and training in the country.
- **The strategy:** it explains the different actions set to guide, coordinate, implement, monitor and evaluate the planned actions.
- **The costs:** it outlines the costs that these actions will generate and the strategies that will be adopted and applied to mobilize and manage the necessary resources[103].

3.3.6.6 Health Master Plan 2021-2031

Haiti's Health Master Plan 2021-2031 aims to contribute to the continuous improvement of the health status of the Haitian population by guaranteeing universal access to quality health care and services through an efficient health system. The Plan links directly to PSDH 2012-2030, which established the commitment to better the access to health services for the Haitian population. This commitment was confirmed in the National Health Policy (PNS) and guided the formulation and implementation of both the Health Master Plan 2012-2022 and 2021-2031.

The Plan identifies environmental degradation, vulnerability to disasters, and insalubrity as major barriers to the development of the health system in Haiti. The Plan adopts a systemic approach to risk to strengthen the national health system and make it more resilient to new challenges triggered by the current COVID-19 pandemic. According to the Plan, health risks must be properly managed and considered as serious threats to national security. As illustrated by the COVID-19 pandemic, these risks can cause severe disruptions to social life and economic activities. In 2019, the MSPP established guidelines for responding to crisis situations[104]. Also, the Plan discusses the need to manage risks related to the use of medicines, environmental pollution, food insecurity, and transportation.

The Health Master Plan 2021-2031 is structured around six pillars[105]:

- Service supply.
- Funding.
- Health human resources.
- Critical medical products and technologies.
- Leadership.
- Governance.

3.3.6.7 Contingency Plan: Reproductive Health and Gender-Based Violence in Humanitarian Preparedness and Response 2018

The contingency plan for RH and GBV was developed based on the national forecasts contained in the National Contingency Plan as well as sectoral contingency plans (MSPP, MCFDF). This contingency plan presents coordination, emergency preparedness and response actions in order to support the government's efforts to reduce the impact of natural hazards on communities. It focuses on two key areas: reproductive health/family planning (RH/FP) and gender-based violence (GBV). In the framework of its implementation, 4 key objectives are targeted:

- Coordination: Strengthen the consideration of RH and GBV priorities in coordination before and during humanitarian crises.
- Preparedness: Ensure the emergency response preparedness of national actors and places at high risk of a humanitarian crisis in GBV and RH.
- RH response: Ensure that pregnant women and new-borns have access to emergency RH/FP services and care in the areas affected by the disaster.

103 République d'Haïti, Ministère de l'Éducation Nationale et de la Formation Professionnelle (2018), Plan décennal d'éducation et de formation 2019-2029, URL : https://planipolis.iiep.unesco.org/sites/default/files/ressources/haiti_pdef_2019-2029.pdf

104 République d'Haïti, Ministère de la Santé Publique et de la Population (2019), Plan National de Réponse aux Situations Sanitaires Exceptionnelles (PNR-SSE), URL : https://mspp.gouv.ht/site/downloads/Plan%20National%20de%20R%C3%A9ponse%20aux%20Situations%20Sanitaires%20Exceptionnelles.pdf

105 République d'Haïti, Ministère de la Santé Publique et de la Population (2021), Plan Directeur Santé 2021-2031, URL : https://www.mspp.gouv.ht/wp-content/uploads/Plan-Directeur-Sant%C3%A9-2021-2031-version-web.pdf

- GBV Programmatic Response: Provide rapid assistance to women and girl survivors of GBV through coordinated initiatives with various GBV stakeholders.

3.3.6.8 Haiti's National Agricultural Development Policy 2020-2025

Haiti's National Agricultural Development Policy 2010-2025 provides a global framework for the recovery and sustainable development of the agricultural sector, one of the pillars of the country's stability and an essential axis of its socio-economic development. The primary objective the agricultural policy is to contribute, in a sustainable manner, to the meeting of the food needs of the Haitian population and to the social and economic development of the country[106]. In compliance with the Policy, one of the lines of intervention of the five-year programs is to ease to disaster risk reduction and prevention strategies. Also, the Policy discusses strategies to reduce food insecurity, environmental vulnerability, and environmental protection.

3.3.6.9 The National Policy for Social Protection and Promotion 2020

The National Policy for Social Protection and Promotion (PNPPS) 2020 provides a framework for implementing cross-cutting strategies for the sustainable reduction of poverty, the reduction of inequalities, and the promotion of the empowerment of Haitians against discrimination and exclusion. These are the three general objectives of this policy, which is intended to define the major orientations of the State by 2040 in terms of social protection and promotion. The policy is structured in three main sections:

- The first is entitled "Policy Foundations" and includes the conceptual framework, national context and strategic approach of the PNPPS.
- The second part is devoted to the "Strategic Directions" of the PNPPS.
- The third part is focused on the institutional arrangements and institutional arrangements and financing of the PNPPS[107].

3.3.6.10 National Tourism Plan (1996, Revised 2006)

The National Tourism Plan aims to contribute to the development of regional tourism in Haiti. Regarding the North region, the revised document identifies flood, earthquake, epidemic, and fires as the most important threats for tourism in the region. Also, the revised document discusses the vulnerability levels by neighbourhood and addresses the levels of exposure to natural hazards in touristic and coastal areas. To address these challenges, the Plan provides Development Frameworks related to areas designated as priorities in the short and medium term for the development of tourism.

The selected areas are: the North region (Labadie and the National Historical Park as focal points), the West (La Côte des Arcadins and Port-au-Prince as focal points), the Southeast (Jacmel as focal point), the South (Les Cayes and Port Salut as focal points). The Plan follows the logic of diversifying the offer and seeks to further develop the objectives set in 1996:

- To regain Haiti's rank in international tourism.
- To associate the Haitians with the expected benefits of the tourist activity.
- To insert the strategy of tourist development in the framework of a balanced territorial development, taking into account the administrative decentralization and based on a development strategy of the national cultural and natural heritages.
- To take into account the social dimension of tourism development[108].

3.3.6.11 Aligned National Action Program to Combat Desertification 2015

IIn the framework of the implementation of the United Nations Convention to Combat Desertification (UNCCD), the Republic of Haiti, through its Ministry of Environment, proceeded in 2009 to the development of its National Action Program to Combat Desertification (PAN-LCD) with the support of technical and financial partners (UNDP, GTZ). This document aligns the 2009 PAN-LCD with the 2008-2018 Strategic Framework Plan adopted at the eighth Conference of the Parties (COP8) of the UNCCD held in Madrid in 2007.

106 République d'Haïti, Ministère de l'Agriculture, des Ressources Naturelles et du Développement Rural (2011), Politique de développement agricole 2010-2025, URL : https://agriculture.gouv.ht/view/01/IMG/pdf/Politique_de_developpement_agricole-Version_finale_mars_2011.pdf

107 République d'Haïti, Ministère des Affaires sociales et du Travail (2020), Politique nationale de protection et de promotion sociales, URL : bit.ly/3YGUTrF

108 République d'Haïti, Ministère du Tourisme (2007), Révision du Plan directeur tourisme, URL : http://ciat.bach.anaphore.org/file/misc/200705MDT_proposition.pdf

This Program aims to improve the living conditions of populations affected by desertification, as well as the state of ecosystems, through the effective implementation of the UNCCD. Also, it mobilizes resources for the implementation of the Convention through the establishment of effective partnerships between national and international stakeholders. The operational objectives of the Program are the following: Advocacy, awareness and education; A favourable policy environment; Science, technology and knowledge; Capacity Building; Financing and technology transfer[109].

3.3.6.12 National Energy Sector Development Plan 2007-2032

Haiti's National Energy Sector Development Plan 2007-2032 provides an overview of the energy sector crisis in Haiti and presents, in light of the needs of the population and the Haitian government's energy policy, options for development of the sector for the 2007-2032 period. Accordingly, it suggests a strategy to:

- Improve and modernize the management of public enterprises in key sectors.
- Strengthen the regulatory role of the State in the energy sector.
- Develop and implement the necessary reforms to create a favourable environment for local and foreign investments.
- Prioritize a significant improvement in the supply of electricity within the country.
- Promote alternative energy sources to wood energy and renewable energy.

As regards non-electrical energy, the plan advocates for:

- The more efficient use of charcoal and firewood, as well as alternative energies.
- The development of energy forests.
- The conversion to diesel, biodiesel and Liquid Petroleum Gas of a thousand small businesses using wood as an energy source.
- The financial support to the producers of cellulose briquettes.
- The promotion of renewable energy (wind, solar, biofuels) through institutional strengthening and improving access to energy services for the poor[110].

109 République d'Haïti, Ministère de l'Environnement (2015), Programme Aligné d'Action Nationale de Lutte contre la Désertification, ULR : https://www.unccd.int/sites/default/files/naps/Haiti-fre%25202015.pdf

110 République d'Haïti, Ministère des Travaux Publics, Transports et Communications (2007), Plan de Développement du Secteur de l'Energie 2007-2032, URL : http://www.bme.gouv.ht/energie/Haiti%20Plan%20National%20d%27EnergieVRFrenchR1.pdf

3.3.6.13 Haiti's National Agricultural Investment Plan 2010

For the purpose of facing the challenges created by the disaster of January 12, 2010 on the agricultural sector, the Government of Haiti developed a National Agricultural Investment Plan. The main objective of the Plan is to reactivate, modernize, and revitalize the agricultural sector, which is essential to the economy and social balance of Haiti.

The Investment Plan is divided into three areas of intervention:

- **Development of rural infrastructure:** watershed development and forestry and irrigation.
- **Production and development of agricultural sectors:** livestock, aquaculture and fisheries, plant sectors, agricultural tools and rural credit, post-harvest management and marketing of urban and peri-urban agricultural products, local production and humanitarian operations.
- **Agricultural services and institutional support:** outreach through "field schools", access to land and security of tenure, institutional support to public agricultural services (research, training, animal and plant health protection, institutional strengthening)[111].

3.3.6.14 Chemical and Waste Management Policies and Plans

The law on the creation, organization and operation of the National Solid Waste Management Service (SNGRS) was implemented in September 21, 2017. The SNGRS begins its services on September 24, 2018 and replaces the Metropolitan Solid Waste Collection Service (SMCRS). The role of the new institution is to manage medical and toxic waste, and ensure the control and cohesion of the various actors in the sector. The SNGRS is placed under the supervision of the Ministry of the Environment and operates in concert with the local authorities. This Service must collect, sort, recycle and transform waste. Also, it sets the standards within which these activities are carried out, including the locations of landfill sites.

Other chemical and waste management policies and plans are the following:

- **Decree of October 9, 1989:** separates the responsibilities of collecting (SMCRS) and assembling the waste (municipalities).

111 *Op. cit.*, République d'Haïti, Ministère de l'Agriculture, des Ressources Naturelles et du Développement Rural (2010).

However, these two institutions are often not financially and materially able to perform these tasks.

- **Orders of July 18, 2013 and August 9, 2012:** prohibit the production, import, marketing and use of polyethylene bags and objects made of expanded polystyrene. However, the degree of enforcement of these orders is low.
- **National Chemical and Waste Management Profile, 2008:** provides an assessment of Haiti's legal, institutional, administrative and technical capacities to manage chemicals and waste.

3.3.6.15 Post-Covid Economic Recovery Plan (PREPOC) 2020-2023

In 2020, the Ministry of Economy and Finance (MEF) and the Ministry of Planning and External Cooperation (MPCE) initiated the development of the Post-Covid Economic Recovery Plan (PREPOC) 2020-2023. The plan ensures the coherence and prioritization of public actions and policies during the 2020-2023 period, pending the larger-scale work to revise the PSDH 2012-2030. The plan focuses on:

- Diversification and expansion of the manufacturing sector.
- Improvement of infrastructure services.
- Strengthening of internal and border security and the rule of law.
- Social inclusion.
- Support for private sector development and the creation of decent jobs.
- Strengthening of administrative, economic and financial governance.

In order to ensure strong sectoral involvement and guarantee proper implementation the PREPOC 2020-2023 involves the sectoral ministries.

3.4 Legal Framework

An appropriate normative and legal framework must underpin both the national disaster risk management policy and the institutional structures. Currently, the Haitian SNGRD is supported by the Constitution of the Republic of Haiti, notably articles 19, 23, 136, 111, 111-1, 111-2 and 236, special procedures - admittedly not legally binding - and other legislative provisions in force.

3.4.1 Law of September 16, 1966, creating the Emergency Fund

This law establishes a mechanism for financing specific funds for disaster response, through the levy of a 1% tax on the salaries of government employees subsequently applied to private sector employees. This fund is not subject to normal budgetary restrictions[112].

3.4.2 Decree of 17 May 1990 on the organization and functioning of the Ministry of the Interior and Territorial Collectivities

This organic decree assigns competence in matters of civil protection to the Ministry on the Interior and Territorial Collectivities. The decree authorizes the Ministry to take the preventive and relief measures required to safeguard the population, particularly in the event of public calamities[113].

3.4.3 Decree of 17 May 1990 creating in each geographical department a civil representation of the executive power

The Decree sets the missions and attributions of the delegates and vice-delegates. The delegate is responsible for coordinating civil protection services, such as the Red Cross, the fire department, the pre-disaster section and other services with a similar vocation (art. 7-6)[114].

3.4.4 Decree of October 12, 2005 on the management of the environment and regulation of the behaviour of citizens for sustainable development

The decree discusses the responsibility of the State in the prevention and response to disasters; the identification and mapping of risks; the establishment of standards for the prevention and mitigation of climatic, meteorological and seismic risks[115].

112 Journal officiel de la république d'Haïti, Le Moniteur, September 1966.

113 Journal officiel de la république d'Haïti, Le Moniteur, No 48, May 1990.

114 Journal officiel de la république d'Haïti, Le Moniteur, No 48, May 1990.

115 Journal officiel de la république d'Haïti, Le Moniteur, No 11, January 2006.

3.4.5 Decree of February 1, 2006, establishing the organization and functioning of the communal sections

The decree sets the functions of the communal sections in accordance with the Constitution, the adequate provision of public services to the population, local development, and participatory democracy. The text identifies civil protection, assistance and relief among the technical areas of competence of the communal section (art. 50), and sets out the powers of the Board of Directors of the Communal Section (CASEC) in matters of civil protection[116].

3.4.6 Decree of February 1, 2006, establishing the organization and functioning of the municipal authority known as the commune or municipality

This decree, which takes into account the decree-law of October 22, 1982 on municipalities, assigns to the communal council the creation and administration of communal civil protection services (art. 134-7)[117].

3.4.7 Manual for the organization and operation of the National Emergency Operations Centre in an emergency situation 2006 (revised 2017)

The manual describes the procedures for the coordination and control of the actions and joint operations that the institutions of the SNGRD conduct in support of the departmental emergency operations centres. It aims to ensure an efficient and effective response in favour of the population during a hazardous event.

3.4.8 Procedures to facilitate the release of products and items for earthquake victims 2010

These procedures of the Ministry of Economy and Finance outline the general and specific measures and steps to be taken to expedite the release of a series of products and items to assist earthquake victims.

116 Journal officiel de la république d'Haïti, Le Moniteur, No 49, May 2006

117 Journal officiel de la république d'Haïti, Le Moniteur, spécial No 2, June 2006.

3.4.9 Law of April 15, 2010 amending the law on the state of emergency of September 9, 2008

Under this law, the central and local authorities - the departmental delegate upon reasoned request of the mayors of the affected areas - may take the measures deemed for the protection of persons and property during a disaster. These authorities are expected to adopt measures of intervention and restoration of the situation after the event. The measures adopted during the state of emergency are subject to appeal before the Court of Auditors and Administrative Disputes[118].

3.4.10 Other national legal instruments

The institutionalization of DRR is also based on the law of September 19, 1982 on regionalization, the law of August 22, 1983 on the creation of the Pre-Disaster and Relief Organization and the decree of January 14, 1987 revising this law, the law of March 13, 2012 on the integration of people with disabilities, as well as the organic decrees of the MTPTC, the MARNDR, the MPCE, and the MD.

3.5 Institutional Framework

3.5.1 National Context

The Haitian PNGRD 2019-2030 is the national framework that provides the guidelines to the Haitian State for building economic, social, health, cultural and environmental resilience to natural hazards and those related to human activity. The Plan sets guidelines for the next ten years without replacing sectoral policies and plans, which must converge towards the economic, social and environmental management of disaster risk reduction for the sustainable development of Haiti.

The 2000's and 2010's were marked by significant, albeit slow, efforts to institutionalize disaster risk management in Haiti and to territorialize the civil protection role. This process was initiated by the creation of the SNGRD and the validation of the PNGRD 2001. Therefore, the progress of the SNGRD depended on the implementation of three programs:

- Disaster management at the central level: disaster preparedness and response.
- Risk management at the central level: risk prevention and reduction.

118 Journal officiel de la république d'Haïti, Le Moniteur, No 29, 19 April 2010.

- Risk and disaster management at the local level: de-concentration and decentralization.

The PNGRD 2001 established the mechanisms and institutional bodies responsible for disaster risk governance in the country[119]. These are the National Committee for Disaster Risk Management (CNGRD), Permanent Secretariat for Disaster Risk Management (SPGRD), Network of territorial committees (coordinated by the Civil Protection Directorate of the Ministry of the Interior and Territorial Collectivities), and groups expected to support these actors.

Within the MICT, the DPC oversees the design and implementation of the SNGRD and coordinates the response to disasters and risk management actions. The CNGRD remains the highest authority of the SNGRD. Chaired by the Prime Minister, it is composed of all government ministers and secretaries of state, the president of the Haitian Red Cross, and includes the president of the Parliament. The CNGRD oversees the planning, organization and coordination of all actions aimed at the reduction of risks and the response to disasters. The Permanent Secretariat for Disaster Risk Management (SPGRD) is a technical coordinating body composed of high-level representatives designated by their respective departments. It is responsible for ensuring that the sectors' operational plans are consistent with the PNGRD 2019-2030 and in charge of coordinating all technical actions implemented during a disaster by the Emergency Operation Centre (COU). The SNGRD is also composed by:

- **Thematic committees:** cross-cutting platforms established by the SPGRD, which are composed of representatives of different institutions. They must work on specific actions based on clearly defined risk management themes or other areas identified by the SPGRD.
- **National Emergency Operations Centre (COUN):** entity activated in the event of an imminent or confirmed disaster at the national level.
- **Institutional/sectoral committees:** they address the challenges related to disaster risk management within each institution or sector. Their responsibility is to establish institutional or sectoral plans for disaster risk management.
- **International Cooperation Support Group (GACI):** it provides guidance to the SNGRD on the implementation and direction of the PNGRD 2019-2030. It also supports the SNGRD with technical and financial assistance.

119 SNGRD Membership is detailed in Appendix I.

The PNGRD 2019-2030 takes into account the multidimensional, cross-cutting and decentralized nature of disaster risk reduction. It gathers not only the country's institutions but also Haiti's technical and financial partners[120]. The PNGRD 2019-2030 establishes a reorganization of the SNGRD in line with the previous strategy. The Ministry of Planning and International Cooperation (MPCE) and the Ministry of the Interior and Territorial Collectivities (MICT) ensure the overall planning and coordination for implementing the PNGRD 2019-2030. They are assisted by a technical secretariat with a strong strategic position, composed of the General Directors of Planning and Civil Protection, as well as the Director of the Coordination Framework for External Development Assistance (CAED). From an operational point of view, the Ministries' Study and Programming Units (UEP) are responsible for programming and planning disaster risk management actions and integrating risk criteria into development planning.

3.5.2 Departmental Level

Haiti is divided into ten administrative regions (*départments*) and each of them subdivided into different municipalities (*communes*): Arbitonite (5 districts and 15 municipalities), Centre (4 districts and 12 municipalities), Grand'Anse (3 districts and 15 municipalities), Nippes (3 districts and 11 municipalities), Nord (7 districts and 19 municipalities), Nord-Est (4 districts and 13 municipalities), Nord-Ouest (3 districts and 10 municipalities), Ouest (5 districts and 20 municipalities),Sud(5districtsand18municipalities), Sud-Est (3 districts and 10 municipalities).

At the departmental level, the SNGRD is supported by the following bodies:

- **COUD (Departmental Emergency Operations Centre):** entity activated in the event of an imminent or confirmed disaster at the departmental level.
- **Departmental disaster risk management committees:** entities guaranteeing the decentralization of actions in this area, involving public authorities and organizations at the departmental administrative level.

As regards preparedness, every year one to three departments participate in a simulation organized by the DPC. Participants spend two to

120 E. g.: Sectoral ministries, local government administration, private sector entities, non-governmental organizations (NGOs), civil society organizations (CSOs) and local communities.

three days simulating the mechanisms that must be implemented during an emergency, including evacuation management and operations. Despite these efforts, these exercises are insufficient to proper address Haiti's exposure to social and natural hazards. Also, a national debriefing framework must be elaborated and properly implemented after each simulation. As a matter of fact, lessons learned are not always documented, preventing improvements for future exercises.

3.5.3 Local and Community Level

Disaster risk reduction demands a Whole-of-Society approach. As the impacts of disasters are usually felt at the individual and community level, communities must be involved in disaster risk reduction planning. At the community level, the SNGRD is supported by the following bodies:

- **COUL (Local Emergency Operations Centre) and COUC (Communal Emergency Operations Centre):** entities activated in the event of an imminent or confirmed disaster at the local and communal levels.
- **Communal and local disaster risk management committees:** they guarantee the decentralization of actions in this area, involving public authorities and organizations at the communal and local administrative levels.
- **Operational structures:** Civil Protection brigades and the EIC (Community Intervention Team).
- **The GASC (Civil Society Support Group):** designated delegates from civil society institutions such as private business associations, socio-professional associations, religious denominations and universities are expected to consolidate public-private partnerships in different spheres of action[121].

At the community level, Municipal Civil Protection Committees (CCPCs) are responsible for evacuating populations at risk. CCPCs are crucial within the SNGRD as they disseminate early warnings, evacuate populations to shelters, conduct search and rescue, provide first aid, and organize preliminary human losses and material damage evaluations. CCPCs are directed by the DPC, through the Departmental Civil Protection Committees, and work in all stages of the SNGRD: preparedness, response and recovery. There is one CCPC per municipality, totalling 140 CCPCs formed by 3,100 volunteers nationwide. These local organizations are composed of volunteers which are extremely useful in rural areas, where there is little access to traditional communication channels (phones, radios, newspapers), to reach isolated people. However, CCPCs ability to operate remain vulnerable to high volunteer turnover. Likewise, they are not entitled to benefits, insurance, or reimbursement for expenses.

