EXECUTIVE SUMMARY

Post-Disaster Needs Assessment In Haiti

Earthquake of 14 august 2021 in the southern peninsula

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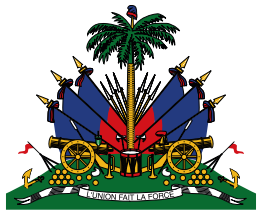


REPUBLIC OF HAITI
MINISTRY OF PLANNING AND EXTERNAL COOPERATION

POST-DISASTER NEEDS ASSESSMENT IN HAITI: EARTHQUAKE OF 14 AUGUST 2021 IN THE SOUTHERN PENINSULA

EXECUTIVE SUMMARY

PRESENTATION

Introduction

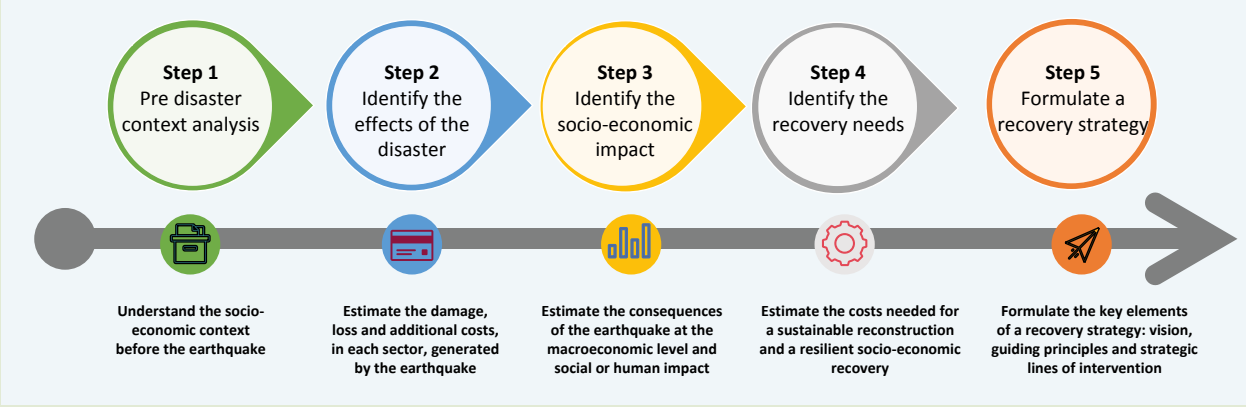
On 14 August 2021 at 8:29 a.m., a 7.2-magnitude earthquake struck the Southern Peninsula of Haiti made up of the departments of Sud, Grand'Anse and Nippes. The national authorities declared a state of emergency the same day and activated the national natural disaster risk management system to coordinate, through the General Directorate for Civil Protection, rescue operations aimed at saving lives and responding to the immediate needs of affected populations in collaboration with local and international actors present on site, as well as countries friends with Haiti.

On 16 August 2021, the national authorities also mobilized the World Bank-United Nations-European Union tripartite partnership – joined by the Inter-American Development Bank – to support the development of the Post-Disaster Needs Assessment (PDNA). The PDNA was officially launched by Haiti's Prime Minister on 30 and 31 August 2021. National technical teams were trained and finalized data collection by the 22 September 2021 deadline with the support of technicians from the tripartite partnership. The coordination of the evaluation was entrusted to the Ministry of Planning and External Cooperation (MPCE) and supported by the coordinators of the tripartite partnership.

Methodological aspects of the PDNA

The following *main steps* were taken to assess recovery needs following the earthquake of 14 August 2021:

The valuation method



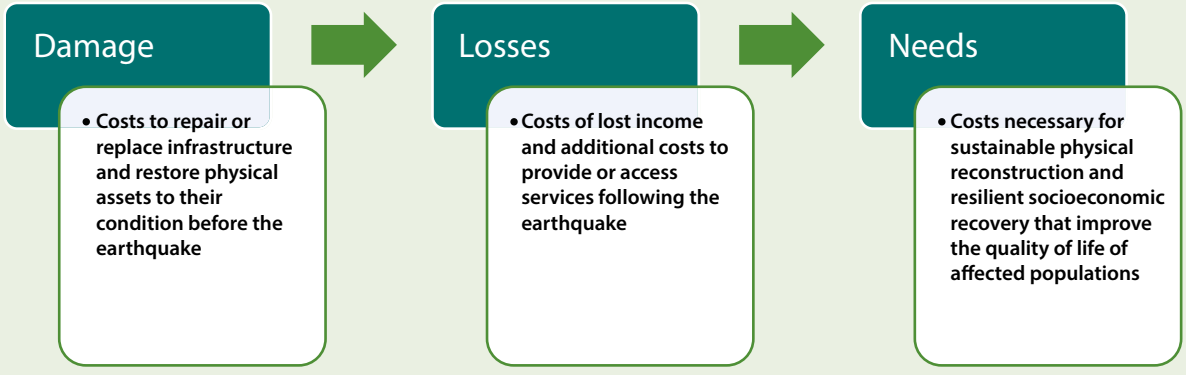
This method of analysis is undertaken for each impacted sector and cross-cutting issues

First, the methodology considers the economic and social context prior to the earthquake in the three departments of the Southern Peninsula to be able to analyse the disparities observed *before* and *after* the earthquake.