A key document is the Shelter Management Guide 2013, which sets the criteria ensuring shelter safety as follows:

- Emergency evacuation shelters must not be in a flood zone.
- They must be close to vulnerable people and basic social services, including hospitals or health centres.
- They must be accessible to people with disabilities.
- They must be secure.

As illustrated by Figure 19, to understand how the information circulates from the national level to the local level it is imperative to detail how the EWS conveys information through multiple steps and agents.

1. Forecasts are interpreted by experts at the Haiti Hydrometeorological Unit (UHM).
2. The Prime Minister activates a state of emergency alert and the Office of the Secretary becomes a National Emergency Operation Centre (COUN).
3. COUN notifies departmental delegates, who then activate the Departmental Emergency Operation Centre (COUD).
4. The COUD notifies the mayors, who then activate the Communal Emergency Operation Centre (COUC), where mayors should rely this information to CCPC.
5. CCPC disseminates emergency related information to the population and evacuate populations to shelters as needed.

121 *Op. cit.,* République d'Haïti (2019).

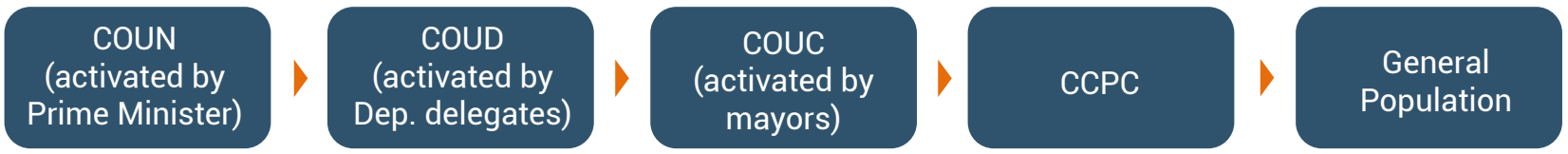


Figure 19: High-Level overview of the EWS structure in Haiti[122]

122 Op. cit., World Bank (2020).

4. POLICY COHERENCE

The processes of developing policies and investing in Sustainable Development, Climate Change Adaptation (CCA) and Disaster Risk Reduction (DRR) have similar approaches, common challenges, and complementary advantages for governance, financing, information and data analysis, capacity development, and monitoring. Despite commonalities and complementarities, Sustainable Development, DRR and CCA are often planned, financed and implemented separately as they have emerged from different global processes and they are led and managed at country level by different actors and custodian agencies. This analysis summarizes major findings on the Sustainable Development Goals (SDGs), CCA and DRR policy coherence implementation by Haiti. To do so, the study considers three main national policy instruments for Sustainable Development, CCA and DRR, as well as their links to global and regional frameworks for action in these fields: the Sendai Framework for Disaster Risk Reduction 2015-2030 (SFDRR), the *Regional Comprehensive Disaster Management Strategy 2014-2024 (CDM Strategy), the United Nations Framework Convention on Climate Change 1992 (UNFCCC), the Paris Agreement 2016, the Sustainable Development Goals Agenda 2030, the Small Island Developing States Accelerated Modalities or Action 2014 (SAMOA Pathway), and the Caribbean Safe School Initiative 2017* (CSSI).

Hereof, coherence is considered as the approaches and deliberate processes and actions within Haiti to integrate – as appropriate – global and regional frameworks for action mentioned above into national policies; in order to increase efficiency, effectiveness, and the achievement of both common and respective goals.

4.1 Strategic Coherence

Strategic coherence looks at whether the SDGs, CCA and DRR are explicitly addressed jointly or if there is an aim to strengthen the relationship and linkages between the three fields.

Haiti's Strategic Development Plan 2030 (PSDH 2012) is the instrument guiding public and private actions until 2030, including those of international partners, to tackle the country's main development challenges. While the PSDH 2012 orientations can be linked to the global and regional frameworks for SDGs, CCA and DRR, vertical integration is partial as the policy precedes or does not mention most of them. The PSDH 2012 vision aligns with the SFDRR outcomes, goals and several of its targets, as it considers the 2010 disaster as an opportunity to address the urgent need for DRR mechanisms. In addition, the policy's *Grand Chantier* (GCH) 4 erects DRR as a cross-cross cutting theme for elaborating development strategies and enhancing institutional coherence. As in the case of CDM Strategy, the PSDH 2012 refers to resilience and sustainability as critical to development processes. Concretely, the CDM Strategy priority areas (institutions, knowledge, integration, resilience) are enshrined within the PSDH 2012 GCH 1-4 (land use planning, economy, social concerns, institutions) and their programs.

While the PSDH 2012 does not refer explicitly to the UNFCCC or the *Paris Agreement,* the policy refers to climate change as a contextual element threatening public administration and businesses on the island. Consequently, the policy connects to the UNFCCC as it considers reducing the ecological footprint as a major challenge for development. As regards the Paris Agreement, the PSDH 2012 commits to strengthen the country's response and resilience to the threat of climate change in the context of sustainable development and efforts to eradicate poverty. The policy contemplates enhancing capacity building through education and CCA initiatives, as well as using information and communication technologies to modernize early warning systems. Whilst the SDGs are present throughout the policy's GCH, the PSDH 2012 does not fully include CCA and DRR considerations within its development policy vision, goals and principles. Horizontal integration is partial, CCA and DRR remain clustered in GCH1 and not mainstreamed jointly within the development sectors. The PSDH 2012 connects to the SAMOA Pathway by guaranteeing sustainable development and resilience building as a common basis for protecting the environment, as well as by addressing its overarching objectives and priority areas. With respect to the linkages between the SDGs, CCA and DRR within the education sector, the policy addresses the CSSI critical issues 1-2 and 9. GCH3 acknowledges the right to quality and inclusive education for all and promotes the enhancement of educational infrastructure. Also, the PSDH 2012 recognizes the country's exposure and vulnerability to natural, anthropogenic or socio-natural hazards.

Haiti's National Policy on Climate Change (PNCC 2019) is a broad policy expected to provide environmental

and societal answers to the anthropogenic climate change processes endangering the Haitian development efforts and fight against poverty. The PNCC 2019 is complementary to the *Haitian National Determined Contribution* 2015 (HCPDN 2015), which offers relevant information about the country's effort to tackle climate hazards. While contributing to enhancing resilience within the country, especially in the adverse context of global warming, both policies address and mainstream CCA, SDGs, and DRR jointly in other sectors. The PNCC 2019 guiding principles and pillars 1-4, as well as the HCPDN 2015 focus on climate change mitigation and adaptation, are in line with the SFDRR expected outcomes, goals, principles, and priorities 1-3. At a regional level, the PNCC 2019 and the HCPDN 2015 contribute indirectly to the CDM Strategy regional goal. As in the case of the CDM Strategy, resilience and sustainability are at the core of the PNCC 2019 and the HCPDN 2015 actions for enhancing CCA and DRR. The PNCC 2019 is presented as a programmatic framework for action in line with the UNFCCC principle 1 and the *Paris Agreement* main objective to strengthen the global response to the threat of climate change. Similarly, the HCPDN 2015 measures to achieve CCA have been elaborated on the basis of the UNFCCC and the *Paris Agreement* objectives, principles and commitments.

While the PNCC 2019 aims explicitly to contribute to the SDGs 7-8 and 13 through its pillars (strengthening institutions, improving governance, promoting endogenous climate funding, elaborating efficient actions against climate change), the HCPDN 2015 indirectly connects to the SDGs Agenda 2030 through its links with the PSDH 2012. Concretely, the HCPDN 2015 states the need for associating mitigation and adaptation efforts regarding global warming to development objectives set by the PSDH 2012. Consequently, there is sufficient evidence to argue that both national policies align to the SAMOA Pathway commitments and objectives. In fact, explicit references to the urgent need for promoting sustainable socio-economic development are present in the PNCC 2019 and HCPDN 2015. In a small island characterized by vulnerability factors, such as poverty and weak institutions, climate change impacts are seen as a risk to sustainable development. Whilst the PNCC 2019 pillars 1-4 are expected to address climate change impacts on sustainable development, the HCPDN 2015 incorporates sustainable development within its cross-cutting priorities 1-5. Following the CSSI predicaments in the education sector, the HCPDN 2015 considers education as one of its five cross-cutting priorities and contemplates raising CCA awareness at primary, secondary and university levels. Although the PNCC 2019 focus is not put on the education sector, this policy can be considered as a programmatic instrument for the CSSI commitments 2-5.

Strategic coherence is substantial within the PNGRD 2019 due to its high levels of vertical and horizontal integration. The PNGRD 2019 not only considers the SDGs and CCA as DRR full-fledged elements, but also diffuses them within the political, social, economic and cultural sectors owing to its connections with the PNCC 2019 and the PSDH 2012. The SFDRR and the CDM Strategy are part of the DRR frameworks guiding the PNGRD 2019 actions and implementation. Specifically, the PNGRD 2019 strategic axes 1-4 and its resilience building approach are aligned with the SFDRR priorities for action 1-4 and to the CDM Strategy regional goal and priority areas. The PNGRD 2019 links with the PNCC 2019, enabling it to implicitly address the UNFCCC principle 1 and the *Paris Agreement* desire to strengthen response to the threat of climate change.

Sustainable development is critical for implementing the PNGRD 2019. The SDGs 2030 Agenda is considered as another reference document for DRR and the efforts to fight climate change impacts in Haiti. Consequently, even if not specified, the PNGRD 2019 aligns to the SAMOA Pathway commitments owing to its linkages with the PSDH 2012. As also promoted by the SAMOA Pathway, the PNGRD 2019 advocates for the need to eradicate poverty, build resilience, and improve the quality of life of the population; SDGs, CCA and DRR are seen as linked. As regards the CSSI, its critical issues 1-5 and 7-9, as well as its commitments 2-5, are implicitly seen as critical for the progress of the Haitian Disaster Risk Management system.

4.2 Conceptual Coherence

Conceptual coherence explores how these countries link DRR and CCA conceptually, in particular through the concepts of risk and resilience.

There is partial evidence of conceptual coherence within the PSDH 2012. Key concepts such as sustainable development, climate change, and resilience are addressed but not properly defined, which prevents the policy from elaborating on SDGs, CCA and DRR under the heading of resilience building. Synergies between these three fields

are discussed via the impacts that inefficient development processes can have in fostering the level of vulnerability among the population. Concretely, slow economic growth and lack of jobs, uncontrolled demographic growth, the lack of precarious housing and land planning, the centralization of the country, inefficient economic redistribution and persistent social inequities, and a weak rule of law, are identified as structural causes for vulnerability. Within this context, climate change is considered as an opportunity to implement development strategies and to address both climate and disaster risks. Therefore, *Grand Chantier* (GCH) 1 associates development to DRR actions and the need for climate risk adaptation strategies.

While resilience, climate change, and sustainable development are not defined, conceptual coherence is substantial within the PNCC 2019 and the HCPDN 2015 as both policies address jointly the SDGs, CCA, and DRR. The concept of risk is mobilized in the policies to systemize synergies between CCA and DRR that would support Haiti in achieving sustainable development. The PNCC 2019 and the HCPDN 2015 aim to enhance Haiti's resilience to climate change and disasters. As such, resilience is implicitly referred to as a cross-cutting concept for the SDGs, CCA and DRR. As regards climate change, it is characterized as a multi-risk factor preventing socio-economic development, exacerbating Haiti's vulnerability, provoking damages within strategic sectors, worsening social and gender inequities, and aggravating the impacts of extreme and long-lasting events.

The PNGRD 2019 conceptual coherence is strong as it employs the concept of risk to enhance synergies between the SDG, CCA and DRR actions. The policy provides straightforward definitions of resilience, climate change and development, and associates them to global, national and subnational plans and programs. The PNGRD 2019 refers to resilience as *"the capacity of a system, community or society exposed to hazards to withstand, cope with, adapt to, and recover from their effects quickly and efficiently, especially through the preservation and restoration of essential structures and functions through risk management"*. Likewise, climate change is defined as a major risk factor, especially due to Haiti's insular condition as well as its limited resources and high levels of vulnerability. In addition, the inefficient development processes are presented as a high-risk factor aggravating the impacts of disasters within the country. Thus, economic precariousness, high demographic concentration in urban areas, limited access to basic services, unsuitable housing, and social exclusion (e. g: gender inequity), are mentioned as factors impeding development on the island. Therefore, the PNGRD 2019 elaborates on climate change impacts on socio-ecological systems not only through the lens of extreme events, but also through human security and sustainable development concerns.

4.3 Institutional Coherence

Institutional coherence analyses whether coordination between the SDGs, CCA and DRR is envisioned, and if and how institutional arrangements support coherence.

Whilst the PSDH 2012 institutional coherence for SDGs is significant, formal collaborations between the SDG, CCA and DRR fields are patently weak. Concretely, coordination mechanisms to support coherence between these three fields are not specified, roles and responsibilities are not detailed, and SDGs, CCA and DRR institutional synergies are rarely discussed. The PSDH 2012 *Grand Chantiers,* programs and subprograms provide, under the guidance of the Ministry of Planning and External Cooperation, the institutional structure to enhance coordination between development processes. Additionally, so as to achieve institutional coherence for development at subnational levels, GCH 4 contemplates reinforcing the legal framework, strengthening the legislative and judiciary powers, modernizing the public administration, and supporting cooperation between local authorities and civil society. While each program and subprogram offer a roadmap for implementing the PSDH 2012 at national and subnational levels, they do not provide a clear outline of roles and responsibilities for all SDGs, CCA and DRR actors.

The PNCC 2019 and the HCPDN 2015 institutional coherence is only partially met, as policies do not fully include SDGs and DRR actors within the CCA field. The PNCC 2019 aims to reduce the dispersion of CCA efforts and support their coherence with the SDGs and DRR; Chart 1 specifies relevant actors and expected timelines to achieve this objective. Likewise, the HCPDN 2015 mentions the role of the Direction for Climate Change Management, a subgroup of the Ministry of Environment in charge of the National Committee for Climate Change, in supporting collaborations between institutions within the CCA realm. As mentioned by the HCPDN 2015, the PNCC 2019 gives the National Committee for Climate Change the responsibility of fostering climate change cooperation between local, territorial, regional, and international actors. However, while roles and responsibilities are broadly identified for CCA actors, it remains unclear how SDGs and DRR actors interact with them.

There is substantial evidence of institutional coherence within the PNGRD 2019 as the policy successfully connects SDGs, CCA and DRR fields. The PNGRD 2019 identifies multiple platforms and coordination mechanisms that are expected to be further developed and consolidated. Concretely, the policy refers to the National Platform for DRR as a key coordination instrument and the Permanent Secretariat for Disaster Risk Management as the institution in charge of overseeing the DRR interinstitutional planning and coordination. Few details are given about how the SDGs and CCA coordination mechanisms interact with DRR instruments like the Sectoral and Thematic Panel on Risk and Disaster or the Emergency Operations Centres. However, the PNGRD 2019 refers to the Thematic Committees as a multisectoral platform facilitating the links between DRR and SDGs practices and tools. The PNGRD 2019 provides an organization chart and a results matrix detailing the envisioned results, expected interventions and activities, and the main institutions in charge of their implementation. At a subnational level, DRR coordination is ensured by the National Disaster Risk Management System.

4.4 Operational Coherence

Operational coherence looks at measures, actions and activities which bring together the SDGs, CCA and DRR practices and, to what extent planning is considered cross-sectoral.

The PSDH 2012 operational coherence is only partially met as the policy struggles in addressing jointly CCA and DRR considerations under the heading of sustainable development. In practice, the PSDH 2012 does not state a clear outline of roles and responsibilities of SDGs, DRR and CCA actors. Equally, there is no mention of awareness raising actions among the actors within and between the three fields. The disconnection between the SDGs, CCA and DDR continues, as synergies between the methodologies employed by these fields are not systematized. Within this context, operational coherence remains a challenge as the SDGs, CCA and DDR considerations are not jointly mainstreamed into strategic sectors. As a matter of fact, the PSDH 2012 refers to specific sectors for which SDGs are relevant; CCA and DRR operational considerations stay fenced within GCH 1, especially program 1.2.

The operational coherence of the PNCC 2019 pillars 1-4 is based on a collective effort from the government, civil society, private sector, funding and technical partners, and international institutions. While the HCPDN 2015 singles out the Ministry of Environment as the main institutional actor, the PNCC 2019 Chart 1 offers a broad outline of the main CCA actors and the measures they are expected to put into place. One of the strongest operational features of the PNCC 2019 and the HCPDN 2015 is that both contribute to strengthening knowledge of actors. The PNCC 2019 does it within its guiding principles 1-3: decentralization, participation and dialogue, and transparency, immutability and accountability. The HCPDN 2015 refers to this point when consecrating information, education and raising awareness as one of its five priorities. However, several elements obstruct operational synergies between the SDGs, CCA and DDR fields. First, it remains unclear how the PNCC 2019 and the HCPDN 2015 bring together methodologies used within each field. Second, the SDGs, CCA and DDR practices are not brought together through multipurpose damage and loss databases. Third, Build Back Better practices are barely considered as the concept has not yet been reappropriated by national actors, which is a sign of partial vertical integration. Neither the PNCC 2019 nor the HCPDN 2015 include the housing sector in their CCA and mitigation measures, which is an issue given Haiti's vulnerability while facing climate risks.

There is significant evidence of operational coherence within the PNGRD 2019. While the policy is focused on DRR, its vision, objectives, and strategic axes bring together the SDGs and CCA under the heading of a comprehensive disaster management approach. As the SDGs and CCA are considered critical for DRR plans and activities, the policy stresses their operational linkages. For instance, the PNGRD 2019 advocates for capacity building as a paramount tool for achieving DRR actions which include SDGs and CCA considerations. In practice, the PNGRD 2019 relies on multisectoral and interdisciplinary commitments, which include actions from the civil society, public and private sectors, as well as the international community. Consequently, the policy indicates roles and responsibilities of DRR, CCA and SDGs actors, not only through its National Disaster Risk Management System Chart and Results Matrix, but also by its links with the PSDH 2012 focus on the SDGs and the PNCC 2019 concerns on CCA.

4.5 Financial Coherence

Financial coherence explores whether and how funding strategies and investments unite the three fields.

The PSDH 2012 financial coherence is partially met. While the policy envisages a straightforward budgetary structure (Budget Program, Triennial Implementation Frameworks, Triennial Investment Programs & Annual Investment Programs), it does not specify how CCA and DDR will be included in its broad funding strategies for development. Although said strategies are supported by a Fund Program, which is expected to be implemented by the Triennial Implementation Framework, an estimated budget is not provided by the PSDH 2012. However, it could be argued that, as long as they are considered critical for the SDGs, DRR and CCA are implicitly included within the Budget Program for the PSDH 2012. The policy refers to national resources, budgetary support, multilateral funding, and Haiti's development and reconstruction funds as its funding sources. Insurance schemes to reduce the impacts of climate and disaster risk are not explicitly considered; Subprogram 2.5.1 refers broadly to multi-risk insurance.

While the PNCC 2019 and the HCPDN 2015 provide an estimated budget for CCA actions, it remains unclear how it is composed, which part of it corresponds to specific programs, and the timeline allocated to spend it. The HCPDN 2015 specifies that, within the 2015 horizon, the cumulative cost of climate change impacts is USD$ 1.8 billion if preventive measures are not implemented, and USD$ 77 million if adaptation efforts are put into place. Concretely, the implementation of the HCPDN 2015 commitments is expected to cost USD$ 25,387 billion. In addition, the PNCC 2019 states that a detailed estimate of the short- and medium-term costs for implementing CCA measures will be provided by the Strategy and Action Plan for executing the policy. While in the PNCC 2019 and the HCPDN 2015 DRR is embedded in CCA funding strategies, the policies do not specify if and how sustainable development funding can be used for DRR and CCA. Funding sources are clearly identified by the PNCC 2019, which refers to national and international investing plans and budgets, private investments, bilateral and multilateral funding support from technical partners, international funds for climate, and market-based mechanisms. As regards insurance schemes, the HCPDN 2015 contemplates supporting the insurance sector for losses resulting from climate and disaster risk impacts.

The PNGRD 2019 partial financial coherence puts at risk the actions envisioned within its strategic, conceptual, institutional and operational coherence. As the policy does not provide an estimated budget for DRR, it becomes difficult to find linkages between DRR funding and CCA and SDGs ones. Specific funding sources are mentioned but it remains unclear what contribution is made by each of them. In addition, suggested insurance schemes for DRR do not consider climate change explicitly.

4.6 Monitoring, Evaluation and Reporting Coherence

Monitoring, Evaluation & Reporting (MER) coherence looks at how MER mechanisms bring together coordination and synergies between the SDGs, DRR and CCA.

Monitoring, Evaluation and Reporting is not fully developed in the PSDH 2012 but suggested by the implementation of a Development Management and Evaluation Information System. In practice, the system is expected to monitor and evaluate the PSDH 2012 progress according to a series of indicators. However, the main obstacle is raised by the fact that the PSDH 2012 does not go further in developing the details about this MER instrument, which also remains disconnected from regional and global frameworks.

The PNCC 2019 and the HCPDN 2015 MER frameworks are partially developed as they focus on CCA processes. While the PNCC 2019 considers MER performance indicators in line with the objectives of the policy, the HCPDN 2015 envisions a National Committee for Climate Change in charge of monitoring its implementation. As regards their linkages to regional and global processes, the PNCC 2019 MER mechanisms are expected to comply with international negotiations concerning the UNFCCC, the *Paris Agreement* and other multilateral frameworks for action. A PNCC 2019 first official evaluation and reporting is scheduled for 2022.

There is ample evidence for substantial MER mechanisms in the PNGRD 2019 as it provides a straightforward DRR plan including sustainable development considerations and contributing to CCA actions. Specifically, each of the PNGRD 2019 strategic axis presents both a target and an DRR indicator related to SDGs and CCA considerations. Coherence between DRR, SDGs and CCA are reinforced as the PNGRD 2019 MER framework is expected to be in line with MER mechanisms elaborated and implemented by the Ministry of Planning and Foreign Cooperation. However, there is a gap to fill regarding the linkages between the PNGRD 2019 MER tools and global indicators.

5. DISASTER RISK REDUCTION INTERVENTIONS AND CAPACITIES

Disaster risk reduction interventions and capacities need focused action within and across sectors by States at local, national, regional and global levels in the following priority areas mentioned below. As reminded by the Sendai Framework for Disaster Risk Reduction 2015-2030, States, regional and international organizations and other relevant stakeholders should take into consideration the key activities listed under each of these four priorities detailed below. Haiti's capacities and additional challenges within the disaster risk environment are discussed under the priority areas of the Sendai Framework in the subsequent sections.

Priority 1 – Understanding Disaster Risk

Understanding disaster risk involves a suite of activities to promote risk-informed actions and decision making through data collection and dissemination, knowledge management (including local knowledge) and education, training and awareness building. These activities must be conducted at all levels of society in support of the concept of shared ownership.

To this end Haiti has been implementing several training, information and communication strategies. The PNGRD 2001 acknowledged that training strategies were crucial for its implementation. The SNGRD through the DPC has established a group of trainers to facilitate and certify about 15 courses. This curriculum covers disaster risk management fundamentals, understanding disaster risk, disaster preparedness and response, including warning systems, rapid damage assessment and needs analysis, evacuation shelter management, emergency operations centre management, conducting simulation exercises and Sphere standards. Likewise, several initiatives have been conducted in higher education. These experiences have helped to develop Haitian expertise in disaster risk reduction. Nevertheless, the country needs to work harder to have people trained in all areas of disaster risk management, which is crucial for the development of a culture of prevention.

As regards public education and awareness, the Coordination of the Thematic Committee on Education and Public Awareness (CTESP) was created in 2006. This Thematic Committee is co-chaired by the Ministry of National Education and Professional Training (MENFP) and the DPC. The committee coordinates the interventions of public and private sector institutions in disaster resilience awareness and education. Its actions have targeted individuals, families and communities, including leaders and the media. To create this individual commitment and collective awareness, the CTESP has validated, harmonized and systematized hundreds of audio-visual and written tools, as well as promoting a series of educational and public awareness activities. However, limitations linked to the precarity of dedicated material and financial resources hinders the dissemination of preventive information.

With respect to communication and public information strategies, Haiti's government has multiplied its efforts, particularly for the population that is most exposed to natural and anthropogenic risks. Communication strategies are an essential part of the function of Civil Protection. These strategies include outreach, usually conducted by the Civil Defence volunteer network, the use of old and new media, including cell phone networks and online social media. In emergency or disaster situations, the Communication Inter-ministerial Platform is activated at the central level to coordinate the "Information" function. Within each department, communication units have been set up to support communal structures, to produce and disseminate integrated information content, as well as to relay government announcements to the population threatened or affected by the situation, to the media, and to technical and humanitarian partners in disaster risk management.

Information management is a priority for DPC and SNGRD. Haiti has several tools for data collection in emergency, disaster and routine situations, as well as people trained in their use, both in emergency operations centres and in the field. The creation of information management units at the departmental level has improved the data collection and analysis capacity of the SNGRD. Also, along with the National Geospatial Information Centre (CNIGS), DPC has initiated the development of a Disaster Database. However, while the availability and use of the Disaster Database is expected to allow the SNGRD to adapt its intervention capacities in

order to guarantee the safety of the population, risk data remains fragmented, risk identification is often not systematized and risk assessments are limited. PNGRD 2019-2030 strategic axis 1 aims to improve DRR understanding at all levels through two strategies where the use of GIS (Geographic Information System) is crucial.

The PNGRD 2019-2030 expects that the identification and assessment of national and local risks contribute to the DRR decision-making process.

- **Scientific and technical committee:** carries out risk assessments and develops models adapted to the various sectors of national life.
- **CNIGS:** harmonizes risk mapping methodologies at the national level and develops a national risk mapping scheme. This institution also creates a unified and dynamic database on disaster risk in Haiti, which must be updated periodically. Finally, CNIGS systematically assess and ensure availability of disaster risk data collection and analysis equipment and tools throughout the country.
- **MDE:** performs complementary studies on coastal and marine ecosystem vulnerability, human settlements and issues related to the phenomenon of erosion (particularly in relation to the private business and tourism sectors).
- **ONEV:** establishes systematic and periodic assessments of vulnerability to disasters in Haiti within each sector (including agriculture, commerce and industry, and tourism).
- **BME, UHM, CODOMAR:** looks for links with specialized institutions in the region within the field of monitoring and risk management.

While the Plan establishes that public and private institutions at national, local and community levels have access to reliable data on disaster risk, community users do not always obtain or make use of this data. This data must be disaggregated by gender, age and disability.

- **CNIGS:** develops the capacity of data users to index and map risks to major hazards, taking into account gender and disability. This institution also develops protocols and manuals that link data producers and providers to users that focus on accuracy and the timing of data reception.
- **CNIGS, CIAT, MICT/DCT:** set up, in compliance with the land use and local development policy, a system to assist local authorities in the elaboration of thematic maps to inform the DRR decision making process.
- **UHM, OFNAC:** they provide sector-specific climate information.

Haiti's PNGRD 2019-2030 strengthens the Network of Disaster Risk Management committees for disaster risk management. Currently, each department of the country, each commune and the majority of communal sections have a committee operating to varying degrees. These structures have benefited from a common training core that allows them to conduct education, awareness and information actions for the population, as well as to coordinate emergency related events. Each committee has an emergency plan helping to organize the intervention in case of emergency or disaster. The committee is based on a coordination unit composed of at least three people charged with communication management in emergency situations. Nonetheless, while the CWP establishes the mechanisms for reinforcing education, awareness and information actions for the population, the implementation of public awareness strategies, events and actions remain insufficient.

To better understand disaster risk in Haiti, the country must strengthen the implementation of PNGRD 2019-2030 and integrate new ways of addressing traditional knowledge within formal DRR planning agendas at the national and local levels. For instance, the COVID-19 pandemic has exacerbated this challenge in the country. Pertaining to cultural challenges, strong belief in supernatural diseases and in the healing power of traditional medicine hinders the use of medical care and puts the population at risk of spreading COVID-19.

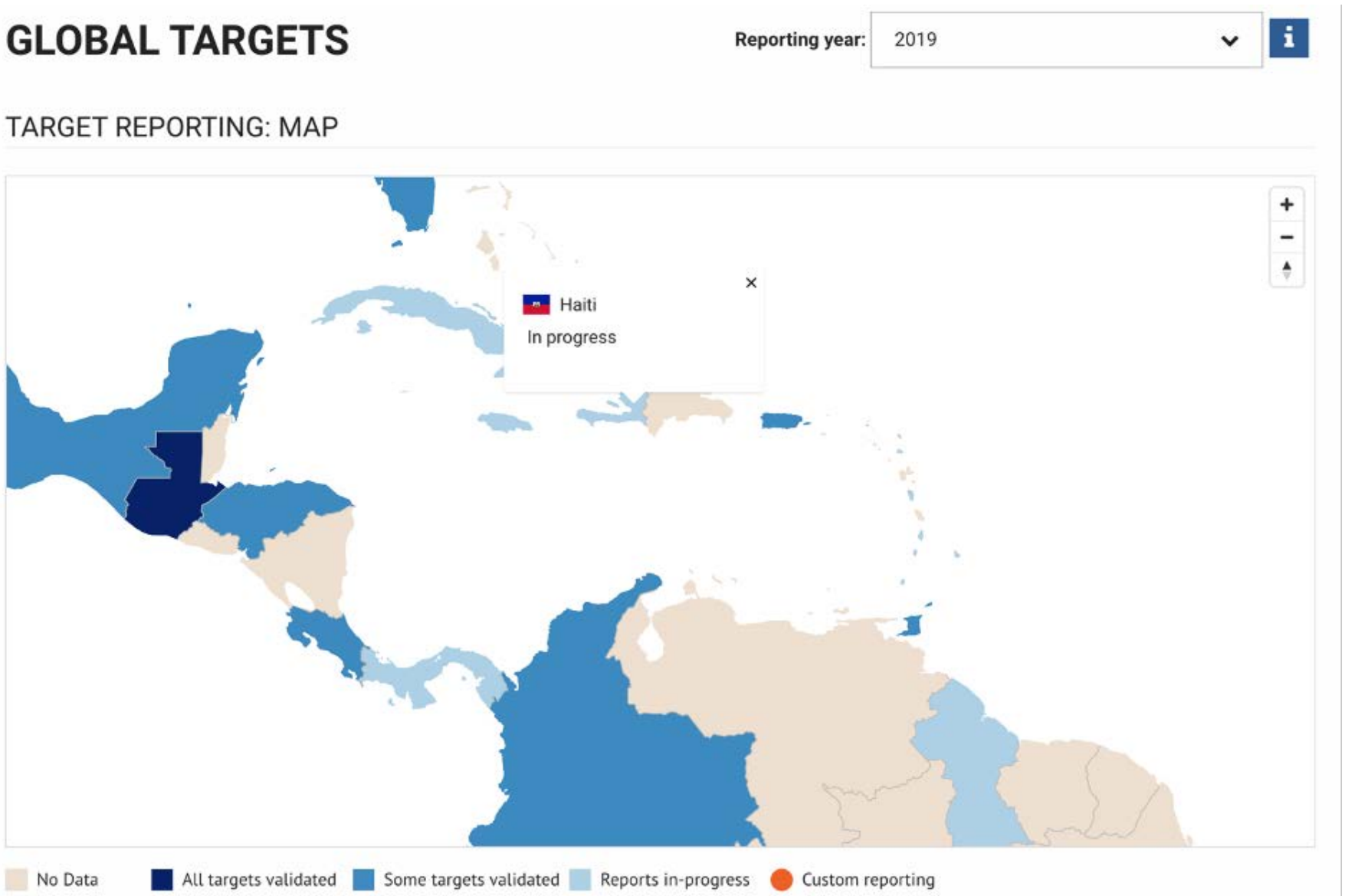


Figure 20: Sendai Framework Monitor: Haiti 2019[123]

As regards data and progress in reports under the Sendai Framework Monitor, the last data available for Haiti shows that these reports are under the in-progress status (Figure 20). The recently approved PNGRD 2019-2030 is an important contribution to advancing in the achievement of the Sendai Framework for Disaster Risk Reduction 2015-2030's targets, particularly target E which aims to increase the number of countries with DRR strategies.

Priority 2 – Strengthening Disaster Risk Governance to Manage Disaster Risk

Disaster risk governance involves mainstreaming disaster risk reduction within and across all sectors, implementing disaster risk reduction strategies, providing incentives for disaster risk reduction activities (such as compliance with building codes), establishing and strengthening coordination mechanisms, and instituting legislation and policies in support of disaster risk management.

Haiti's CWP, PNGRD 2019-2030, strengthens and creates multiple mechanisms and platforms for institutional and cross-sectoral coordination, both at the strategic and operational levels. This is considered as important for the functioning of the SNGRD. As explained by the Plan, some entities have been conceived to be permanent while others have been created in response to specific needs.

- **Risk and Disaster Sectoral and Thematic Committee:** this is a joint coordination mechanism launched in March 2014. The committee establishes a framework for consultation and dialogue between State entities, the private business sector, civil society organizations, technical and financial partners, and nongovernmental organizations, for the implementation and monitoring of strategies related to DRM and resource mobilization.
- **Risk and Disaster Management Permanent Secretariat (SPGRD):** this platform is made up of senior technical staff from sectoral ministries. It is recognized as the planning and inter-institutional coordination body for disaster risk management. Given its key strategic role within the SNGRD, the SPGRD needs to be revitalized.
- **International Cooperation Support Group (GACI):** this structure is composed by representatives of international organizations, diplomatic missions accredited in Haiti, the United Nations system and other specialized external cooperation agencies, both bilateral

123 UNDRR (2019), Sendai Framework Monitor: Haiti 2019, URL: https://sendaimonitor.undrr.org/

and multilateral, who are willing to contribute to disaster risk management in agreement with the Government. In the event of a major disaster, the Prime Minister as Chairman of the CNGRD may convene the GACI in its entirety or in part.

- **NGOs Forum:** established in 2013 and coordinated by the Directorate for Civil Protection (DPC). It discusses and harmonizes the intervention strategies of field operators, particularly in the strengthening of committees and the establishment of intervention structures. This includes the brigades of Civil Protection and Community Intervention Teams (EIC).
- **Theme-based committees:** inter-institutional platforms that bring together representatives from different sectors to work on specific thematic areas. They have achieved interesting results in terms of development, systematization and standardization of tools and practices. Currently, two committees are active: the Education and Public Awareness Thematic Committee (CTESP) and the Evacuation and Temporary Shelter Management Thematic Committee (CTEGAP). They meet on a weekly basis.
- **Civil Society Advisory Committee:** it represents both the private business sector and civil society groups. In 2007, a group of several private companies called the Alliance for Risk Management and Business Continuity (AGERCA) was created. AGERCA is highly active but needs to be expanded to include other civil society entities. It advocates for innovation, anticipation and production of technological solutions in disaster risk management.
- **Emergency Operations Centres (COU):** in an emergency situation, the disaster risk management committees organize themselves into a COU. This ad hoc structure includes a command unit and a coordination unit. SNGRD entities generally adopt this functional organization for emergency management.

Haiti has been also strengthening its disaster risk governance to manage disaster risk through the development of plans, protocols, procedures and management tools. Consistent with the PNGRD 2001 several tools have been developed, such as the National Emergency Response Plan (PNRU 2001, revised in 2009), the Manual for the Organization and Operation of the National Emergency Operations Centre (2006, revised in 2017), and the Evacuation Shelter Management Guide (2013). The country has also developed different action plans, such as the national plan and three departmental seismic contingency plans (2012), procedures for meteorological monitoring of the Hydrometeorological Unit of Haiti (UHM), and communal emergency plans. Also, several institutions, including the Maritime and Navigation Service of Haiti (SEMANAH) and the Civil Protection Directorate, have developed their standard operating procedures in the tsunami warning chain. However, while

Disaster risk management has been progressively included in several strategic documents. As early as 2004 the DPC facilitated, through the Environment Thematic Group, the integration of disaster risk management into the structure established for the Interim Cooperation Framework (ICF). In doing so, the DPC highlighted the links between disaster risk management, environmental degradation, human well-being and poverty reduction efforts. Disaster risk management was also integrated as a cross-cutting theme in the National Strategy Document for Growth and Poverty Reduction (DSNCRP), developed between 2008 and 2011; in the National Action Plan for the Recovery and Development of Haiti (2010-2012), as well as in the National Poverty Reduction Strategy 2011-2014. In 2009, the Haitian government, through the DPC, developed a Disaster risk management report including the principles, challenges and opportunities for a better consideration of disaster risk management at the national level. This document also includes recommendations, strategic axes and actions to consider. In the same year, the Haitian government initiated the process of integrating disaster risk management into public investment programs (PIP).

Despite the progress made on the elaboration of DRR plans, protocols, procedures and management tools, several gaps must be addressed to reinforce disaster risk governance in Haiti. Firstly, investments in the SNGRD and the SPGRD should be strengthened for the effective and sustained operationalization of disaster risk management activities in the country. As discussed in “Priority 3 – Investing in Disaster Risk Reduction for Resilience" existent budget allocations are not enough for fulfilling the needs of the SNGR and SPGRD. Secondly, strategic, institutional, operational, and financial policy coherence between DRR, sustainable development and CCA policies should be reinforced. This action is crucial as it contributes to the Government's efforts for “pulling in the same direction" across all stages of disaster risk management, policymaking and implementation. Thirdly, while volunteers have been

included in the National Disaster Risk Management System since 2017, this inclusion must be legalized and properly funded.

The elaboration of key policies and strategies can also improve Haiti's governance framework for disaster risk reduction. The PNGRD 2019-2030 does not include mechanisms for oil spill prevention and response, such as a National Oil Spill Contingency Plan. Thus, roles and responsibilities of specific State authorities and operators in managing this specific risk are not offered. Also, the absence of updated policies and laws on forest resource management and conservation does not allow the Haitian government to establish priorities regarding forest protection and restoration and agroforestry development. This gap limits the Government's ability to coordinate the interventions of multiple organizations and actors in the sector, to ensure the efficient use of financial resources, as well as to protect and restore forest resources. Furthermore, while key air quality and pollution challenges are vividly present in the country, Haiti has neither an air quality monitoring system nor national ambient air quality standards[124].

PNGRD 2019-2030 should also be directly linked to Haiti's Water and Sewage Policies and Plans. The Law on the organization of the drinking water and sanitation sector (2009) contributes to DRR and CCA. The Law aims to develop and improve the Water and Sanitation Sector, especially the efficiency, effectiveness and equity in the provision of services. This law creates an autonomous State agency called National Directorate and Sanitation (DINEPA). DINEPA is placed under the supervision of the Ministry of Public Works, Transports and Communications. The Strategic Framework of the EPA sector following the 2010 Earthquake outlines the priorities for action in the areas affected by the disaster. This includes reconstruction, access to drinking water, drinking water networks, water trucking and water prices, rural areas, and access to sanitation. The Framework also contributes to the institutional strengthening of DINEPA. Other key documents that must address DRR and CCA issues are Status of the CAEPA (Drinking Water Supply and Sanitation Committee), Framework Agreement between DINEPA and the NGOs of the EPA sector[125].

In spite of the existence of a building code that includes several natural hazards threatening the population, there is a substantial gap in its enforcement. This constitutes a barrier to the development of hazard resistant infrastructure in the country, which is also exacerbated by the multiplication of unregulated building practices. For instance, Port-au-Prince is particularly vulnerable to flooding, as a large portion of its inhabitants reside on flood plains in informal and precarious settlements[126].

Despite the development and inclusion of strategic national, regional and international frameworks, there are several actions that parliamentarians could undertake to strengthen disaster risk governance in Haiti. The SNGRD must be legalized. As indicated by PNGRD 2019-2030, the absence of this legal framework remains a major handicap for the SNGRD, particularly in terms of resource mobilization.

124 UNEP (2015), Air Quality Policies: Haiti, URL: https://wedocs.unep.org/bitstream/handle/20.500.11822/17211/Haiti.pdf?sequence=1&isAllowed=y

125 Programme Solidarité Eau (2022), Infos Pays : Cadre Sectoriel, URL : https://www.pseau.org/fr/haiti/cadre-sectoriel

126 IFRC (2020), How Law and Regulations Supports Disaster Risk Reduction: Haiti Case – Study Report, URL: https://disasterlaw.ifrc.org/sites/default/files/media/disaster_law/2020-09/HAITI%20DRR%20Report.pdf

Sector	Actions
Legislate	Create DRR legislation – with clearly defined roles and responsibilities across all of government – after conducting risk and vulnerability assessments and developing multi-hazard and multi-sectoral DRR strategies and policies in Haiti. Review and amend existing sectoral legislation to integrate DRR that reflects international commitments and includes the latest knowledge, while ensuring that DRR can be adapted to evolving requirements in Haiti.
Oversee	Ensure that all parliamentary oversight functions and activities consider DRR and risk-informed decision-making, and provide access to sufficient information in standardized and consistent formats.
Budget and Finance	Develop and inform DRR financing strategies and financial instruments to fund long-term DRR initiatives – including funds for oversight of data collection, reporting and regulation enforcement – at all levels of Haiti's government. Integrate and mainstream DRR into public and private investment decisions to deliver risk-informed investment.
Represent	Promote inclusion and all-of-society approach that ensures citizen engagement in DRR, with focus on multi-sector consultation and coordination. Foster development of multi-sector scientific, academic and technical agencies and institutions to provide knowledge, advice, oversight and innovation for DRR priorities and initiatives.
Advocate	Advocate that government shifts from an event-cantered response and recovery approach to DRR with a multi-hazard approach. Advocate that the data, expertise and experience of national and international agencies and institutions and of other countries with similar hazard and geographic profiles - as Cuba or Dominican Republic - be leveraged to inform DRR frameworks and strategies in Haiti. Advocate that DRR is integrated into Haiti's climate change adaptation and development plans and initiatives to increase effectiveness and sustainability.

Table 4: Ten Actions for Parliamentarians in Haiti[127]

127 UNDRR (2022), Parliamentarian Toolkit, URL: https://www.undrr.org/drr-toolkit-parliamentarians#tabs-14499-1

Sector	Instrument	Description
Land-Use	National Climate Change Policy, 2019	Focuses on the decentralization process, i.e., the transfer of powers from the State to territories that have some form of autonomy and are best placed to address the challenges posed by climate change within their region.
	Haiti's National Agricultural Investment Plan	The plan reactivates, modernizes and revitalizes the agricultural sector, which is essential to Haiti's economy and social balance after the 2010 earthquake. The components of the investment plan are divided into the following three areas of intervention: (i) development of rural infrastructure, (ii) production and development of sectors, (iii) agricultural services and institutional support.
	Law on the Adoption of a Coherent Territorial and Development Policy from Regional Entities, 1982	Establishes that territorial organization is a strategy for seeking balance and complementarity among the regions of the Republic. It establishes the regions into which the territory is divided and creates regional organizations (regional directorates, regional coordination and planning commission, communal advisory committees and regional social and economic development committee). It also institutes the National Commission of Territorial Organization composed by the heads of 8 ministries, under the coordination of the Ministry of Planning and External Cooperation, which also serves as technical secretariat.
	Decree on the management of the environment and the regulation of the behaviour of citizens for a sustainable development, 2005 (published 2006)	Establishes the responsibility of the State in the prevention and response to disasters; the identification and mapping of risks; the establishment of standards for the prevention and mitigation of climatic, meteorological and seismic risks.
Economy	Haiti's Strategic Development Plan 2012-2030	Guides public and private actions until 2030, including those of international partners, to tackle the country's main development challenges. The plan was designed to make Haiti an emerging country by 2030, on the basis of a national vision and development guidelines; the plan is a long-term road map for bringing about a lasting and significant improvement in the quality of life and standards of the people.
	Post-Covid Economic Recovery Plan (PREPOC) 2020-2023	Ensures the coherence and prioritization of public actions and policies during the 2020-2023 period, pending the larger-scale work to revise the PSDH 2012-2030. The plan focuses on: Diversification and expansion of the manufacturing sector; Improvement of infrastructure services; Strengthening of internal and border security and the rule of law; Social inclusion; Support for private sector development and the creation of decent jobs; Strengthening of administrative, economic and financial governance.