Then, the assessment focuses on the quantitative identification of the effects of the disaster in terms of damage and losses caused by the earthquake, as well as recovery needs for 11 sectors grouped into four main categories: (i) productive sectors (agriculture, commerce and industry, tourism), (ii) social sectors (housing, health and education), (iii) infrastructure sectors (transport, water and sanitation, and energy) and (iv) crosscutting sectors (disaster risk reduction and environment).

Following this assessment, the human impact of the earthquake is analysed according to five indicators: (i) the living conditions of the population, (ii) means of subsistence and employment, (iii) food security and nutrition, (iv) gender equality and (v) social inclusion and social protection. The macroeconomic impact of the earthquake is then assessed and quantified, particularly in terms of public finances, external sector, and balance of payments. Finally, the assessment proposes a vision, guiding principles and strategic guidelines for post-earthquake recovery.

The **three central concepts** used to evaluate and quantify the effects of the earthquake are as follows: :



Presentation of the Executive Summary

This executive summary ***condenses*** the data collected from 30 August to 22 September 2021 as well as the analyses coordinated by the MPCE, which are detailed in the general PDNA report and its appendices. The executive summary is organized as follows:

Contenu


HAITI

1. KEY RESULTS OF THE ASSESSMENT

OVERALL RESULTS

The results of the assessment of the effects of the 14 August 2021 earthquake indicate a total of **US$1,620,071,414** in **damage and losses**. These effects are distributed into US$1,246,499,834 in damage (or 77 per cent), and US$373,571,580 in losses (or 23 per cent). Recovery **needs** are also estimated at **US$1,978,063,102.**

Furthermore, **26 per cent** of the total effects of the earthquake (cumulative damage and losses) is attributed to **public effects** and **74 per cent to private effects** as illustrated in the following table:

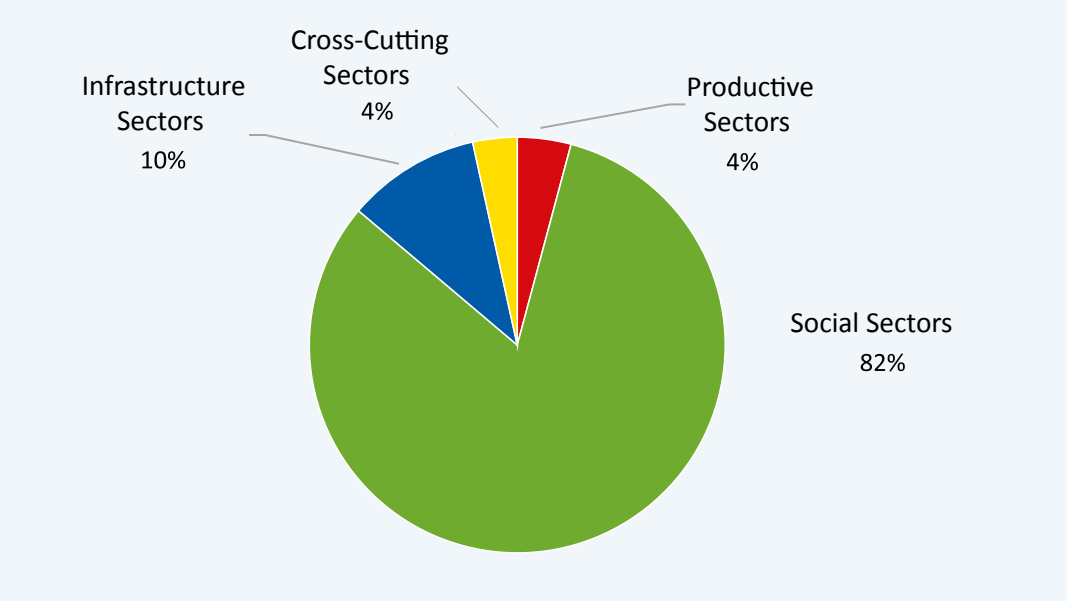
Total Damage in US$		Total Losses in US$		Total Effects of the Earthquake in US$		Total Recovery Needs in US$
Public Damage	Private Damage	Public Losses	Private Losses	Total Public Effects	Total Private Effects	
265,626,070	980,873,763	149,817,414	223,754,167	415,443,484	1,204,627,930	
1,246,499,834		**373,571,580**		**1,620,071,414**		**1,978,063,102**

BREAKDOWN OF THE EFFECTS OF THE EARTHQUAKE AND RECOVERY NEEDS

Social sector: the social sector registered **US$1,187,298,010 in damage and losses** (i.e., 73 per cent of the total effects of the earthquake); recovery **needs** are estimated at **US$1,514,876,670** (76 per cent of total needs).