Sector	Instrument	Description
Education	Antigua and Barbuda Declaration, 2017	Aims to build resilience in the education sector, promote school safety and integrate comprehensive disaster management into education policies and strategies.
	Ten-Year Education and Training Plan 2019-2029	Helps the State to reframe and guide actions on the education and training sectors until 2029.
Health	Health Master Plan 2021-2031	The Plan identifies environmental degradation, vulnerability to disasters, and insalubrity as major barriers to the development of the health system in Haiti. The Plan adopts a systemic approach to risk to strengthen the national health system and make it more resilient to new challenges triggered by the current COVID-19 pandemic. According to the Plan, health risks must be properly managed and considered as serious threats to national security. As illustrated by the COVID-19 pandemic, these risks can cause severe disruptions to social life and economic activities. In 2019, the MSPP established guidelines for responding to crisis situations. Also, the Plan discusses the need to manage risks related to the use of medicines, environmental pollution, food insecurity, and transportation.
	Contingency Plan: Reproductive Health and Gender-Based Violence in Humanitarian Preparedness and Response 2018	Presents coordination, emergency preparedness and response actions in order to support the government's efforts to reduce the impact of natural hazards on communities. It focuses on two key areas: reproductive health/family planning and gender-based violence. In the framework of its implementation, 4 key objectives are targeted: coordination, preparedness, response, programmatic response.
Water	Law on the organization of the drinking water and sanitation sector 2009	Establishes the framework for the organization of the Water and Sanitation Sector (EPA), aiming to its development and to improve the efficiency, effectiveness and equity in the provision of services. The law creates an autonomous state agency called the National Directorate of Drinking Water and Sanitation and Sanitation (DINEPA). DINEPA is placed under the supervision of the Ministry of Public Works, Transport and Communications.
	Strategic Framework of the EPA sector following the 2010 earthquake	Outlines the priorities for action in the areas affected by the disaster, including: reconstruction, access to drinking water, drinking water networks, water trucking and water prices, rural areas, and access to sanitation. It also contributes to the institutional strengthening of DINEPA.

Sector	Instrument	Description
Environment	National Disaster Risk Management Plan 2019-2030	Calls for a resilient approach to disaster risk reduction while promoting sustainable and inclusive development. Also, it contributes to the goals set by the Sendai Framework for Disaster Risk Reduction 2015-2030. The Plan allows Haiti to renew its commitment to building economic, social, health, cultural and environmental resilience. Promotes the economic, social and environmental management of disaster risk reduction for the sustainable development of Haiti.
	National Climate Change Policy 2019	Provides environmental and societal answers to the anthropogenic climate change processes endangering the Haitian development efforts and fight against poverty.
	National Adaptation Action Plan, 2006	Presents a vulnerability analysis for different sectors: forestry, agriculture, livestock, fisheries, infrastructure and habitat, water resources, soils, and coastal zones. This vulnerability analysis led to the prioritization of a set of 8 adaptation options.
	Nationally Determined Contribution (NDC) 2015	Offers relevant information about the country's effort to tackle climate hazards for the 2016-2030 period. Also, it sets the guidelines for the Haitian State over the newt fifteen years to adapt to climate change and reduce its greenhouse gas emissions by 31% compared to a trend scenario by 2030.
	Strategic Development Plan for Haiti 2012-2030	Outlines the principles for a territorial refoundation; the management of the environment; the management of the watersheds; the transformation of urban areas; the implementation of the national transport network; the increase of the electrification networks within the country; the expansion of the communications and the numerical means; the diffusion of fundamental services such as drinking water supply and sanitation.
	Decree on the management of the environment and the regulation of the behaviour of citizens for a sustainable development, 2005 (published 2006)	Sets the general framework for environmental management in Haiti. It establishes 11 basic principles for the management of the environment, including the integration of the environment into development projects, the separation of responsibilities in this sector, and the community's right to information.
	Aligned National Action Program to Combat Desertification, 2015	Aims to improve the living conditions of the affected populations by desertification, as well as the state of ecosystems. It advocates for the implementation of the United Nations Convention to Combat Desertification. Also, it mobilizes resources for the implementation of the Convention through the establishment of effective partnerships between national and international stakeholders.

Sector	Instrument	Description
Gender	National Action Plan for Gender Equality 2014-2034	Outlines 6 Orientations and Measures: Equal rights and fair justice for women and men; Non-sexist education and models; Access to sexual and reproductive health while respecting the dignity of women; Elimination of all forms of violence against women and girls; Economic equality and equitable access to employment between women and men; Equal participation of women and men in decision-making bodies.
Agriculture	Haiti's National Agricultural Development Policy 2020-2025	Haiti's National Agricultural Development Policy 2010-2025 provides a global framework for the recovery and sustainable development of the agricultural sector, one of the pillars of the country's stability and an essential axis of its socio-economic development. The primary objective the agricultural policy is to contribute, in a sustainable manner, to the meeting of the food needs of the Haitian population and to the social and economic development of the country. In compliance with the Policy, one of the lines of intervention of the five-year programs is to ease to disaster risk reduction and prevention strategies. Also, the Policy discusses strategies to reduce food insecurity, environmental vulnerability, and environmental protection.
	National Disaster Risk Management Plan 2019-2030	Identifies the risks of the agricultural sector at both national and local levels. It institutes the systematic and periodic assessment of vulnerability to disasters in Haiti within the agriculture sector.
Tourism	National Tourism Plan (1996, revised 2006)	The National Tourism Plan aims to contribute to the development of regional tourism in Haiti. Regarding the North region, the revised document identifies flood, earthquake, epidemic, and fires as the most important threats for tourism in the region.
Social Services	Haiti's National Policy for Social Protection and Promotion	Offers a framework for implementing cross-cutting strategies for the sustainable reduction of poverty, the reduction of inequalities, and the promotion of the empowerment of Haitians against discrimination and exclusion. These are the three general objectives of this policy, which is intended to define the major orientations of the State by 2040 regarding social protection and promotion.
	National Disaster Risk Management Plan 2019-2030	Provides a national framework to ensure the safety of vulnerable and excluded groups before, during and after emergencies. The Plan recognizes as essential to implement effective mechanisms that specifically target the vulnerabilities of priority sectors and communities at risk. It encourages the development and improvement of disaster risk insurance that is accessible to disaster vulnerable populations.

Sector	Instrument	Description
Energy	National Energy Sector Development Plan 2007-2032.	Provides an overview of the energy sector crisis in Haiti and then presents, in light of the needs of the population and the Haitian government's energy policy, options for development of the sector for 2007-2032. It suggests a strategy to: Improve and modernize the management of public enterprises in key sectors; Strengthen the regulatory role of the State in the energy sector; Develop and implement the necessary reforms to create a favourable environment for local and foreign investment; Prioritize a significant improvement in the supply of electricity throughout the country; Promote alternative energy sources to wood energy and renewable energy.
Chemicals and Waste	Law on the creation, organization and operation of the National Solid Waste Management Service (SNGRS), September 21, 2017.	Outlines the role of the SNGRS, which is to manage medical and toxic waste, and ensure the control and cohesion of the various actors in the sector.
	Decree of October 9, 1989	Separates the responsibilities of collecting (SMCRS) and assembling the waste (municipalities).
	Orders of July 18, 2013 and August 9, 2012	Prohibit the production, import, marketing and use of polyethylene bags and objects made of expanded polystyrene. However, the level of enforcement of these orders is low.
	National Chemical and Waste Management Profile, 2008	Provides an assessment of Haiti's legal, institutional, administrative and technical capacities to manage chemicals and waste.
Volunteers	Strategic Framework for Volunteers in the National Disaster Risk Management System 2017	Aims to better structure volunteer actions in disaster risk management, as well as the enhancement of preparation and implementation of the law on volunteering in Haiti. The Framework was presented in 2017, establishing the guidelines for strengthening volunteering in risk and disaster management for the next five years.
	Haiti's Red Cross Strategic Plan 2016	Aims to put the Haitian Red Cross National Society at the forefront of the humanitarian movement in Haiti, promoting the development of a volunteering culture among the young people to strengthen the resilience of communities.

Table 5: Summary of Policies and Plans within the National Framework for Disaster Risk Management

Priority 3 – Investing in Disaster Risk Reduction for Resilience

Investing in disaster risk reduction involves the assignment of resources (financial, logistical, human resources) by both public and private entities in support of the disaster risk reduction agenda. Investing in disaster risk reduction includes risk transfer mechanisms, critical infrastructure, risk prevention and reduction, land-use mainstreaming, strengthening building codes, health systems resilience, social protection mechanisms for vulnerable groups, integrating disaster risk reduction into environmental management practices and strengthening tourism sector resilience.

At the national level, the law of September 16, 1966, established a contingent budgetary instrument to make liquidity available in emergency situations. This is the Emergency Intervention Fund, which is fed by a 1% levy on the salaries of public service employees and subsequently on those of the private sector. The main contingency instrument available is the "government emergency response" budget, which is operationalized by the MPCE. However, funds destined for preparation activities or longer-term DRM or DRR programmes come almost always from international organisations and donors[128]. A budget line exists within the MICT for disaster prevention and management programs.

Regionally, Haiti has subscribed to the Caribbean Catastrophe Risk Insurance Facility (CCRIF), an insurance scheme whose payments are available quickly following a disaster. For example, after the passage of Hurricane Mathew in October 2016, the Government benefited from a payment of US$23.4 million, activating this insurance payment scheme. Haiti has other resources for disaster preparedness, mitigation and response, including budget reallocations, appeals for international assistance, debt cancellation, and loans. Also, in response to a March 2010 request from the Government of Haiti, the Inter-American Development Bank, the United Nations and the World Bank, along with contributing donors, established a multi-donor fund called the Haiti Reconstruction Fund. Its role is to support the Government's post-earthquake Action plan for the Recovery and Development of Haiti and related initiatives[129].

Investments in disaster risk reduction for resilience, as well as the implementation of PNGRD 2019-2030, rely on two main types of financial resources:

- **Internal resources:** (1) integration in the budget of all ministries and local authorities of a budget line allocated to disaster risk management; (2) proper execution of grants, debt cancellation, and resources mobilized from insurance systems; (3) resources from partnerships with national and international private companies; (4) contributions of local authorities, associations, particularly Haitians living abroad, NGOs and other national actors; (5) innovative funding strategies; (6) incentives for disaster risk management donations.
- **External resources:** bilateral and multilateral cooperation in the framework of financial aid from strategic partners.

The DPC is part of the MICT budget. Part of the funds assigned to the MICT are allocated to the DPC operations and investment expenses[130]. Its financial resources come from:

- Budgetary credits assigned to the MICT.
- Subsides allocated by the central administration or any other public or private body (in the form of assistance funds).
- Legacies and donations.

For the year 2020-2021, the DPC budget was of HTG 50,000,000[131]. From October 2020 to April 2021, HTG 19,337,399 were spent. Concretely, HTG 531,720 were spent on staff and HTG 18,805,679 on services and miscellaneous items. Increasing the DPC financial capacity to deal with DRR could strengthen its financial autonomy and stability.

PNCC 2019-2030 states that a detailed estimate of the short- and medium-term costs for implementing the Plan will be established by both a Strategy and an Action Plan. Closely linked to DRR, Haiti's CPDN 2015 states that, if preventive measures are not undertaken, the cumulative costs linked to the impacts of climate change are estimated at USD 1.8 billion. However, if preventive measures

128 *p. cit.*, IFRC (2020).

129 Haiti Reconstruction Fund: A partnership between the Government of Haiti and the International Community, URL: https://www.haitireconstructionfund.org/background

130 Loi portant création, organisation et fonctionnement du Système National de Gestion des Risques de Désastre (art. 14-20) ; Arrêté portant organisation et fonctionnement de la Direction Générale de la Protection Civile, URL : https://protectioncivile.gouv.ht/a-propos/

131 Ministère de l'Économie et des Finances, Direction Générale du Budget (2021), Dépenses de fonctionnement exécutées par section et article : Exercice 2020-2021 du 1er octobre au 30 avril, URL : https://budget.gouv.ht/storage/app/uploads/public/60a/5c0/485/60a5c0485f97c161588656.pdf

were implemented, these costs are estimated to be reduced to USD 77 million. Additionally, HCPDN 2015 states that the implementation of Haiti's commitments will cost USD 25,000 billion and contemplates supporting the insurance sector to cover losses resulting from disasters. Also, PNGRD 2019-2030 Axis 3, Outcome 3.2, promotes the enhancement of DRR insurance schemes.

PNCC 2019-2030 identifies sources of funding as follows:

- National Investing Plans and Budgets.
- Private Investments.
- Bilateral and Multilateral Support from funding and technical partners.
- International Funds for Climate.
- Marked-based mechanisms.

While funding sources are clearly identified by PNCC 2019-2030 and PNGRD 2019-2030, neither of these broad policies provide information about the specific mechanisms to access these resources. Similarly, these policies do not offer a sector-specific budget estimation.

Several efforts have been put into place to promote investments in critical infrastructure. In May 2020, the World Bank's Board of Executive Directors approved a grant financing of USD 120 million for the Haiti Resilient Connectivity and Urban Transport Accessibility Project[132]. The infrastructure grant is expected to enhance rural connectivity in the South peninsula and improve climate-resilient urban mobility in Cap-Haïtien, while strengthening institutional capacity in the urban transport sector. As a matter of fact, the recent earthquake of August 2021 damaged more than 850 km of primary and secondary roads in the southern region, resulting in damages to the transport sector worth up to USD 160 million and leaving more than 450,000 people isolated. Since 2010, the International Development Association, through the Infrastructure and Institutions Emergency Recovery Project, have provided substantial support enabling the government to enhance its long-term governance reform agenda and to rapidly reconstruct its key infrastructure[133].

In 2009, the Haitian government initiated the process of integrating disaster risk management into PIPs. The MCPE seeks to make it a mandatory requirement in the design of programmes and projects, along with the environmental impact assessment. Likewise, CCA priorities and indicators are expected to be taken into account in the development of PIPs[134]. As regards social protection financing measures for vulnerable groups, the World Bank recently approved a USD 75 million grant to strengthen social protection in Haiti[135]. This grant is an initiative from the International Development Association for the Adaptative Social Protection for Increased Resilience Project (ASPIRE). The project is expected to support Haiti's efforts to establish an adaptive safety net system to respond to shocks, including COVID-19, and to reduce vulnerability to food insecurity and future disasters.

Priority 4 – Enhancing Disaster Preparedness for Effective Response to "Build Back Better" in Recovery, Rehabilitation and Reconstruction

Pre-disaster preparedness must be strengthened for improved response and recovery. Post-disaster recovery, reconstruction and rehabilitation provide a unique opportunity for "building back better" so as to minimize the vulnerabilities that existed pre-disaster impact. Enacting preparedness for effective response to "build back better" involves disaster preparedness plans, business continuity planning, strengthening early warning systems, critical infrastructure resilience, training and exercising, community planning, recovery and reconstruction policies and relief and donations policies.

The PNGRD 2019-2030 complies with the Sendai Framework four priority actions. In doing so, Haiti has committed to strengthening disaster preparedness to respond effectively and "build back better" during the recovery, rehabilitation and reconstruction phases. Thus, rebuilding is conceived by the government as the restoration and sustainable rehabilitation of critical infrastructure, services, housing, facilities and livelihoods essential to the functioning of a community or society affected by a disaster. These processes are thought to be in accordance with the principles of sustainable development and with a

132 World Bank (2022), Press release: May 26, 2022, URL: https://www.worldbank.org/en/news/press-release/2022/05/26/the-world-bank-approves-131-million-to-improve-haiti-s-infrastructure-and-resilience-to-disaster

133 World Bank (2019), Results briefs: May 3, 2019, URL: https://www.worldbank.org/en/results/2019/05/03/rebuilding-haitian-infrastructure-and-institutions

134 UNDP, Green Climate Fund (2019), Document de projet pour la planification de l'adaptation.

135 UNDRR, PreventionWeb (2021), Updates: 9 March 2021, URL: https://www.preventionweb.net/news/world-bank-approves-75-million-grant-strengthen-social-protection-haiti

focus on improving resilience and "building back better" to prevent and reduce future disaster risks. Therefore, the country has focalized new disaster risk management strategies on organizing post-disaster recovery, rehabilitation and reconstruction phases to increase its resilience.

As stated by the Action Plan for National Recovery and Development of Haiti (2010), rebuilding the country after the 2010 disaster does not mean returning to the situation that prevailed before the earthquake; it means addressing all the dimensions of vulnerability. This action plan is inspired by a vision that went beyond a response to the losses and damage caused by the earthquake. However, it also outlined actions to be taken over the next eighteen months after the disaster and estimated costs for this period. It aimed to launch a number of key initiatives to act now while creating the conditions to tackle the structural causes of Haiti's under-development. Thus, its priorities were responding to the emergency, relaunching economic, governmental, and social activities, reducing Haiti's vulnerability to natural hazards, and putting Haiti back on the road to development. However, one of the main issues hindering its implementation was the lack of funding, which has been partially covered by the implementation of the Haiti Reconstruction Fund in 2010.

The global goal pursued by the PNGRD 2019-2030 is to significantly and sustainably increase the resilience of Haiti, its national institutions, and its local communities to disasters. The plan seeks to improve and secure the living conditions of the population. To do so, the country must enhance the technical, material and financial capacities of national, departmental, communal and local institutions in charge of disaster preparedness and response. That being the case, Haiti would increase its management capacities to effectively govern disaster-related emergencies and promote resilient recovery and reconstruction. The PNGRD 2019-2030 Strategic Axis 4 commits to ensure effective post-disaster preparedness, response and early recovery. To achieve this, one of the activities promoted by the Plan is to develop a national early recovery and reconstruction framework which would be implemented by the Ministry of Planning and External Cooperation. Also, the detailed normative and legal framework analysed in section 3 aims to enhance disaster preparedness for effective response to “build back better” in recovery, rehabilitation and reconstruction.

As regards housing, for example, the habitat is generally unsuited to the disaster risks that are likely to affect the country. Due to uncontrolled rural migration and demographic pressure, large cities face the phenomenon of shanty towns characterized by precarious houses and high population density. The Emergency, Rehabilitation and Development (URD) group, in its 2013-2014 research report on post-earthquake reconstruction in rural and peri-urban Haiti entitled "Habitat reconstruction in Haiti: technical issues, habitability and heritage," mapped the difficulties affecting the housing sector in Haiti.

Strengthening preparedness for effective response to “build back better" also entails reinforcing communications channels to disseminate emergency messages to the population. Haiti has at least six main communication channels.

- **Radio:** EWS messages are broadcast in the national radio, as well as in commercial and community-based radios.
- **SMS:** the AGERCA and the National Telecommunications Council (CONATEL) send SMS to cell phones and through social media.
- **Announcements in public spaces:** community leaders are encouraged to disseminate EWS messages in schools, churches, and markets.
- **Megaphones:** volunteers drive around the community with megaphones or sirens and communicate information about the emergency.
- **Door-to-door visits:** in high-risk areas, volunteers visit people in their homes and instruct them to evacuate quickly and prior to the hazard.
- **Flag system:** in remotes areas where standard forms of communication are not possible, a flag system has been designed to communicate storm warning. Red, yellow and green flags indicate the intensity of a storm. Flags are placed in markets, mountains, and major intersections.

Obstacles	Barriers
EWS messages do not arrive.	1 Limited resources and funding at all levels. 2 Lack of standardization on how EWS information is transmitted. 3 Inexperienced messengers.
People do not understand EWS messages.	1. Unclear messaging. 2. Distrust in the messenger. 3. Lack of prior hazard experience or simulations. 4. Little, wrong, or misappropriate information about best behaviours in a disaster scenario.
People struggle to internalize risk.	1. Underestimation of risk level. 2. Temporal and spatial myopia.
People lack access to resources and shelters to evacuate.	1. Lack of resources needed to evacuate. 2. Lack of access to shelters.
People prefer not to evacuate.	1. Unsatisfactory experiences in emergency evacuation shelters. 2. Shelters do not abide by building codes and standards.

Table 6: Behavioural and Physical Obstacles and Barriers to EWS in Haiti [136]

Haiti's CPDN 2015 promotes the strengthening of Meteorological Surveillance Systems and Early Warning Measures. Similarly, PNGRD 2019-2030 Strategic Axis 1, Outcome 1.3, seeks to enhance the national early warning system thanks to the implementation of community early warning systems. According to Haiti's CWP, the UHM and the MICT/DPC are responsible for assessing, adapting, and updating existing early warning systems. Also, they establish which are the levels of responsibility for generating and disseminating early warnings. The MICT/DPC is accountable for increasing the communication channels at all levels, as well as for regulating the diffusion of alerts with respect to time and geographical coverage. However, several obstacles and barriers must be addressed to properly develop and implement MHEWS in Haiti.

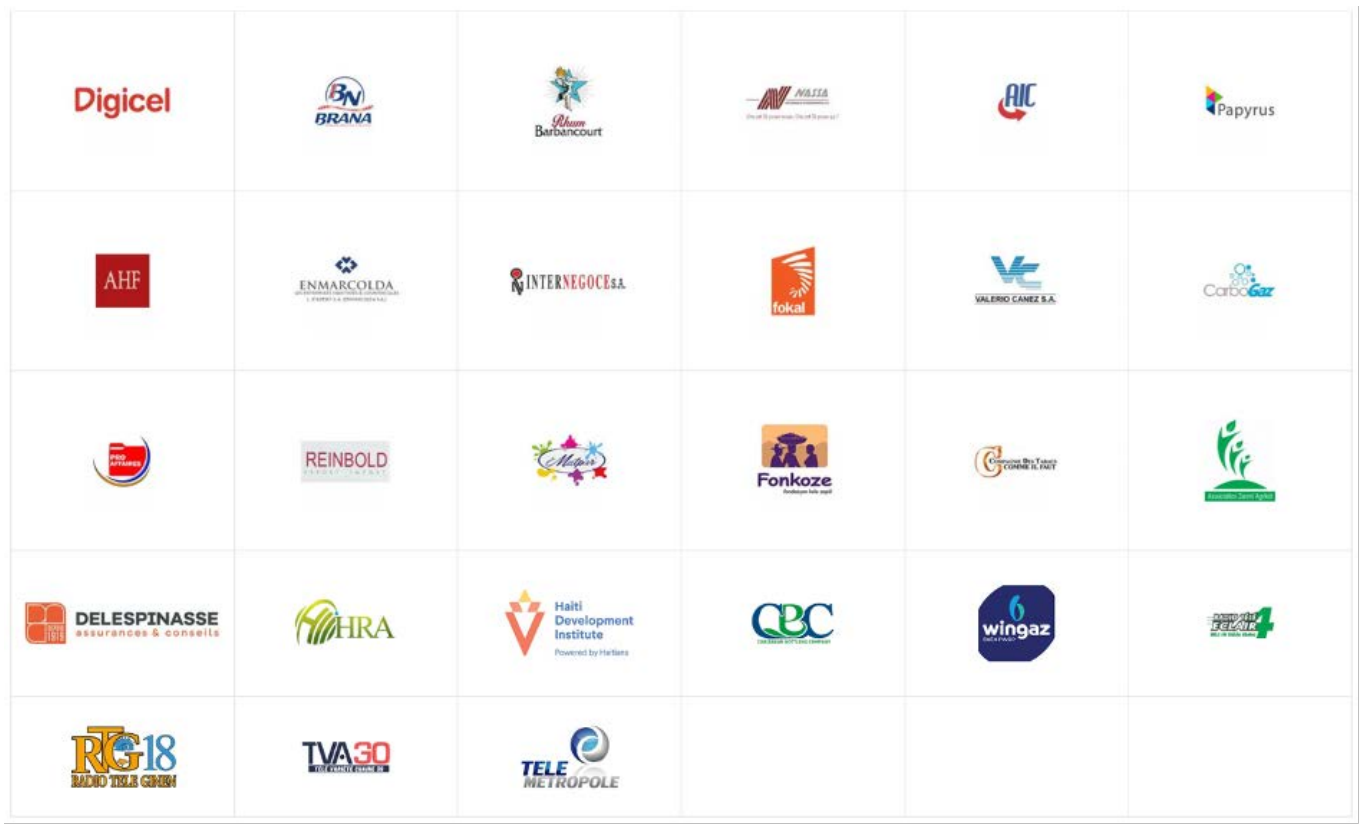


Figure 21: Members of the Alliance for Risk Management and Business Continuity[137]

136 *Op. cit*., World Bank (2020).

137 AGERCA (2022), Membres, URL: https://agerca.ht/devenir-membre/

The private sector plays a crucial role in disaster preparedness, response and recovery. A joint initiative by UNDP and OCHA, the Connecting Business Initiative (CBi) supports both crisis response and development efforts. Thus, in Haiti, CBi engages the private sector in disaster preparedness, response and recovery. As a participant in this initiative, the Alliance for Risk Management and Business Continuity (AGERCA) supports companies to set up business continuity and evacuation plans[138]. As stated by AGERCA Executive Director, Fania Jospeh, *"Local businesses, as part and parcel of the Haitian community, are heavily impacted by disasters. Their inability to operate, in return, prevents the community from recovering quickly"*. To properly respond to this challenge, explains Fania Jospeh, *"We coordinate our private sector members to strengthen disaster risk reduction and coordinate response actions by the private sector and civil society in the event of a crisis or natural hazard"*. In addition to preparedness activities, AGERCA is active during disasters. As the official representative of the private sector with the Haitian National System for Risk and Disaster Management, AGERCA coordinate private sector contributions when a crisis occurs, particularly through financial or kin-kind contribution and service provision. For instance, after the 2021 earthquake, AGERCA helped open 65 cell phone lines with unlimited calls and data for the members of the National and local Emergency Centres, and provided phone credits to local leaders. However, while activities led by AGERCA are key for enhancing disaster preparedness, business continuity planning arrangements remain sparse within the country.

There are major opportunities to strengthen disaster preparedness for effective response to "Build Back Better" in recovering from the COVID-19 pandemic. Acknowledging this situation, the Ministry of Economy and Finance and the Ministry of Planning and External Cooperation launched the Post-Covid Economic Recovery Plan (PREPOC) 2020-2023[139]. The Plan ensures the coherence and prioritization of public actions and policies during the 2020-2023 period, pending the larger-scale work to revise the PSDH 2012-2030. The recovery plan is expected to diversify and expand the manufacturing sector, improve the infrastructure services, strengthen the internal and border security and the rule of law, enhance social inclusion, support private sector development and the creation of decent jobs, and strengthen administrative, economic and financial governance. To ensure strong sectoral involvement and guarantee proper implementation, the PREPOC 2020-2023 involves the sectoral ministries.

In February 2022, the Haitian government presented the Southern Peninsula Integrated Recovery Plan as a recovery measure after the 2021 earthquake[140]. The Plan draws on the lessons learned from the responses to the devastating 2010 earthquake and Hurricane Matthew in 2016. Reasserting the pre-eminence of local and national actors the Plan's four priorities – institutional strengthening and inclusive governance, economic recovery, resilient infrastructure and livelihoods improvement, and inclusion and social protection – offer a coherent and integrated approach to reconstruction. Also, the Plan focuses on the structural causes and looks at this crisis as an opportunity to invest in the local economy and communities, as well as in national capacities.

138 UNDP, OCHA (2022), Business Continuity Initiative, Local Businesses Support Disaster Resilience in Haiti, URL: https://www.connectingbusiness.org/news-events/blog/local-businesses-support-disaster-resilience-haiti

139 République d'Haïti, Ministère de l'Économie et des Finances (2020), Plan de relance économique post-Covid, URL : https://mef.gouv.ht/docs/latest/prepoc_2020_2023.pdf

140 République d'Haïti, Ministère de la Planification et de la Coopération Externe (2022), Plan de Relèvement Intégré de la Péninsule Sud, URL: https://jeunessehaitienne.org/wp-content/uploads/2022/04/PLAN-DE-RELEVEMENT-INTEGRE-Haiti-Final.pdf; See also : UN Sustainable Development Group (2022), Six Months On: Supporting Recovery Efforts in Haiti, URL: https://unsdg.un.org/latest/blog/six-months-supporting-recovery-efforts-haiti

GEOLOGICAL HAZARDS	HYDRO METEOROLOGICAL HAZARDS	ENVIRONMENTAL HAZARDS	BIOLOGICAL HAZARDS	CHEMICAL HAZARDS	TECHNOLOGICAL HAZARDS
1. Earthquake	1. Tropical Cyclone/ Tornado	1. Deforestation	1. Human Epidemics & Pandemics	1. Oil Pollution	1. Boat/Road / Air crash / Accidents
2. Tsunami	2. Flood	2. Land & Soil Degradation	2. Animal Epidemics & Pandemics	2. Persistent Organic Pollutants	2. Infrastructural Failures
3. Volcanic Eruption	3. Storm Surge	3. Biodiversity	3. Pest Infestation		3. Fires
4. Landslide	4. Drought	4. Environmental Pollution	4. Invasive Species		4. Explosions
	5. Cloudburst	5. Wildfires			5. Spills & Leaks
	6. Landslide				
	7. Heat & Cold Wave				

Colour	Status
	• Detection, monitoring, analysis and forecasting of the hazards and possible consequences.
	• Detection, monitoring, analysis and forecasting of the hazards and possible consequences. Also, dissemination and communication by an official source of authoritative, timely, accurate and actionable warnings. Additionally, associated information on likelihood and impact.
	• Dissemination and communication by an official source of authoritative, timely, accurate and actionable warnings. Also, associated information on likelihood and impact.

Table 7: Status of MHEWS for Haiti

6. STAKEHOLDER ANALYSIS

The Sendai Framework for Disaster Risk Reduction 2015-2030 advocates for shared ownership and partnerships. Similarly, SDG 17 echoes the need for partnership and stakeholder involvement. Partnerships enable access to resources, resource pooling, collaboration and joint action in support of disaster risk reduction and consequently, sustainable development. There are especially paramount to SIDS due to their resource limitations, exposure and high vulnerabilities. National partnerships and stakeholders are explored in Section 3.5 of this report.

Haiti's partnerships with regional and international agencies have allowed the country to leverage resources for disaster risk reduction actions. In 2021, the World Bank's Board of Executive Directors approved a grant financing of US$120 million for the Haiti Resilient Connectivity and Urban Transport Accessibility Project. The Board also approved additional financing of US$11 million for the Haiti Strengthening Disaster Risk Management and Climate Resilience Project. The Disaster Management Risk project is expected to increase the emergency response and evacuation capacity of selected municipalities in high climate risk-prone areas[141]. Also, in response to a March 2010 request from the Government of Haiti, the Inter-American Development Bank, the United Nations and the World Bank, along with contributing donors, established a multi-donor fund called the Haiti Reconstruction Fund. Its role is to support the Government's post-earthquake Action plan for the Recovery and Development of Haiti and related initiatives. The International Development Association of the World Bank Group serves as Trustee for the Fund[142].

Another key partner for Haiti is USAID, whose Bureau for Humanitarian Assistance (BHA) is in charge of several assistance projects for Haiti. In response to heightened humanitarian needs in Haiti, USAID/BHA provided more than $92 million in assistance in fiscal year 2021, including approximately $86 million in emergency funding and nearly $6 million for early recovery, risk reduction, and resilience (ER4) programming. Following the August 2021 earthquake, USAID/BHA provided approximately $55.5 million in emergency funding to support affected populations in Grand'Anse, Nippes, and Sud departments. With USAID/BHA support, 13 humanitarian partners provided critical food, health, livelihood, multipurpose cash assistance, nutrition, protection, shelter, and Water, Sanitation and Hygiene support to earthquake-affected people in southwestern Haiti. USAID/BHA also funds programs to reduce disaster risk in Haiti and increase national self-sufficiency in emergency preparedness and management. USAID/BHA provided nearly $6 million for ER4 activities in fiscal year 2021 to increase food security, strengthen livelihoods, and enhance resilience to sudden-onset shocks, such as earthquakes[143].

USAID/BHA Funding in Haiti[1]			
	Emergency[2]	ER4	TOTAL
FY 2020	$46,127,225	$5,885.726	$52,012,951
FY 2021	$86,147,108	$5,999.433	$92,146,541

(1) Year of funding indicates date of commitment or obligation, not appropriation, of funds. Funding figures reflect publicly announced funding as of January 4, 2022. Totals include estimated value of food assistance and transportation costs at time of procurement; subject to change.
(2) Includes funding for programmes that integrate ER4 activities with emergency response.

Figure 22. USAID/BHA Funding in Haiti[144]

The European Union (EU) supports projects addressing risk reduction and disaster risk reduction in Haiti, which are deemed to be priority areas. This consists of promoting the management of public financial resources based on rationality, transparency, accountability, control and sanction. The ways to achieve these objectives are: (1) the improvement of public revenue, (2) the programming and rationalization of expenditure and (3) the strengthening of internal and external institutional controls. Also, the EU funds projects dealing with the priority area called Resilient and Productive Territories in Haiti. The main goal is to enhance the urban resilience to physical, climate, ecological, and economic risks. The principle of this objective is to improve living conditions and the resilience of housing and services in certain medium-sized cities. For instance, in addition to the energy sector (e. g.:

141 World Bank (2022), The World Bank approves $131million to improve Haiti's infrastructure and resilience to disaster, URL: https://www.worldbank.org/en/news/press-release/2022/05/26/the-world-bank-approves-131-million-to-improve-haiti-s-infrastructure-and-resilience-to-disaster

142 *Op. cit*., Haiti Reconstruction Fund: A partnership between the Government of Haiti and the International Community, URL: https://www.haitireconstructionfund.org/background

143 USAID, Bureau for Humanitarian Assistance (2022), Haiti Assistance Overview, URL: https://www.usaid.gov/sites/default/files/documents/USAID-BHA_Haiti_Assistance_Overview-January_2022.pdf

144 *Ibidem.*

the re-establishment of the Péligre power plant), German cooperation has focused on strengthening the sustainability of communities in a situation of serious food insecurity and on disaster risk management[145].

Since the outbreak of the 2010 earthquake, Haiti has been working on the reconstruction of the country with the assistance of the international community. From the perspective of human security, the Japan International Cooperation Agency (JICA) supports the establishment of basic social services in Haiti, with focus on the improvement of health and sanitation conditions and the promotion of education. Considering the importance of food security, JICA also provides assistance in the agricultural sector[146]. Four types of activities structure JICA's disaster risk management assistance in Haiti: Technical Cooperation Projects (TCP), ODA Loan (ODA), Grant Aid (GA), and Development Studies (DS). During the 2010's, some of JICA's major projects in the country were the following:

- GA Project for Reconstruction of the Hospital of Jacmel in the Southeast Department.
- GA Project for Recovery and Improvement of Water Supply System for Reconstruction of Leogane City.
- TCP Project on Capacity Development of Agricultural and Forestry Technicians in Mountainous Areas in the Republic of Haiti (PROAMOH 2) 2016/04 - 2020/04.
- GA Project for Reconstruction of the Bridges of the Croix-des-Missions and the Route Neuve[147].

Other key international agencies contribute to enhance Haiti's disaster risk management capacities. Right after the 2021 earthquake and tropical storm Grace, the UN Food and Agriculture Organization (FAO) issued a report called "Emergency response to households affected by the earthquake and Tropical Storm Grace". Along with indicating the widespread damages to the agricultural sector, FAO called for a US$30 million funding to provide a response to affected populations, by protecting and restoring the livelihoods of 32,000 rural households affected by the disaster[148]. Switzerland, through its Agency for Development and Cooperation, leads activities in Haiti focused on local governance, agriculture and food security, as well as employment and economic development. Among these activities, the Swiss Agency for Development and Cooperation carry out a project called *"Réduction de risques de catastrophes naturelles dans le Sud et le Sud-est d'Haïti"* (2018-2022). The project invests 2,285,482 CHF (US$2,381,143) to reduce natural hazards through the transfer of skills to local actors, the raising of awareness among the population and the creation of favourable conditions for the planning and implementation of risk reduction measures that protect vulnerable people in three communes of the South-East department[149].

PAHO-WHO has been working for decades in Haiti together with other national, regional and international institutions. PAHO-WHO's work in Haiti has received a solid technical support from the regional and international levels, as well as the support of PAHO-WHO offices in neighboring countries as Dominican Republic. Accordingly, PAHO-WHO officers in Haiti have mobilized horizontal cooperation and received the support of national authorities, donors, and multilateral cooperation agencies. Coordination with other UN and inter-American agencies, the Cuban Medical Brigade, NGOs, Haitian civil society, and other bilateral cooperation agencies, has also been key to PAHO-WHO interventions in the country. PAHO/WHO's activities in Haiti focus on technical cooperation in support of the Ministry of Public Health and Population (MSPP). This cooperation aims to develop a national health system that provides universal health coverage and access in the country[150].

In 2016, the Haitian Red Cross implemented a Plan which aims to put the Haitian Red Cross National Society at the forefront of the humanitarian movement in Haiti. The Plan promotes the development of a volunteering culture among the young people to strengthen the resilience of communities. The Strategic Plan is based on three pillars: (1) being ready to act better, (2) mitigating risks, (3) acting for greater social inclusion. Also, the Strategic Plan aims to achieve two essential actions:

- An organizational restructuring focused on human resource development, accountability,

145 République d'Haïti (2021), Programme Indicatif Pluriannuel 2021-2027, URL : https://ec.europa.eu/international-partnerships/system/files/mip-2021-c2021-9081-haiti-annex_fr.pdf

146 JICA (2021), Haiti, URL: https://www.jica.go.jp/haiti/english/index.html

147 JICA, Activities in Haiti: Major Projects, URL: https://www.jica.go.jp/haiti/english/activities/index.html

148 FAO (2021), Haiti: Urgent call for funding September 2021-June 2022. Emergency response to households affected by the earthquake and Tropical Storm Grace, URL: https://www.fao.org/3/cb6680en/cb6680en.pdf

149 Confédération suisse, International cooperation (2022), Haïti : Réduction de risques de catastrophes naturelles dans le Sud et le Sud-est d'Haïti, URL : https://www.eda.admin.ch/deza/en/home/countries/haiti.html/content/dezaprojects/SDC/en/2016/7F09540/phase2?oldPagePath=/content/deza/en/home/laender/haiti.html

150 *Op. cit.*, OPS (2017).

transparency and resource mobilization.

- Optimize the use of strategic tools to raise awareness and engage as many people as possible. A key role is given to building strategic alliances for the cause of the vulnerable, building greater social cohesion and promoting a culture of peace, justice, non-violence and social inclusion[151].

Involvement of Haiti's private sector in disaster risk management has become patent through the ARISE Network, a UNDRR's Private Sector Alliance for Disaster Resilient Societies expected to enhance public-private partnerships in the country. Thus, in 2019 Haiti officially launched the Arise Network to promote public-private partnerships with the Haitian Chamber of Commerce, Alliance for Risk Management and Business Continuity (AGERCA), Civil Protection and UNDRR. These partnerships are supported by Disaster Preparedness ECHO Latin America and the Caribbean (DIPECHO-LAC)[152]. As stated by the PNGRD 2019-2030, targets and activities promoted by the Plan need the implementation of a Whole-of-Society approach. As a matter of fact, these activities are expected to be operationalized through sectoral plans for the public and private sectors, with clearly identified and shared responsibilities and accountability mechanisms. Despite the existence of a Strategic Framework for Volunteers in the National Disaster Risk Management System (2017), there is need to enhance mechanisms promoting the inclusion of communities and civil society within disaster risk management.

151 Croix-Rouge Haïtienne (2016)S, Plan Stratégique de la SNCRH, URL: https://www.croixrouge.ht/mdocs-posts/plan-strategique-de-la-sncrh_-juillet-2016/

152 UNDRR (2019), The Caribbean strengthens its Business Resilience and DRR initiatives, URL: https://www.eird.org/americas/news/the-caribbean-strengthens-its-business-resilience-and-drr-initiatives.html#.Yph3D_NBy3I

7. IMPACTS AND INSTITUTIONAL RESPONSE TO COVID-19

The COVID-19 pandemic has put risk front and centre. No one has been immune and the power (or lack thereof) of the State to prevent, prepare and respond has been severely tested. At the time of initiation of this study, the world continues in its path to recovery from the COVID-19 pandemic, which has reinforced the call for the application of a systemic risk concept, presenting as a biological hazard with cascading impacts across varying aspects.

The new coronavirus (2019-nCoV) outbreak was first reported in Wuhan, China, on December 31, 2019. On January 30, 2020, the virus was declared a public health emergency of international concern. On February 11, 2020, the disease caused by this virus was named COVID-19, short for "Coronavirus disease 2019." One month later, on March 11, 2020, as ongoing community transmission occurred simultaneously in several countries, the World Health Organization (WHO) declared a COVID-19 pandemic.

As early as February 2020, Haiti's Ministry of Public Health and Population (MSPP) embarked on a pandemic preparedness and response strategy. Following the confirmation of the first imported case on March 19, the President announced a nationwide state of health emergency and introduced a series of measures to prevent the spread of the virus, including the closure of airports and ports to passenger traffic and the border with the Dominican Republic, the closure of all schools and factories, a ban on meetings or gatherings of more than 10 people, a nationwide curfew between 8:00 p.m. and 5:00 a.m., and a call for compliance with physical distancing guidelines. In his address to the nation, the President stated that he was following the initiatives and guidelines put in place by PAHO/WHO in preparing for and responding to this pandemic[153].

As at May 23, 2022, Haiti has recorded a total of 30,818 cases and a total of 835 deaths. Likewise, 201,322 tests have been implemented and 5,537 people have been hospitalized because of the virus[154]. As regards COVID-19 vaccination coverage, as in May 2022 1,6% of the total eligible population was partly or fully vaccinated. The share of the people only partly vaccinated was 0.48% and the shared of the people with a complete initial protocol was 1.1%[155]. According to the Ministry of Public Health and Population, until May 23, 2022, 184,628 people have received a first jab, 95,760 a second jab, and 129,323 people have a complete vaccination scheme.

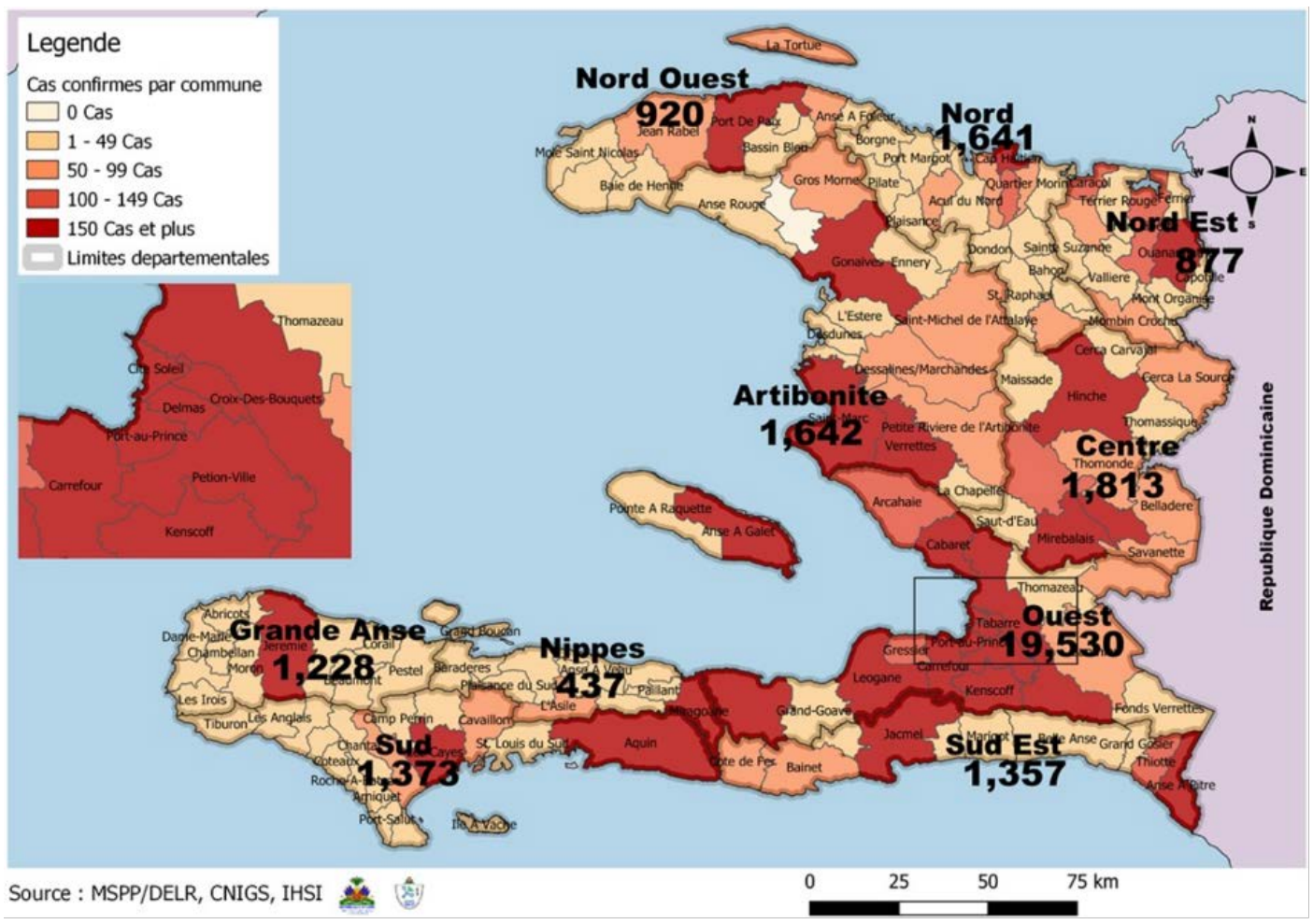


Figure 23: Confirmed Cases of COVID 19 by Department and Municipality from March 19, 2020, to May 23, 2022[156]

153 OPS/OMS (2020), Réponse de l'OPS/OMS à la Covid-19 en Haïti – Jan-Déc 2020, URL : https://www.paho.org/fr/documents/reponse-lopsoms-covid-19-haiti-jan-dec-2020

154 République d'Haïti, Ministère de la Santé Publique et de la Population, DELR (2022), Situation épidémiologique de la Covid-19 au 23 mai 2022, Haïti, URL : https://mspp.gouv.ht/site/downloads/Sitrep%20COVID-19_23-05-2022.pdf

155 Our World in Data (2022), Coronavirus (COVID-19) Vaccinations, URL: https://ourworldindata.org/covid-vaccinations

156 *Op. cit.,* République d'Haïti, Ministère de la Santé Publique et de la Population, DELR (2022).