Sub-sectors	Damage in US$			Losses in US$			Total Effects in US$			Needs in US$
	Public	Private	Total	Public	Private	Total	Public	Private	Total	Total
Lodging	-	753,722,035	753,722,035	58,304,264	3,047,040	61,351 304	58,304,264	756,769,075	815,073,339	1,027,151,142
Health	5,274,081	5,847,351	11,121,432	8,120,612	-	8,120,612	13,394,693	5,847,351	19,242,044	31,920,340
Education	86,602,742	170,767,945	257,370,687	25,515,460	43,063,780	68,579,240	112,118,202	213,831,725	325,949,927	401,283,532
Food security	-	-	-	27,032,700	-	27,032,700	27,032,700	-	27,032,700	54,523,656
Total Social Sector	**91,876,823**	**930,337,331**	**1,022,214,154**	**118,973,036**	**46,110,820**	**165,083,856**	**210,849,859**	**976,448,151**	**1,187,298,010**	**1,514,878,670**

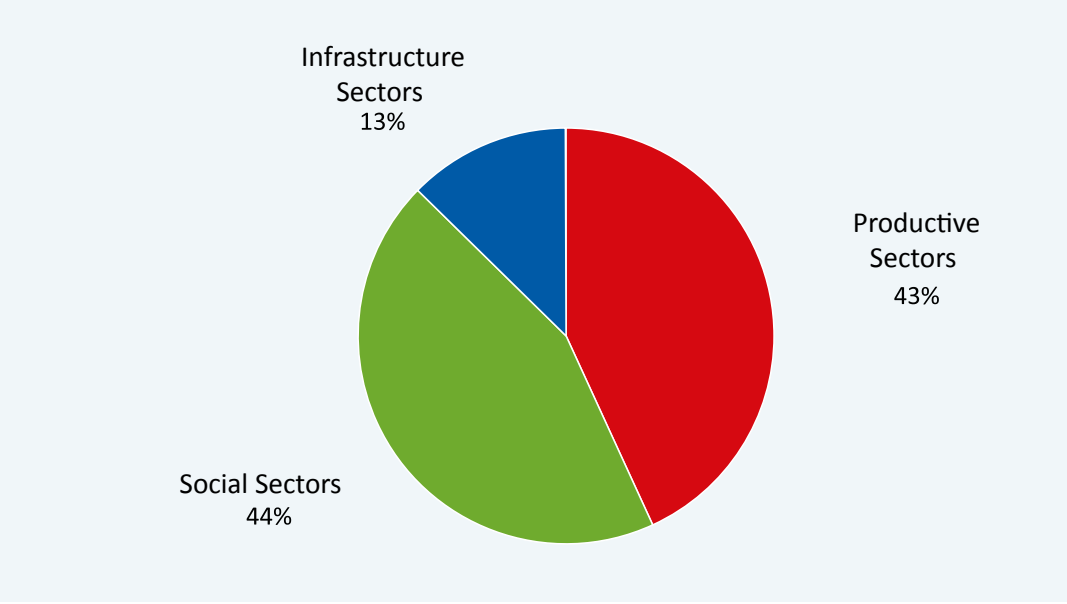
The social sectors are the ones registering the most significant damage with **82 per cent**, followed by **infrastructure** with **10 per cent**.



Secteur Productif : le secteur productif qui comprend l'agriculture, le commerce, l'industrie et les services financiers, et le tourisme enregistre **213,210,570 de $US en dommages et pertes** (soit 13% du total des effets du séisme); les **besoins** de relèvement sont estimés à **197,259,243 de $US** (soit 10% du total des besoins).