The socio-economic shockwave caused by the pandemic has hit the Haitian population hard, exposing glaring inequalities, inadequate social protection and the vulnerabilities of its health system. As for the Haitian health system, COVID-19 has affected many essential services such as new-born and child welfare, prenatal care, nutrition, and immunization, with consequences that will surely have a long-term impact.

The COVID-19 pandemic has exacerbated a number of challenges in the country, including:

1. Structural

- Lack of basic capacity related to international health regulations throughout the country, making sustainable management of health emergencies difficult.
- Very low testing rates in the population, which limits the identification and monitoring of transmission chains in a timely manner.
- Difficult contact quarantine and tracing.
- Lack of access to inputs such as personal protective equipment, oxygen and others due to border closures and shortages of these essential supplies.
- Difficulties in obtaining a reliable source of energy for health institutions.
- Problems in maintaining essential services due to a weak health system.
- Lack of a health technology management system.
- Lack of universal health coverage and access.

2. Socio-political

- Volatile political situation.
- Deterioration of people's living conditions caused by the total shutdown or temporary closure of some businesses.
- Increase in the rate of poverty and extreme poverty.
- Increase in the number of food insecure people.

3. Financial

- Increased unemployment rate.
- Financial barriers to accessing health services.

4. Technical

- Delayed signing of Part B (Liabilities and Indemnification) of the vaccine application by the government due to unresolved issues between the government and the Global Alliance for Vaccines and Immunization (GAVI) on the indemnification mechanism to be signed with COVAX and the compensation mechanism. This situation delayed the finalization of the formal COVID-19 vaccine application process for Haiti.

5. Cultural

- Strong belief in supernatural diseases and in the healing power of traditional medicine, which hinders the use of medical care and puts the population at risk of spreading COVID-19.
- Stigmatization, rumours and circulation of false information.

The COVID-19 pandemic has caused an unprecedented global shock to education systems: 98.6% of the world student population was out of school at various points; several examinations were cancelled or delayed; challenges with distance learning mechanisms emerged; and student debts and loan payments were impacted[157]. In Haiti, over the past two years, more than 3 million children have been unable to attend school for several months due to political instability and closures related to the Covid-19 pandemic[158]. Several challenges within the Haitian education system were aggravated by the COVID-19 pandemic:

- 320,000 children aged 6-14 not in school.
- 160,000 adolescents aged 15-18 not attending school.
- 117,000 children with disabilities not in school.
- 108,000 children in domestic service not in school.
- Nearly one million children at risk of dropping out due to their atypical schooling.

To overcome the impacts of the COVID-19 pandemic to the Haitian education system, the following strategic actions are key:

- Strengthen the MENFP and significantly increase its budget.
- Modernize the education system.
- Promote science as a key issue for the country.
- Create a network of public-private partnerships, particularly in the business world, to boost the modernization of education in Haiti.
- Review teaching/learning strategies to adapt them to reality.
- Standardize the school curriculum to avoid having a multi-speed school[159].

157 UNDRR, CDEMA (2020), COVID-19, Systemic Risk and Education Sector Resilience in the Caribbean Region, URL: https://www.undrr.org/publication/undrr-americas-caribbean/cdema-covid-19-brief-covid-19-systemic-risk-and-education

158 UNICEF (2021), Séisme en Haïti : Quel avenir pour l'éducation des enfants ?, URL : https://www.unicef.fr/article/seisme-en-haiti-quel-avenir-pour-l-education-des-enfants

159 UNESCO (2021), Penser l'avenir de l'éducation en contexte de pandémie, URL : https://unesdoc.unesco.org/ark:/48223/pf0000378392

As a participant in the Caribbean Safe School Initiative (CSSI), Haiti should follow the principles presented by this initiative as they cover a range of issues relevant to the actual COVID-19 pandemic. As a matter of fact, CSSI discusses safety in learning facilities, education emergency planning (including education continuity and protocols), and health considerations such as the important role of water, sanitation and hygiene. This last point has been partly addressed by a project carried out by UNICEF and Haiti's National Directorate of Drinking Water and Sanitation in 2021 in the Great Sud region. The program, funded by the World Bank through the World Food Program (WFP) and the Ministry of the Interior and Territorial Collectivities (MICT), has shown the importance of strengthening the drinking water, hygiene and sanitation system in schools within the most vulnerable and remote localities[160].

There are major opportunities to "build back better" in response to the COVID-19 pandemic, especially by working together toward equitable access to a strengthened and resilient Haitian health system. This could be achieved through the following strategic pillars: better governance, strengthened preparedness for future shocks, sustainable health funding, improved social protection, a stronger health workforce, improved and resilient infrastructure, equitable access to essential medicines and health technologies, strong and networked primary health care, and community involvement.

In keeping with these challenges and opportunities, the Ministry of Economy and Finance and the Ministry of Planning and External Cooperation initiated the development of the Post-Covid Economic Recovery Plan (PREPOC) 2020-2023. The main goal is to ensure the coherence and prioritization of public actions and policies during the 2020-2023 period, pending the larger-scale work to revise the PSDH 2012-2030. PRECOC 2020-2023 is the result of participatory and inclusive work that involved the public sector, representatives of the civil society and Haitian economy, and private sector organizations. Concretely, this recovery plan is based on the following pillars:

- Diversification and expansion of the manufacturing sector.
- Improvement of infrastructure services.
- Strengthening of internal and border security and the rule of law.
- Social inclusion.
- Support for private sector development and the creation of decent jobs.
- Strengthening of administrative, economic and financial governance.

In order to ensure strong sectoral involvement and guarantee proper implementation, the PREPOC 2020-2023 involves the sectoral ministries.

International partners are key for strengthening Haiti's recovery from the consequences of COVID-19. USAID/BHA provided approximately $19 million in fiscal years 2020 and 2021 to conduct COVID-19 community awareness activities, bolster local health care capacity, and provide health facilities with infection prevention and control training, personal protective equipment, and waste management assistance. In addition, USAID/BHA partners have coordinated with local leaders and health care workers across Haiti to conduct handwashing campaigns, disseminate COVID-19 risk and prevention messaging, distribute hygiene kits, reduce COVID-19-related stigma among affected populations, and strengthen community-level surveillance[161].

Finally, one of the main challenges for the coming years will be to stabilize the macroeconomic situation and overcome the decline in economic growth recorded for the 2018-2022 period, while enhancing responses to the social burden exacerbated by the COVID-19 pandemic.

160 Fanfan Panel J., UNICEF (2021), Crise Covid-19 : Renforcer l'hygiène dans les écoles du Grand Sud, URL : https://www.unicef.org/haiti/recits/crise-covid-19-renforcer-lhygi%C3%A8ne-dans-les-%C3%A9coles-du-grand-sud

161 https://www.usaid.gov/sites/default/files/documents/USAID-BHA_Haiti_Assistance_Overview-January_2022.pdf

8. SUMMARY OF GAPS

Haiti's disaster risk management institutional and legal frameworks have considerable growth and strengthen over the last two decades, especially since the PNGRD was launched in 2001. However, there are several critical areas that need to be strengthened, along with heightening sustainable development strategies, to enhance the country's resilience to disasters and adaptation capacities to climate change. These areas are summarized below:

Governance and Policy Coherence	• Insufficient budget allocations to the SNGRD and SPGRD • Partial strategic, institutional, operational, and financial coherence between sustainable development, DRR and CCA policies and plans • Lack of key DRR policies, strategies, plans and standards • Weak institutional integration of volunteers into the SNGRD • Poorly constructed buildings and sparsely enforced building code • Outdated and insufficient DRM legislation
Disaster Mitigation, Preparedness and Response Capacities	• Inadequate implementation of MHEWS (multiple behavioural and physical barriers) • Limited access to systematized preparedness training and exercising • Low pandemic preparedness, mitigation, response and recovery capacities • Insufficient investments in critical infrastructure for efficient DRR • Sparse development, systematization and implementation of MER capacities for DRM
Knowledge Management	• Lack of trained human capital in all areas of DRM for developping a culture of prevention • Insufficient availability of validated, harmonized and systematized DRR educational ressources • Fragmented risk data, unsystematized risk identification and limited risk assessments • Sparse public awareness strategies, events and actions • Limited data and progress under the Sendai Framework Monitor
Recovery capacity	• National recovery and reconstruction strategies underfunded and highly dependent on regional and international assistance. • Sparse technical capacities within national institutions in charge of DRR for effective response to building back better. • Development and implementation of MHEWS hindered by behavioural and physical obstacles • Insufficient business continuity initiatives and planning arrangements
Community Planning	• Inadequate inclusion of traditional knowledge in formal DRR planning agendas • Lack of funding strategies for departmental, municipal and local DRR planning • Insufficient inclusion of communities in MHEWS planning and implementation • Sparse involvement of communities in business continuity initiatives and planning

Figure 24: Summary of Areas for Improvement for Haiti

9. PRIORITY AREAS FOR ACTION

The problems, issues and needs as revealed by this study have informed the recommendation of potential priority areas for the implementation of the existing Country Work Programme as well other national and sectoral policies and strategies, in support of a resilient nation and the sustainable development agenda. Table 10 establishes these priority areas into outcomes and outputs for the policy environment. Considerations for gender, climate change adaptation, information and communication technologies, and green growth should be treated as cross-cutting themes, in keeping with the CDM Strategy and Programming Framework 2014-2024 and the Sendai Framework for Action 2015-2030.

OUTCOMES	OUTPUTS
1. Strengthened governance arrangements and policy coherence for disaster risk reduction.	1.1 Increased investments in the SNGRD and the SPGRD for the effective operationalization and implementation of DRM activities.
	1.2 Strengthened DRR, sustainable development and CCA policy coherence for implementing comprehensive DRM strategies.
	1.3 Key DRR policies, strategies and standards promoted, revised and enhanced.
	1.4 Integration of volunteers into the SNGRD institutionalized, legalized and systematically funded.
	1.5 National Building Code revised and properly enforced.
	1.6 DRR legislation revised and operationalized for effective and comprehensive disaster risk management and funding.
2. Enhanced capacities for disaster preparedness, mitigation, and response.	2.1 MHEWS enhanced to ensure that limited funding is used efficiently and behavioural and physical barriers addressed to reduce disaster risk.
	2.2 Training and exercise strategies implemented, maintained and standardized.
	2.3 Mitigation, preparedness, response and recovery strategies for biological hazards revised, enhanced and properly funded.
	2.4 Investments in critical infrastructure for efficient DRR promoted, strengthened and implemented.
	2.5 MER capacities developed, systematized and implemented to improve DRM interventions and results.
3. Increased and sustained knowledge and capacity building for comprehensive disaster management.	3.1 Increased human capital training capacity in all areas of DRM to develop a culture of prevention.
	3.2 Access to DRR educational resources validated, harmonized and systematized at national, departmental and local levels.
	3.3 Risk data collection and risk assessments systematized and accessible in support of evidence-based decision-making.
	3.4 Public awareness strategies developed, institutionalized, and operationalized at national, departmental and local levels.
	3.5 Data and progress in reports under the Sendai Framework promoted, strengthened and institutionalized.

OUTCOMES	OUTPUTS
4. Strengthened arrangements for disaster recovery for building back better.	4.1 National recovery and reconstruction policies and strategies elaborated, implemented and funded to strengthen building back better capacities.
	4.2 Technical capacities within national institutions in charge of DRR promoted and systematized for effective response to building back better.
	4.3 Behavioural and physical obstacles for effective development and implementation of MEHWS assessed and addressed at all levels.
	4.4 Business continuity initiatives and planning enhanced and operationalized across public and private sectors.
5. Enhanced arrangements for community resilience and vulnerable groups.	5.1 Traditional knowledge incorporated into DRR formal planning agendas.
	5.2 Increased and sustained investment strategies for departmental, municipal and local DRR planning.
	5.3 Enhanced participation mechanisms to include communities in MHEWS planning and implementation.
	5.4 Improved participation strategies to reinforce the inclusion of communities in business continuity initiatives and planning.

Table 8. Priority Areas for the Consideration in the Country Work Program and National/ Sectoral Policies and Strategies

These proposed interventions should be deliberated through stakeholder consultations to agree on the priority areas for national policies and strategies and further elaborate the activities, timeframes, budgets and indicators for implementation of activities in support of the outcomes.

10. ADDRESSING SYSTEMIC RISK

COVID-19 has served as the clarion call for systemic risk planning. Systemic risk is defined as a risk that is endogenous to, or embedded in, a system that is not itself considered to be a risk and is therefore not generally tracked or managed, but which is understood through systems analysis to have a latent or cumulative risk potential to negatively impact overall system performance when some characteristics of the system change[162]. The impacts of climate change or COVID-19 show how the challenge of addressing systemic risk goes beyond conventional risk management governance. Critical system interdependencies, amplified by underlying vulnerabilities, highlight that there is a growing need to better understand cascading impacts, systemic risks and the possible political and societal responses. This includes improving our understanding of the root causes of systemic risk, both biophysical and socio-economic, and related information needs. Addressing contemporary challenges in terms of systemic risk requires integrating different systems perspectives and fostering system thinking, while implementing key intergovernmental agendas, such as the Paris Agreement, the Sendai Framework for Disaster Risk Reduction and the Sustainable Development Goals[163].

Figure 25: IRGC's guidance for the governance of systemic risks, comprising seven interlinked steps (Florin and Nursimulu, 2018)

Countries are now challenged to strengthen risk governance for risk-informed sustainable development that is underpinned by the understanding of systemic risk and the integration of systems-based approached across governance arrangements and tools[164]. In its path to recovery and realigning actions to strengthen resilience and regenerate sustainable development, Haiti must strengthen efforts to advance systemic risk planning including:

162 UNDRR (2019), Global Assessment Report on Disaster Risk Reduction 2019, URL: https://www.undrr.org/publication/global-assessment-report-disaster-risk-reduction-2019 ; A list of current definitions is also available at: https://council.science/wp-content/uploads/2020/06/Systemic-risk-briefing-note-Annex-1_List-of-current-definitions.pdf

163 Sillmann, J., Christensen, I., Hochrainer-Stigler, S., Huang-Lachmann, J., Juhola, S., Kornhuber, K., Mahecha, M., Mechler, R., Reichstein, M., Ruane, A.C., Schweizer, P.-J. and Williams, S (2022), ISC-UNDRR-RISK KAN Briefing Note on Systemic Risk, Paris, France, International Science Council, URL: https://council.science/wp-content/uploads/2020/06/Systemic-risk-briefing-note_WEB.pdf

164 ECLAC, UNDRR (2021), *The Coronavirus Disease (COVID-19) Pandemic: An Opportunity for a Systemic Approach to Disaster Risk for the Caribbean*, URL: https://www.undrr.org/publication/undrr-eclac-report-coronavirus-disease-covid-19-pandemic-opportunity-systemic-approach

Improving mechanisms to access, analyse, visualize and share data

In keeping with the Global Risk Assessment Framework and the Sendai Framework, systemic risk planning must be supported by data across sectors and systems. Understanding systemic risk calls for multi-stakeholder dialogue and collaboration that enables the consolidation of risk data (including the complex nature of vulnerability, hazards and exposures) in support of improved analytical approaches to understanding the dynamic and interconnected nature of risk, and the cascading impacts across sectors and systems[165]. Data interoperability is one of the main challenges in Haiti, as there are fundamental differences in data collection methods, datasets and information sources which are based on methodologies that have not been standardized. Concretely, there are four reasons why data interoperability remains a challenge in the country: (1) The multiplication of actors means that there are numerous languages, perspectives and systems that need to work together; (2) Policy goals are not systematically linked with specific sets of data and analysis; (3) Data collection and data quality assessment are deficient; (4) Bridging the data-policy gap entails addressing not only on emergency relief but also on longer-term disaster risk reduction[166].

Improving inter-disciplinary, cross-sectoral, and multiple-stakeholder involvement in disaster risk reduction

Beyond the need for multi-stakeholder involvement in risk data compilation, is the need for strengthened institutional mechanisms that create a platform for enhanced cooperation across stakeholders for actions geared towards addressing the underlying risk drivers. Institutional mechanisms must therefore support collaboration across state (interministerial and sectoral collaboration at national and subnational levels) and non-state actors, including civil society, private sector, academia, and the media. Systemic risk planning calls for a paradigm shift from recognizing the national disaster offices as the main entity for risk reduction, to mainstreaming risk reduction and management across the spectrum of stakeholders. Haiti's comprehensive disaster risk management approach must be receptive to innovative analytical methods engaging a broad range of stakeholders. Current risk policies and instruments in Haiti are not designed to deal with these non-conventional problems that require a more future-oriented exploration than that achieved with regular planning timeframes. Moreover, they require a broader framing of risk and wider perception beyond conventional systems boundaries[167].

Strengthening efforts to mainstream disaster risk reduction into development planning

Mainstreaming disaster risk reduction into development planning supports risk-informed policies and actions across sectors for systemic risk planning[168]. Development pillars and sectors must integrate risk planning into activities in support of resilience. Key sectors such as health, tourism, transportation, housing, urban development, agriculture, water, etc., must be equipped with the necessary capacities to promote mainstreaming so as to address the underlying drivers of risk that contribute to system failure when risk is realized. For instance, the shock to Haiti's national economy from COVID-19 hampers investments and development aid that are needed to increase societal resilience against impacts from climate change. By putting emphasis on mainstreaming disaster risk reduction into development planning and on the implementation of SDGs, Haiti could reduce key underlying vulnerabilities and be in a better position to respond and to reduce systemic risks[169].

"Building back better" and integrating risk into recovery plans[170]

In this path to recovery from COVID-19 aftermaths, Haiti has elaborated several recovery tools aiming to regenerate growth and sustainable development. In 2020, the Ministry of Economy and Finance (MEF) and the Ministry of Planning and External Cooperation (MPCE) initiated the development of the Post-Covid Economic Recovery Plan (PREPOC) 2020-2023. The plan ensures the coherence and prioritization of public policies during the 2020-2023

165 Ibidem.

166 Op. cit., Sillmann, J., Christensen, I., Hochrainer-Stigler, S., Huang-Lachmann, J., Juhola, S., Kornhuber, K., Mahecha, M., Mechler, R., Reichstein, M., Ruane, A.C., Schweizer, P.-J. and Williams, S (2022).

167 Ibidem.

168 *Op. cit.*, UNDRR, ECLAC (2021).

169 *Op. cit.*, Sillmann, J., Christensen, I., Hochrainer-Stigler, S., Huang-Lachmann, J., Juhola, S., Kornhuber, K., Mahecha, M., Mechler, R., Reichstein, M., Ruane, A.C., Schweizer, P.-J. and Williams, S (2022).

170 *Ibidem.*

period, pending the larger-scale work to revise the PSDH 2012-2030. Thus, PREPOC 2020-2023 aims to diversify and expand the manufacturing sector, to improve infrastructure services, to strengthen internal and border security and the rule of law, to enhance social inclusion, to support private sector development and the creation of decent jobs, and to reinforce the administrative, economic and financial governance. PREPOC 2020-2023 involves the sectoral ministries, which are both accountable for results and responsible for program formulation and implementation. As illustrated by this recovery plan, future interventions must recognize that risk encompasses all sectors and systems. Recovery tools must therefore ensure that there is an explicit appreciation for systemic risk planning, propelling the paradigm shift from response to risk management, integrating mitigation, preparedness and monitoring into disaster risk management processes[171].

Understanding existing capacities and gaps, and strengthening arrangements

Finally, adopting and promoting systemic risk planning must first commence with an in-depth assessment of national capacities, policies and frameworks, and understanding where there may be shortfalls. In recovery from the fallout of the COVID-19 pandemic and in strengthening resilience for future risks, countries must commence with a review of existing institutional and governance mechanisms to understand the barriers to effective systemic risk planning. This report provides useful information that can support Haiti in understanding some of its existing capacities and areas for intervention to advance systemic risk planning efforts. Thus, to inform systemic decision-making at various scales in the country, applied decision should support tools for systemic resilience capacity measurement. For instance, the Flood Resilience Measurement for Communities Framework and Tool is being used by non-governmental organizations, in conjunctions with communities, to scope out a multitude of co-generating resilience capacities[172].

171 *Ibidem.*

172 *Op. cit.*, Sillmann, J., Christensen, I., Hochrainer-Stigler, S., Huang-Lachmann, J., Juhola, S., Kornhuber, K., Mahecha, M., Mechler, R., Reichstein, M., Ruane, A.C., Schweizer, P.-J. and Williams, S (2022).

11. CONCLUSION

The recent adoption of key national instruments, a wide-reaching stakeholder base, and the strong support from the international community are major strengths for building resilience in Haiti so "no one will be left behind". However, outdated and insufficient disaster risk management legislation, limited development of MER capacities, fragmented data collection and limited risk assessments, weak business continuity planning arrangements, and insufficient inclusion of vulnerable groups in disaster risk management planning, emerge as some of the main gaps that this SIDS must address to face the threats of climate change and disaster risk. As acknowledged by Haiti's PNGRD 2019-2030 and PNCC 2019-2030, both climate change and disaster risk hinder the path to sustainable development if not thoughtfully considered and planned for. As advocated by the Sendai Framework for Disaster Risk Reduction 2015-2030 and the Agenda 2030, countries should integrate all relevant policy fields to disaster risk management to achieve common policy outcomes by maximizing synergies and eliminating trade-offs. There is an urgent need for the Government of Haiti to "pull in the same direction" across all stages of disaster risk reduction, climate change adaptation and sustainable development policymaking and implementation. As stated by the United Nations Secretary-General, António Guterres, *"Nothing undermines sustainable development like disasters. They can destroy decades of progress in an instant. Understanding and managing disaster risk is essential to achieving the Sustainable Development Goals"*[173].

Haiti's recent policies on disaster risk reduction, sustainable development and climate change adaptation provide the national framework in these areas. Concretely, the National Policy on Climate Change (PNCC 2019-2030), National Risk and Disaster Management Plan (PNGRD 2019-2030), Strategic Development Plan for Haiti (PSDH 2012-2030), Haiti's National Determined Contribution (2015), provide several opportunities for integrating a systemic risk approach to disaster risk management in the country. These opportunities must be acted upon and reinforced in support of comprehensive disaster management and consequently both sustainable development and climate change adaptation. As illustrated by the 2010 and 2021 earthquakes affecting the country, as well as by hurricane Matthew in 2016 and the current COVID-19 pandemic, sustainable development cannot be achieved without planning for disaster risk reduction and climate change adaptation. Given the high and worrying levels of poverty and social inequality in the country, it is paramount that sustainable development, disaster risk reduction and climate change adaptation policies and interventions advance equality and do not negatively affect poor and marginalized people. To do so, mechanisms and strong policy coordination, like Haiti's SNGRD and SPGRD, must ensure that the differentiated needs and circumstances of the poorest and marginalized are taken on board.

At a national level, parliamentarians have a key but overlooked role in advocating for disaster risk reduction in their roles as legislators, budget allocators, reviewers and approvers, financers, overseers of Haiti's government activities in this area, and constituency representatives. The SNGRD must be legalized. As indicated by PNGRD 2019-2030, the absence of this legal framework remains a major handicap for the SNGRD, particularly in terms of resource mobilization. The implementation of a successful comprehensive disaster risk management framework in Haiti will not be achievable without disaster risk management-specific policies, legislation, budgets, and oversight. Thus, a strong disaster risk management legal framework in Haiti must be backed by sufficient resources not only from the international and regional level but also from the national level, where they catalyse action down at the local level.

Haiti's strategic location at the centre of the Caribbean region should be empowered and capitalized to strengthen the country's partnerships with neighbouring countries and to position itself as a disaster risk management hub in the near future. Prior to this, the country should take advantage of its unique opportunity to further the links between three key national policies: PNGRD 2019-2030, PNCC 2019 and PSDH 2012-2030. From this point onwards, the findings provided by this study can be useful in laying the ground for sectoral policies, strategies and legislation supporting the implementation of the Country Work Program until 2030.

173 *Op. cit.*, UNDRR (2022).

REFERENCES

Blair S. H., Cohen B. W., Timyan J., Yang Z. (2018), *Haiti's biodiversity threatened by nearly complete loss of primary forest*, Janet Franlin (ed.), University of California, Riverside, CA, https://doi.org/10.1073/pnas.1809753115

Brangeon S., Observatoire du Groupe URD Haïti (2015), La gestion des déchets des acteurs de l'aide. Étude de cas : Haïti, URL : https://www.careemergencytoolkit.org/wp-content/uploads/2017/03/35_21.pdf

Croix-Rouge Haïtienne (2016), Plan Stratégique de la SNCRH, URL : https://www.croixrouge.ht/mdocs-posts/plan-strategique-de-la-sncrh_-juillet-2016/

Chiavassa N., Dewez R., BID (2021), Note Technique sur la Sécurité Routière en Haïti, URL : https://publications.iadb.org/publications/french/document/Note-technique-sur-la-securite-routiere-en-Haiti.pdf

Des Roches R., M.EERI, Comerio M., M.EERI, Eberhard M., M.EERI, Mooney W., M.EERI, and Rix J. G., M.EERI (2011), Overview of the 2010 Haiti Earthquake, *Earthquake Spectra*, Volume 27, No. S1, Earthquake Engineering Research Institute, URL: https://escweb.wr.usgs.gov/share/mooney/142.pdf

Eckstein D., Künzel V., Schäfer L, German Watch (2021), Global Climate Risk 2021: Who Suffers Most from Extreme Weather Events? Weather-Related Loss Events in 2019 and 2000-2019, URL: https://reliefweb.int/report/world/global-climate-risk-index-2021

FAO (2021), Haiti: Urgent call for funding September 2021-June 2022. Emergency response to households affected by the earthquake and Tropical Storm Grace, URL: https://www.fao.org/3/cb6680en/cb6680en.pdf

Gunasekera R., Daniell J., Pomonis A., Arias Donoso R., Ishizawa O., Stone H., World Bank (2018), Methodology Note on the Global Rapid post-disaster Damage Estimation (GRADE) approach, URL: https://www.gfdrr.org/sites/default/files/publication/DRAS_web_04172018.pdf

Handicap International (2021), Fiche pays : Haiti 2021, URL : https://handicap-international.fr/sn_uploads/country/2021_Fiche_Pays_HAITI_HI_FR.pdf

IFRC (2020), How Law and Regulations Supports Disaster Risk Reduction: Haiti Case – Study Report, URL: https://disasterlaw.ifrc.org/sites/default/files/media/disaster_law/2020-09/HAITI%20DRR%20Report.pdf

ILO (2017), C111- Discrimination (Employment and Occupation) Convention, 1958 (No. 111), URL: https://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:12100:0::NO::P12100_Ilo_Code:C111

Morancy J., Cunha H., da Cunha A. (2021), *Effects of anthropic activity dynamics on mangrove ecosystems' degradation in Caracol Country – Haiti,* Research Square, https://doi.org/10.21203/rs.3.rs-979434/v1

OCHA (2021), Haiti: Earthquake Situation Report No. 8 – Final (29 November 2021), URL: https://reliefweb.int/report/haiti/haiti-earthquake-situation-report-no-8-final-29-november-2021

OCHA (2010), Haiti Situation Report #1, URL: https://reliefweb.int/report/haiti/haiti-earthquake-situation-report-1

OCHA, Hurricane Matthew – Situation Report No. 35 (04 March 2017), URL: https://reliefweb.int/report/haiti/haiti-hurricane-matthew-situation-report-no-35-04-march-2017

OCHA (2021), Haiti: Earthquake. Situation Report No. 1, URL: https://vosocc.unocha.org/GetFile.aspx?file=110221_2021-08-22_Haiti_Earthquake_SitRep1_Updated_and_Revised_Final_Version_for_RW.pdf

OPS/OMS (2020), Réponse de l'OPS/OMS à la Covid-19 en Haïti – Jan-Déc 2020, URL : https://www.paho.org/fr/documents/reponse-lopsoms-covid-19-haiti-jan-dec-2020

Police Nationale d'Haïti, Manuel d'utilisateur du système d'information sur les accidents, URL : https://www.mtptc.gouv.ht/media/upload/doc/publications/StrategieNationale3.pdf

République d'Haïti (2012), Code national du bâtiment d'Haïti, URL : https://www.mtptc.gouv.ht/media/upload/doc/publications/CNBH_fusion.pdf

République d'Haïti, Ministère de l'Économie et des Finances, Institut Haitien de Statistique et d'Informatique, *Enquête sur l'emploi et l'économie informelle (EEEI)*, 2010. https://www.ilo.org/public/libdoc/igo/2010/479421.pdf

République d'Haïti (2006), Plan d'action national d'adaptation, URL : https://unfccc.int/resource/docs/napa/hti01f.pdf

République d'Haïti (2019), Plan national de gestion des risques de désastre 2019-2030, URL : https://www.preventionweb.net/files/72907_plannationaldegestiondesrisquesdeds.pdf

République d'Haïti (2001), Plan national de gestion des risques et des désastres, URL : https://www.preventionweb.net/files/29734_plannationaldegestionrisquesetdesas.pdf

République d'Haïti (2008), Profil national de gestion des produits chimiques et des déchets, URL : https://cwm.unitar.org/national-profiles/publications/cw/np/np_pdf/Haiti_National_Profile_2008.pdf

République d'Haïti, Ministère des Affaires sociales et du Travail (2020), Politique nationale de protection et de promotion sociales, URL : https://acortar.link/3sK2fN

République d'Haïti, Ministère de l'Agriculture, des Ressources Naturelles et du Développement Rural (2011), Politique de développement agricole 2010-2025, URL : https://agriculture.gouv.ht/view/01/IMG/pdf/Politique_de_developpement_agricole-Version_finale_mars_2011.pdf

République d'Haïti, Ministère de l'Agriculture, des Ressources Naturelles et du Développement Rural (2010), Plan national d'investissement agricole, URL : http://extwprlegs1.fao.org/docs/pdf/hai146377.pdf

République d'Haïti, Ministère de l'Environnement (2015), Contribution Prévue Déterminée au niveau National, URL : http://extwprlegs1.fao.org/docs/pdf/hai192006.pdf

République d'Haïti, Ministère de l'Environnement (2015), Programme Aligné d'Action Nationale de Lutte contre la Désertification, ULR : https://www.unccd.int/sites/default/files/naps/Haiti-fre%25202015.pdf

République d'Haïti, Ministère de la Planification et de la Coopération Externe (2022), Plan de Relèvement Intégré de la Péninsule Sud, URL: https://acortar.link/k6L7d1

République d'Haïti, Ministère de la Santé Publique et de la Population, DELR (2022), Situation épidémiologique de la Covid-19 au 23 mai 2022, Haïti, URL : https://mspp.gouv.ht/site/downloads/Sitrep%20COVID-19_23-05-2022.pdf

République d'Haïti, Ministère de la Santé Publique et de la Population (2021), Plan Directeur Santé 2021-2031, URL : https://www.mspp.gouv.ht/wp-content/uploads/Plan-Directeur-Sant%C3%A9-2021-2031-version-web.pdf

République d'Haïti, Ministère du Tourisme (2007), Révision du Plan directeur tourisme, URL : http://ciat.bach.anaphore.org/file/misc/200705MDT_proposition.pdf

République d'Haïti (2018), Plan de lutte antiparasitaires et de gestion de pestes et des pesticides, URL : https://acortar.link/3sK2fN

République d'Haïti (2021), Programme Indicatif Pluriannuel 2021-2027, URL : https://ec.europa.eu/international-partnerships/system/files/mip-2021-c2021-9081-haiti-annex_fr.pdf

République d'Haïti, Ministère de l'Économie et des Finances (2020), Plan de relance économique post-Covid, URL : https://mef.gouv.ht/docs/latest/prepoc_2020_2023.pdf

République d'Haïti, Ministère de l'Éducation Nationale et de la Formation Professionnelle (2018), Plan décennal d'éducation et de formation 2019-2029, URL : https://planipolis.iiep.unesco.org/sites/default/files/ressources/haiti_pdef_2019-2029.pdf

République d'Haïti (2013), Plan Stratégique pour le Renforcement de la Surveillance Épidémiologique en Haïti 2013-2018, URL : https://www.mspp.gouv.ht/site/downloads/Plan%20strategique%20DELR%202013-2018.pdf

République d'Haïti (2019), Politique nationale de lutte contre les changements climatiques, URL : https://mde.gouv.ht/phocadownload/PNCC-HAITI-2019%20Final.pdf

République d'Haïti (2012), Politique Nationale de Santé, URL : https://extranet.who.int/countryplanningcycles/sites/default/files/country_docs/Haiti/haiti_politique_national_de_sante_2012.pdf

République d'Haïti, Ministère de la Planification et de la Coopération externe (2013), Plan Stratégique de Développement d'Haïti, URL : https://observatorioplanificacion.cepal.org/sites/default/files/plan/files/Haiti_PLAN_STRATÉGIQUE_de_developpement.pdf

République d'Haïti, Ministère de la Santé publique et de la Population (2015), Rapport Statistique 2014, URL : https://mspp.gouv.ht/site/downloads/Rapport%20Statistique%20MSPP%202014%20version%20web.pdf

République d'Haïti, Ministère de la Santé Publique et de la Population (2017), Rapport Statistique 2016, URL : https://mspp.gouv.ht/site/downloads/Rapport%20Statistique%20MSPP%202016.pdf

République d'Haïti, Ministère des Travaux Publics, Transports et Communications (2007), Plan de Développement du Secteur de l'Energie 2007-2032, URL : http://www.bme.gouv.ht/energie/Haiti%20Plan%20National%20d%27EnergieVRFrenchR1.pdf

République d'Haïti, OFNAC (2017), Règlement de l'aviation civile, Partie 14 – Aéroport, Annexe K, Plan d'urgence, URL : https://ofnac.gouv.ht/wp-content/uploads/2020/11/RACH-Partie-14-Annexe-K-Plan-Urgence.pdf

Sillmann, J., Christensen, I., Hochrainer-Stigler, S., Huang-Lachmann, J., Juhola, S., Kornhuber, K., Mahecha, M., Mechler, R., Reichstein, M., Ruane, A.C., Schweizer, P.-J. and Williams, S (2022), *ISC-UNDRR-RISK KAN Briefing Note on Systemic Risk,* Paris, France, International Science Council, URL: https://council.science/wp-content/uploads/2020/06/Systemic-risk-briefing-note_WEB.pdf

Terrier M., Rançon, J. F., Bertil D., Chêne F., Desprats J. F., Lecacheaux S., Le Roy S., Stollsteiner P., Bouc O. (BMRGM), Raynal, M. (CIAT) (2017), Atlas des menaces naturelles en Haïti, URL : https://fr.calameo.com/read/0057191216d35c942d25f

UN, Department of Economic and Social Affairs, Disability (2022), Convention on the Rights of Persons with Disabilities, URL: https://www.un.org/development/desa/disabilities/convention-on-the-rights-of-persons-with-disabilities.html

UNDRR (2022), Global Assessment Report on Disaster Risk Reduction, URL: https://www.undrr.org/gar2022-our-world-risk?utm_source=LinkedIn&utm_campaign=PreventionSavesLives

UNDRR, CRED (2020), Human cost of disasters: An overview of the last 20 years 2000-2019, URL: https://www.preventionweb.net/files/74124_humancostofdisasters20002019reportu.pdf

UNDRR, ISC (2020), Hazard Definition & Classification Review, Technical Report, URL: https://council.science/wp-content/uploads/2020/06/UNDRR_Hazard-Report_DIGITAL.pdf

UNDRR (2017), Antigua and Barbuda Declaration School Safety in the Caribbean, URL: https://www.undrr.org/sites/default/files/inline-files/Declaration_CSS_Ministerial_Forum_ENG.pdf

UNDRR (2019), Global Assessment Report on Disaster Risk Reduction 2019, URL: https://www.undrr.org/publication/global-assessment-report-disaster-risk-reduction-2019

UNDRR (2022), Parliamentarian Toolkit, URL: https://www.undrr.org/drr-toolkit-parliamentarians#tabs-14499-1

UNDRR (2021), Scaling up DRR in Humanitarian Action: Haiti Snapshot 2021, URL: https://www.undrr.org/sites/default/files/inline-files/Snapshot%20Scaling%20up%20DRR%20in%20Hum%20Action%20-%20Haiti%20-%202021.pdf

UNDRR (2022), Terminology, URL: https://www.undrr.org/terminology

UNDRR, CDEMA (2020), COVID-19, Systemic Risk and Education Sector Resilience in the Caribbean Region, URL: https://www.undrr.org/publication/undrr-americas-caribbean/cdema-covid-19-brief-covid-19-systemic-risk-and-education

UNDRR, ECLAC (2021), *The Coronavirus Disease (COVID-19) Pandemic: An Opportunity for a Systemic Approach to Disaster Risk for the Caribbean*, URL: https://www.undrr.org/

publication/undrr-eclac-report-coronavirus-disease-covid-19-pandemic-opportunity-systemic-approach

UNDP (2020), Human Development Report 2020, The Next Frontier: Human Development and the Anthropocene, Haiti, URL: https://hdr.undp.org/sites/default/files/Country-Profiles/HTI.pdf

UNEP (2015), Air Quality Policies: Haiti, URL: https://wedocs.unep.org/bitstream/handle/20.500.11822/17211/Haiti.pdf?sequence=1&isAllowed=y

UNESCO (2021), Penser l'avenir de l'éducation en contexte de pandémie, URL : https://unesdoc.unesco.org/ark:/48223/pf0000378392

UNICEF (2022), Haiti Humanitarian Situation Report End of Year 2021, URL: https://reliefweb.int/report/haiti/unicef-haiti-humanitarian-situation-report-end-year-2021

United Nations General Assembly (2016), Report of the open-ended intergovernmental expert working group on indicators and terminology relating to disaster risk reduction, URL: https://digitallibrary.un.org/record/852089?ln=fr

UNISDR (2017), Country Document for Disaster Risk Reduction: Haiti 2016-2020, URL: https://www.preventionweb.net/files/54921_annex03documentpayshaiti.pdf

USAID, Bureau for Humanitarian Assistance (2022), Haiti Assistance Overview, URL: https://www.usaid.gov/sites/default/files/documents/USAID-BHA_Haiti_Assistance_Overview-January_2022.pdf

World Bank (2020), Using Behavioral Insights to Improve Disaster Preparedness Early Warning and Response Mechanisms in Haiti, URL: https://documents1.worldbank.org/curated/en/465051578683565433/pdf/Using-Behavioral-Insights-to-Improve-Disaster-Preparedness-Early-Warning-and-Response-Mechanisms-in-Haiti.pdf

APPENDICES

APPENDIX I: National System for Disaster Risk Management Membership (established by PNGRD 2001)

- **National Committee for Disaster Risk Management**
  - Minister of the Interior and regional authorities.
  - Minister of Public Health and Population.
  - Minister of Public Works, Transport and Communications.
  - Minister of Agriculture, Natural Resources and Rural Development.
  - Minister of the Environment.
  - Minister of Planning and External Cooperation.
  - Minister of Social Affairs.
  - Minister of Justice and Public Security.
  - Minister of National Education, Youth and Sports.
  - President of the Haitian Red Cross.

- **Permanent Secretariat for Disaster Risk Management**
  - Ministry of the Interior and Territorial Collectivities (DPC and OPDES).
  - Ministry of Public Health and Population.
  - Ministry of Public Works, Transport and Communications.
  - Ministry of Agriculture, Natural Resources and Rural Development.
  - Ministry of the Environment.
  - Ministry of Planning and External Cooperation.
  - Ministry of Social Affairs.
  - Ministry of Justice (Haitian National Police, PNH).
  - Ministry of National Education, Youth and Sports.
  - Haitian Red Cross.

- **Emergency Operations Center**
  - Ministry of the Interior and Territorial Collectivities (DPC and OPDES).
  - Ministry of Public Health and Population.
  - Ministry of Public Works, Transport and Communications.
  - Ministry of Agriculture, Natural Resources and Rural Development.
  - Ministry of the Environment.
  - Ministry of Social Affairs.
  - Ministry of Justice (Haitian National Police).
  - Minister of National Education, Youth and Sports.
  - Haitian Red Cross.

- **Thematic, Institutional and Sectoral Committees**
  - Departmental, Communal and Local Committees.
  - Public authorities (Mayor, CASEC, Police, Justice of the Peace).
  - Departmental, Communal and Local Organizations.

- **Civil Society Advisory Committee**
  - Companies.
  - Private associations.
  - Religious sectors.
  - Etc.

- **International Cooperation Support Group**
  - Non-governmental and international organizations and institutions.

APPENDIX II: Risk Components

Hazards

HAZARD CATEGORY	HAZARD CLUSTER	HAZARDS IDENTIFIED	SOURCE
Hydrometeorological	Wind-related Pressure-related	Tropical cyclone Cyclone	Protection Civile, URL : https://protectioncivile.gouv.ht/kisa-nou-dwe-fe-le-yo-anonse-siklon/ République d'Haïti (2019), Plan national de gestion des risques de désastre 2019-2030, URL : https://www.preventionweb.net/files/72907_plannationaldegestiondesrisquesdeds.pdf Terrier M., Rançon, J. F., Bertil D., Chêne F., Desprats J. F., Lecacheaux S., Le Roy S., Stollsteiner P., Bouc O. (BMRGM), Raynal, M. (CIAT) (2017), Atlas des menaces naturelles en Haïti, URL : https://fr.calameo.com/read/0057191216d35c942d25f Think Hazard, GFDRR (2022), Haiti, URL: https://thinkhazard.org/en/report/108-haiti République d'Haïti (2006), Plan d'action national d'adaptation, URL : https://unfccc.int/resource/docs/napa/hti01f.pdf
	Flood	Coastal Riverine Surface water Flash	Protection Civile, URL: https://protectioncivile.gouv.ht/innondations/ République d'Haïti (2019), Plan national de gestion des risques de désastre 2019-2030, URL : https://www.preventionweb.net/files/72907_plannationaldegestiondesrisquesdeds.pdf Terrier M., Rançon, J. F., Bertil D., Chêne F., Desprats J. F., Lecacheaux S., Le Roy S., Stollsteiner P., Bouc O. (BMRGM), Raynal, M. (CIAT) (2017), Atlas des menaces naturelles en Haïti, URL : https://fr.calameo.com/read/0057191216d35c942d25f Think Hazard, GFDRR (2022), Haiti, URL: https://thinkhazard.org/en/report/108-haiti République d'Haïti (2006), Plan d'action national d'adaptation, URL : https://unfccc.int/resource/docs/napa/hti01f.pdf
	Marine	Storm Surge Tsunami	Protection Civile, URL : https://protectioncivile.gouv.ht/glossaire-sur-les-tsunamis/ République d'Haïti (2019), Plan national de gestion des risques de désastre 2019-2030, URL : https://www.preventionweb.net/files/72907_plannationaldegestiondesrisquesdeds.pdf Terrier M., Rançon, J. F., Bertil D., Chêne F., Desprats J. F., Lecacheaux S., Le Roy S., Stollsteiner P., Bouc O. (BMRGM), Raynal, M. (CIAT) (2017), Atlas des menaces naturelles en Haïti, URL : https://fr.calameo.com/read/0057191216d35c942d25f

HAZARD CATEGORY	HAZARD CLUSTER	HAZARDS IDENTIFIED	SOURCE
	Precipitation -related Temperature-related	Drought Heatwave	Protection Civile, URL : https://protectioncivile.gouv.ht/secheresse/ République d'Haïti (2019), Plan national de gestion des risques de désastre 2019-2030, URL : https://www.preventionweb.net/files/72907_plannationaldegestiondesrisquesdeds.pdf Terrier M., Rançon, J. F., Bertil D., Chêne F., Desprats J. F., Lecacheaux S., Le Roy S., Stollsteiner P., Bouc O. (BMRGM), Raynal, M. (CIAT) (2017), Atlas des menaces naturelles en Haïti, URL : https://fr.calameo.com/read/0057191216d35c942d25f Think Hazard, GFDRR (2022), Haiti, URL: https://thinkhazard.org/en/report/108-haiti République d'Haïti (2006), Plan d'action national d'adaptation, URL : https://unfccc.int/resource/docs/napa/hti01f.pdf
Extraterrestrial			*Not identified in national risk documents.*
Geohazard	Seismogenic (earthquakes)	Earthquake Ground shaking	Protection Civile (2022), URL : https://protectioncivile.gouv.ht/tranblemann-te-sa-li-ye-e-sa-ki-lakoz-li/ République d'Haïti (2019), Plan national de gestion des risques de désastre 2019-2030, URL : https://www.preventionweb.net/files/72907_plannationaldegestiondesrisquesdeds.pdf Terrier M., Rançon, J. F., Bertil D., Chêne F., Desprats J. F., Lecacheaux S., Le Roy S., Stollsteiner P., Bouc O. (BMRGM), Raynal, M. (CIAT) (2017), Atlas des menaces naturelles en Haïti, URL : https://fr.calameo.com/read/0057191216d35c942d25f Think Hazard, GFDRR (2022), Haiti, URL: https://thinkhazard.org/en/report/108-haiti République d'Haïti (2006), Plan d'action national d'adaptation, URL : https://unfccc.int/resource/docs/napa/hti01f.pdf
	Shallow geohazard	Landslide Liquefaction	Terrier M., Rançon, J. F., Bertil D., Chêne F., Desprats J. F., Lecacheaux S., Le Roy S., Stollsteiner P., Bouc O. (BMRGM), Raynal, M. (CIAT) (2017), Atlas des menaces naturelles en Haïti, URL : https://fr.calameo.com/read/0057191216d35c942d25f Think Hazard, GFDRR (2022), Haiti, URL: https://thinkhazard.org/en/report/108-haiti République d'Haïti (2006), Plan d'action national d'adaptation, URL : https://unfccc.int/resource/docs/napa/hti01f.pdf

HAZARD CATEGORY	HAZARD CLUSTER	HAZARDS IDENTIFIED	SOURCE
Environmental	Environmental degradation	Air pollution	République d'Haïti (2019), Plan national de gestion des risques de désastre 2019-2030, URL : https://www.preventionweb.net/files/72907_plannationaldegestiondesrisquesdeds.pdf Terrier M., Rançon, J. F., Bertil D., Chêne F., Desprats J. F., Lecacheaux S., Le Roy S., Stollsteiner P., Bouc O. (BMRGM), Raynal, M. (CIAT) (2017), Atlas des menaces naturelles en Haïti, URL : https://fr.calameo.com/read/0057191216d35c942d25f République d'Haïti (2006), Plan d'action national d'adaptation, URL : https://unfccc.int/resource/docs/napa/hti01f.pdf
	Environmental degradation	Biodiversity Loss	Terrier M., Rançon, J. F., Bertil D., Chêne F., Desprats J. F., Lecacheaux S., Le Roy S., Stollsteiner P., Bouc O. (BMRGM), Raynal, M. (CIAT) (2017), Atlas des menaces naturelles en Haïti, URL : https://fr.calameo.com/read/0057191216d35c942d25f Blair S. H., Cohen B. W., Timyan J., Yang Z. (2018), Haiti's biodiversity threatened by nearly complete loss of primary forest, Janet Franlin (ed.), University of California, Riverside, CA, https://doi.org/10.1073/pnas.1809753115 République d'Haïti (2006), Plan d'action national d'adaptation, URL : https://unfccc.int/resource/docs/napa/hti01f.pdf
	Environmental degradation	Sea Level Rise	Think Hazard, GFDRR (2022), Haiti, URL: https://thinkhazard.org/en/report/108-haiti Terrier M., Rançon, J. F., Bertil D., Chêne F., Desprats J. F., Lecacheaux S., Le Roy S., Stollsteiner P., Bouc O. (BMRGM), Raynal, M. (CIAT) (2017), Atlas des menaces naturelles en Haïti, URL : https://fr.calameo.com/read/0057191216d35c942d25f World Bank, Climate Change Knowledge Portal (2022), Sea Level Rise, URL: https://climateknowledgeportal.worldbank.org/country/haiti/impacts-sea-level-rise
		Coastal Erosion and Shoreland Change	Think Hazard, GFDRR (2022), Haiti, URL: https://thinkhazard.org/en/report/108-haiti Terrier M., Rançon, J. F., Bertil D., Chêne F., Desprats J. F., Lecacheaux S., Le Roy S., Stollsteiner P., Bouc O. (BMRGM), Raynal, M. (CIAT) (2017), Atlas des menaces naturelles en Haïti, URL : https://fr.calameo.com/read/0057191216d35c942d25f World Bank, Climate Change Knowledge Portal (2022), Sea Level Rise, URL: https://climateknowledgeportal.worldbank.org/country/haiti/impacts-sea-level-rise
		Coastal Erosion and Shoreland Change	République d'Haïti (2019), Plan national de gestion des risques de désastre 2019-2030, URL : https://www.preventionweb.net/files/72907_plannationaldegestiondesrisquesdeds.pdf Terrier M., Rançon, J. F., Bertil D., Chêne F., Desprats J. F., Lecacheaux S., Le Roy S., Stollsteiner P., Bouc O. (BMRGM), Raynal, M. (CIAT) (2017), Atlas des menaces naturelles en Haïti, URL : https://fr.calameo.com/read/0057191216d35c942d25f République d'Haïti (2006), Plan d'action national d'adaptation, URL : https://unfccc.int/resource/docs/napa/hti01f.pdf

HAZARD CATEGORY	HAZARD CLUSTER	HAZARDS IDENTIFIED	SOURCE
		Loss of mangroves	Terrier M., Rançon, J. F., Bertil D., Chêne F., Desprats J. F., Lecacheaux S., Le Roy S., Stollsteiner P., Bouc O. (BMRGM), Raynal, M. (CIAT) (2017), Atlas des menaces naturelles en Haïti, URL : https://fr.calameo.com/read/0057191216d35c942d25f République d'Haïti (2006), Plan d'action national d'adaptation, URL : https://unfccc.int/resource/docs/napa/hti01f.pdf Morancy J., Cunha H., da Cunha A. (2021), Effects of anthropic activity dynamics on mangrove ecosystems' degradation in Caracol Country – Haiti, Research Square, https://doi.org/10.21203/rs.3.rs-979434/v1
		Deforestation	Global Forest Watch, Haiti, URL: https://www.globalforestwatch.org/dashboards/country/HTI/ République d'Haïti (2019), Plan national de gestion des risques de désastre 2019-2030, URL : https://www.preventionweb.net/files/72907_plannationaldegestiondesrisquesdeds.pdf Terrier M., Rançon, J. F., Bertil D., Chêne F., Desprats J. F., Lecacheaux S., Le Roy S., Stollsteiner P., Bouc O. (BMRGM), Raynal, M. (CIAT) (2017), Atlas des menaces naturelles en Haïti, URL : https://fr.calameo.com/read/0057191216d35c942d25f République d'Haïti (2006), Plan d'action national d'adaptation, URL : https://unfccc.int/resource/docs/napa/hti01f.pdf
		Soil degradation	République d'Haïti (2019), Plan national de gestion des risques de désastre 2019-2030, URL : https://www.preventionweb.net/files/72907_plannationaldegestiondesrisquesdeds.pdf Terrier M., Rançon, J. F., Bertil D., Chêne F., Desprats J. F., Lecacheaux S., Le Roy S., Stollsteiner P., Bouc O. (BMRGM), Raynal, M. (CIAT) (2017), Atlas des menaces naturelles en Haïti, URL : https://fr.calameo.com/read/0057191216d35c942d25f République d'Haïti (2006), Plan d'action national d'adaptation, URL : https://unfccc.int/resource/docs/napa/hti01f.pdf
	Environmental degradation (forestry)	Wildfires	Global Forest Watch, Haiti, URL: https://www.globalforestwatch.org/dashboards/country/HTI/ République d'Haïti (2019), Plan national de gestion des risques de désastre 2019-2030, URL : https://www.preventionweb.net/files/72907_plannationaldegestiondesrisquesdeds.pdf Terrier M., Rançon, J. F., Bertil D., Chêne F., Desprats J. F., Lecacheaux S., Le Roy S., Stollsteiner P., Bouc O. (BMRGM), Raynal, M. (CIAT) (2017), Atlas des menaces naturelles en Haïti, URL : https://fr.calameo.com/read/0057191216d35c942d25f République d'Haïti (2006), Plan d'action national d'adaptation, URL : https://unfccc.int/resource/docs/napa/hti01f.pdf Think Hazard, GFDRR (2022), Haiti, URL: https://thinkhazard.org/en/report/108-haiti

HAZARD CATEGORY	HAZARD CLUSTER	HAZARDS IDENTIFIED	SOURCE
Chemical	Gases	Carbon Monoxide Ammonia	République d'Haïti (2008), Profil national de gestion des produits chimiques et des déchets, URL : https://cwm.unitar.org/national-profiles/publications/cw/np/np_pdf/Haiti_National_Profile_2008.pdf
	Heavy metal	Chlorine	République d'Haïti (2008), Profil national de gestion des produits chimiques et des déchets, URL : https://cwm.unitar.org/national-profiles/publications/cw/np/np_pdf/Haiti_National_Profile_2008.pdf
	Heavy metal	Mercury	République d'Haïti (2008), Profil national de gestion des produits chimiques et des déchets, URL : https://cwm.unitar.org/national-profiles/publications/cw/np/np_pdf/Haiti_National_Profile_2008.pdf
	Heavy metal	Lead	République d'Haïti (2008), Profil national de gestion des produits chimiques et des déchets, URL : https://cwm.unitar.org/national-profiles/publications/cw/np/np_pdf/Haiti_National_Profile_2008.pdf
	POPs		République d'Haïti (2008), Profil national de gestion des produits chimiques et des déchets, URL : https://cwm.unitar.org/national-profiles/publications/cw/np/np_pdf/Haiti_National_Profile_2008.pdf
	Hydrocarbons	Oil pollution	République d'Haïti (2008), Profil national de gestion des produits chimiques et des déchets, URL : https://cwm.unitar.org/national-profiles/publications/cw/np/np_pdf/Haiti_National_Profile_2008.pdf
	CBRNE		République d'Haïti (2008), Profil national de gestion des produits chimiques et des déchets, URL : https://cwm.unitar.org/national-profiles/publications/cw/np/np_pdf/Haiti_National_Profile_2008.pdf
	Other chemical hazards and toxins	Asbestos Marine toxins	République d'Haïti (2008), Profil national de gestion des produits chimiques et des déchets, URL : https://cwm.unitar.org/national-profiles/publications/cw/np/np_pdf/Haiti_National_Profile_2008.pdf
	Insect infestation	Insect pest infestation	République d'Haïti (2018), Plan de lutte antiparasitaires et de gestion de pestes et des pesticides, URL : https://documents1.worldbank.org/curated/en/221021525851918328/text/resepag-fa-plagp-version-final-apr4.txt
	Invasive species	Invasive Species	République d'Haïti (2018), Plan de lutte antiparasitaires et de gestion de pestes et des pesticides, URL : https://documents1.worldbank.org/curated/en/221021525851918328/text/resepag-fa-plagp-version-final-apr4.txt
	Invasive speciesv	Invasive weeds	République d'Haïti (2018), Plan de lutte antiparasitaires et de gestion de pestes et des pesticides, URL : https://documents1.worldbank.org/curated/en/221021525851918328/text/resepag-fa-plagp-version-final-apr4.txt
	Mental health	Suicide cluster	République d'Haïti (2014), Composante santé mentale de la politique nationale de santé, URL : https://mspp.gouv.ht/site/downloads/Composante%20Sante%20Mentale%20MSPP.pdf
	Food safety	Foodborne Microbial hazards	République d'Haïti (2012), Politique Nationale de Santé, URL : https://extranet.who.int/countryplanningcycles/sites/default/files/country_docs/Haiti/haiti_politique_national_de_sante_2012.pdf République d'Haïti (2013), Plan Stratégique pour le Renforcement de la Surveillance Épidémiologique en Haïti 2013-2018, URL : https://www.mspp.gouv.ht/site/downloads/Plan%20strategique%20DELR%202013-2018.pdf

HAZARD CATEGORY	HAZARD CLUSTER	HAZARDS IDENTIFIED	SOURCE
Chemical	Infectious disease (plant)		République d'Haïti (2012), Politique Nationale de Santé, URL : https://extranet.who.int/countryplanningcycles/sites/default/files/country_docs/Haiti/haiti_politique_national_de_sante_2012.pdf République d'Haïti (2013), Plan Stratégique pour le Renforcement de la Surveillance Épidémiologique en Haïti 2013-2018, URL : https://www.mspp.gouv.ht/site/downloads/Plan%20strategique%20DELR%202013-2018.pdf
	Infectious disease (human and animal)		République d'Haïti, Ministère de la Santé Publique et de la Population (2017), Rapport Statistique 2016, URL : https://mspp.gouv.ht/site/downloads/Rapport%20Statistique%20MSPP%202016.pdf République d'Haïti (2012), Politique Nationale de Santé, URL : https://extranet.who.int/countryplanningcycles/sites/default/files/country_docs/Haiti/haiti_politique_national_de_sante_2012.pdf République d'Haïti (2013), Plan Stratégique pour le Renforcement de la Surveillance Epidémiologique en Haïti 2013-2018, URL : https://www.mspp.gouv.ht/site/downloads/Plan%20strategique%20DELR%202013-2018.pdf
	Radiation	Radioactive waste	République d'Haïti (2008), Profil national de gestion des produits chimiques et des déchets, URL : https://cwm.unitar.org/national-profiles/publications/cw/np/np_pdf/Haiti_National_Profile_2008.pdf
Technological	Construction Failure, Infrastructure Failure, Industrial Failure	Building Collapse Critical Infrastructure Failure Pollution Explosion Leaks Spill Fire	République d'Haïti (2013), Code National du Bâtiment d'Haïti 2012, URL : https://www.mtptc.gouv.ht/media/upload/doc/publications/CNBH_fusion.pdf République d'Haïti (2008), Profil national de gestion des produits chimiques et des déchets, URL : https://cwm.unitar.org/national-profiles/publications/cw/np/np_pdf/Haiti_National_Profile_2008.pdf
	Building Collapse Critical Infrastructure Failure Pollution Explosion Leaks Spill Fire	Hazardous Waste Solid Waste	République d'Haïti (2008), Profil national de gestion des produits chimiques et des déchets, URL : https://cwm.unitar.org/national-profiles/publications/cw/np/np_pdf/Haiti_National_Profile_2008.pdf Brangeon S., Observatoire du Groupe URD Haïti (2015), La gestion des déchets des acteurs de l'aide. Étude de cas : Haïti, URL : https://www.careemergencytoolkit.org/wp-content/uploads/2017/03/35_21.pdf Law on the creation, organization and operation of the National Solid Waste Management Service (SNGRS), September 21, 2017. Decree of October 9, 1989. Orders of July 18, 2013 and August 9, 2012.

HAZARD CATEGORY	HAZARD CLUSTER	HAZARDS IDENTIFIED	SOURCE
Technological	Transportation	Road Traffic Accident	World Bank (2011), Disaster Risk Management and Reconstruction, https://projects.worldbank.org/en/projects-operations/project-detail/P126346?lang=en Chiavassa N., Dewez R., BID (2021), Note Technique sur la Sécurité Routière en Haïti, URL : https://publications.iadb.org/publications/french/document/Note-technique-sur-la-securite-routiere-en-Haiti.pdf Police Nationale d'Haïti, Manuel d'utilisateur du système d'information sur les accidents, URL : https://www.mtptc.gouv.ht/media/upload/doc/publications/StrategieNationale3.pdf
	Transportation	Air Transportation Accident	République d'Haïti, OFNAC (2017), Règlement de l'aviation civile, Partie 14 – Aéroport, Annexe K, Plan d'urgence, URL : https://ofnac.gouv.ht/wp-content/uploads/2020/11/RACH-Partie-14-Annexe-K-Plan-Urgence.pdf
Societal	Conflict	Civil unrest	UNISDR (2017), Country Document for Disaster Risk Reduction: Haiti 2016-2020, URL: https://www.preventionweb.net/files/54921_annex03documentpayshaiti.pdf
	Behavioural	Violence	UNISDR (2017), Country Document for Disaster Risk Reduction: Haiti 2016-2020, URL: https://www.preventionweb.net/files/54921_annex03documentpayshaiti.pdf
	Economic	Financial Shock	UNISDR (2017), Country Document for Disaster Risk Reduction: Haiti 2016-2020, URL: https://www.preventionweb.net/files/54921_annex03documentpayshaiti.pdf République d'Haïti, Ministère de l'Économie et des Finances (2020), Plan de relance économique post-Covid, URL : https://mef.gouv.ht/docs/latest/prepoc_2020_2023.pdf

Vulnerability and Exposure

RISK COMPONENT	SOURCE
Social Vulnerability	Global Health Security Index (2021), 2021 GHS Index Country Profile for Haiti, URL: https://www.ghsindex.org/country/haiti/ République d'Haïti (2019), Plan national de gestion des risques de désastre 2019-2030, URL : https://www.preventionweb.net/files/72907_plannationaldegestiondesrisquesdeds.pdf République d'Haïti (2019), Politique nationale de lutte contre les changements climatiques, URL : https://mde.gouv.ht/phocadownload/PNCC-HAITI-2019%20Final.pdf République d'Haïti (2006), Plan d'action national d'adaptation, URL : https://unfccc.int/resource/docs/napa/hti01f.pdf UNDP (2020), Human Development Report 2020, The Next Frontier: Human Development and the Anthropocene, Haiti, URL: https://hdr.undp.org/sites/default/files/Country-Profiles/HTI.pdf World Bank (2022), Data: Haiti, URL: https://data.worldbank.org/country/haiti République d'Haïti, Ministère de l'Économie et des Finances, Institut Haitien de Statistique et d'Informatique, Enquête sur l'emploi et l'économie informelle (EEEI), 2010. https://www.ilo.org/public/libdoc/igo/2010/479421.pdf Partners in Literacy Haiti (2022), Literacy in Haiti, URL: https://haiti-literacy.org/literacy-in-haiti/ MINUSTAH, URL: https://minustah.unmissions.org United Nations Human Rights (2018), Committee on the Rights of Persons with Disabilities examines report of Haiti, URL: https://www.ohchr.org/en/press-releases/2018/02/committee-rights-persons-disabilities-examines-report-haiti WHO, The Global Health Observatory (2022), Haiti, URL: https://www.who.int/data/gho/data/countries/country-details/GHO/haiti?countryProfileId=8dfd3be5-73db-48ec-abf4-13464e5b5884

RISK COMPONENT	SOURCE
Physical Vulnerability	République d'Haïti (2019), Plan national de gestion des risques de désastre 2019-2030, URL : https://www.preventionweb.net/files/72907_plannationaldegestiondesrisquesdeds.pdf République d'Haïti (2019), Politique nationale de lutte contre les changements climatiques, URL : https://mde.gouv.ht/phocadownload/PNCC-HAITI-2019%20Final.pdf République d'Haïti (2006), Plan d'action national d'adaptation, URL : https://unfccc.int/resource/docs/napa/hti01f.pdf PAHO, Haiti: Haiti's vulnerability to natural disasters, URL: https://www.paho.org/english/DD/PED/reginfohaiti.htm World Bank, Climate Change Knowledge Portal (2022), Haiti, URL: https://climateknowledgeportal.worldbank.org/country/haiti/vulnerability République d'Haïti (2013), Code National du Bâtiment d'Haïti 2012, URL : https://www.mtptc.gouv.ht/media/upload/doc/publications/CNBH_fusion.pdf Gunasekera R., Daniell J., Pomonis A., Arias Donoso R., Ishizawa O., Stone H., World Bank (2018), Methodology Note on the Global Rapid post-disaster Damage Estimation (GRADE) approach, URL: https://www.gfdrr.org/sites/default/files/publication/DRAS_web_04172018.pdf République d'Haïti, Ministère de l'agriculture, des ressources naturelles et du développement rural (2010), Plan national d'investissement agricole, URL : http://extwprlegs1.fao.org/docs/pdf/hai146377.pdf World Bank (2018), Briefing Results: Understanding the Future of Haitian Cities, URL: https://www.worldbank.org/en/results/2018/06/26/understanding-the-future-of-haitian-cities Economist Intelligence (2018), Haiti struggles to address urbanization challenges, URL: https://country.eiu.com/article.aspx?articleid=866651470&Country=Haiti&topic=Economy
Exposure	République d'Haïti (2019), Plan national de gestion des risques de désastre 2019-2030, URL : https://www.preventionweb.net/files/72907_plannationaldegestiondesrisquesdeds.pdf République d'Haïti (2019), Politique nationale de lutte contre les changements climatiques, URL : https://mde.gouv.ht/phocadownload/PNCC-HAITI-2019%20Final.pdf République d'Haïti (2006), Plan d'action national d'adaptation, URL : https://unfccc.int/resource/docs/napa/hti01f.pdf Terrier M., Rançon, J. F., Bertil D., Chêne F., Desprats J. F., Lecacheaux S., Le Roy S., Stollsteiner P., Bouc O. (BMRGM), Raynal, M. (CIAT) (2017), Atlas des menaces naturelles en Haïti, URL : https://fr.calameo.com/read/0057191216d35c942d25f

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