Sub-sectors	Damage in US$			Losses in US$			Total Effects in US$			Needs in US$
	Public	Private	Total	Public	Private	Total	Public	Private	Total	Total
Agriculture	4,405,296	20,079,205	24,484,501	-	19,175,585	19,175,585	4,405,296	39,254,790	43,660, 085	41,096,243
Commerce, Industry & Financial Services	905,255	20,404,772	21,310,027	-	126,861,546	126,861,546	905,255	147,266,318	148,171,574	104,413,000
Tourism	-	6,182,055	6,182,055	-	15,196,856	15,196,856	-	21,378,911	21,378,911	51,750,000
Total Productive Sector	**5,310,551**	**46,666,032**	**51,976,583**	**-**	**161,233,987**	**161,233,987**	**5,310,551**	**207,900,019**	**213,210,570**	**197,259,243**

The social sectors and **the productive** sectors are the ones registering the most significant losses with **44 per cent and 43 per cent respectively**.



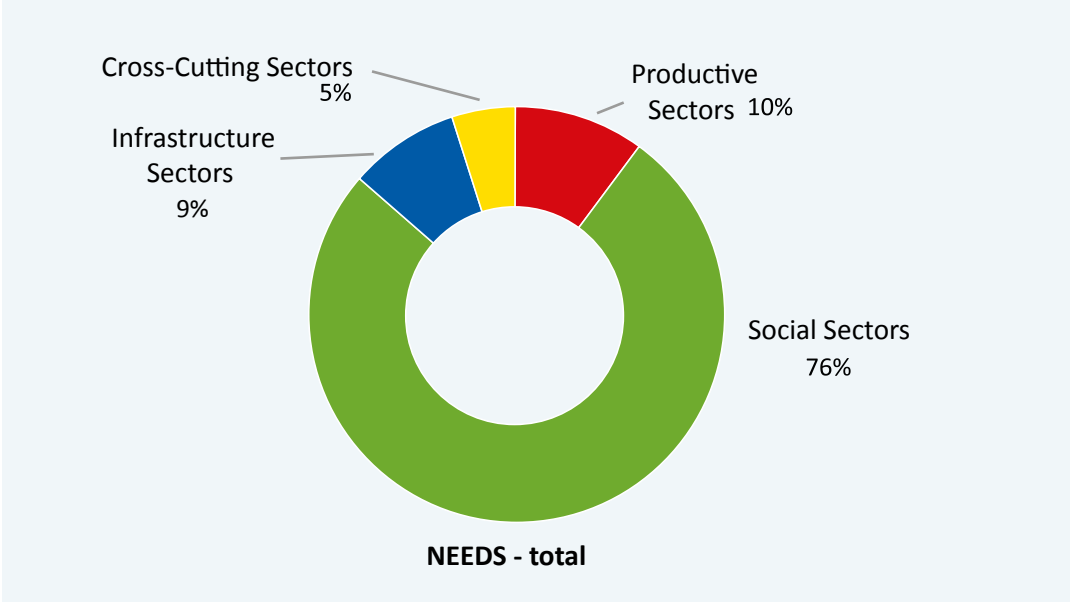
Infrastructure sector: infrastructure registered **US$176,362,986 in damage and losses** (i.e., 11 per cent of the total earthquake effects); recovery needs are estimated at **US$172,130,279** (or 9 per cent of total needs).

Sub-sectors	Damage in US$			Losses in US$			Total Effects in US$			Needs in US$
	Public	Private	Total	Public	Private	Total	Public	Private	Total	Total
Transport	118,064,000	-	118,064,000	17,700,000	16,020,000	33,720,000	135,764,000	16,020,000	151,784,000	142,020,000
Water & Sanitation	2,785,000	3,870,000	6,655,000	81,000,000	30,000,000	111,000,000	2,866,000	3,390,000	6,766,000	10,926,000
Energy	4,608,700	400	4,609,100	12,844,526	359,360	13,203,886	17,453,226	359,760	17,812,986	19,184,279
Total Infrastructure	**125,457,700**	**3,870,400**	**129,328,100**	**30,625,526**	**16,409,360**	**47,034,886**	**156,083,226**	**20,279,760**	**176,362,986**	**172,130,279**

Crosscutting sectors: the crosscutting sectors registered **US$43,199,848 in damage and losses** (i.e., 3 per cent of the total earthquake effects); recovery needs are estimated at **US$93,794,911** (6 per cent of total needs).

Sub-sectors	Damage in US$			Losses in US$			Total Effects in US$			Needs in US$
	Public	Private	Total	Public	Private	Total	Public	Private	Total	Total
Disaster Risk Management (DRM)	205,997	-	205,997	218,851	-	218,851	424,848	-	424,848	11,795,651
Environment	42,775,000	-	42,775,000	-	-	-	42,775,000	-	42,775,000	81,999,260
Total Crosscutting Sectors	**42,980,997**	**-**	**42,980,997**	**218,851**	**-**	**218,851**	**43,199,848**	**-**	**43,199,848**	**93,794,911**

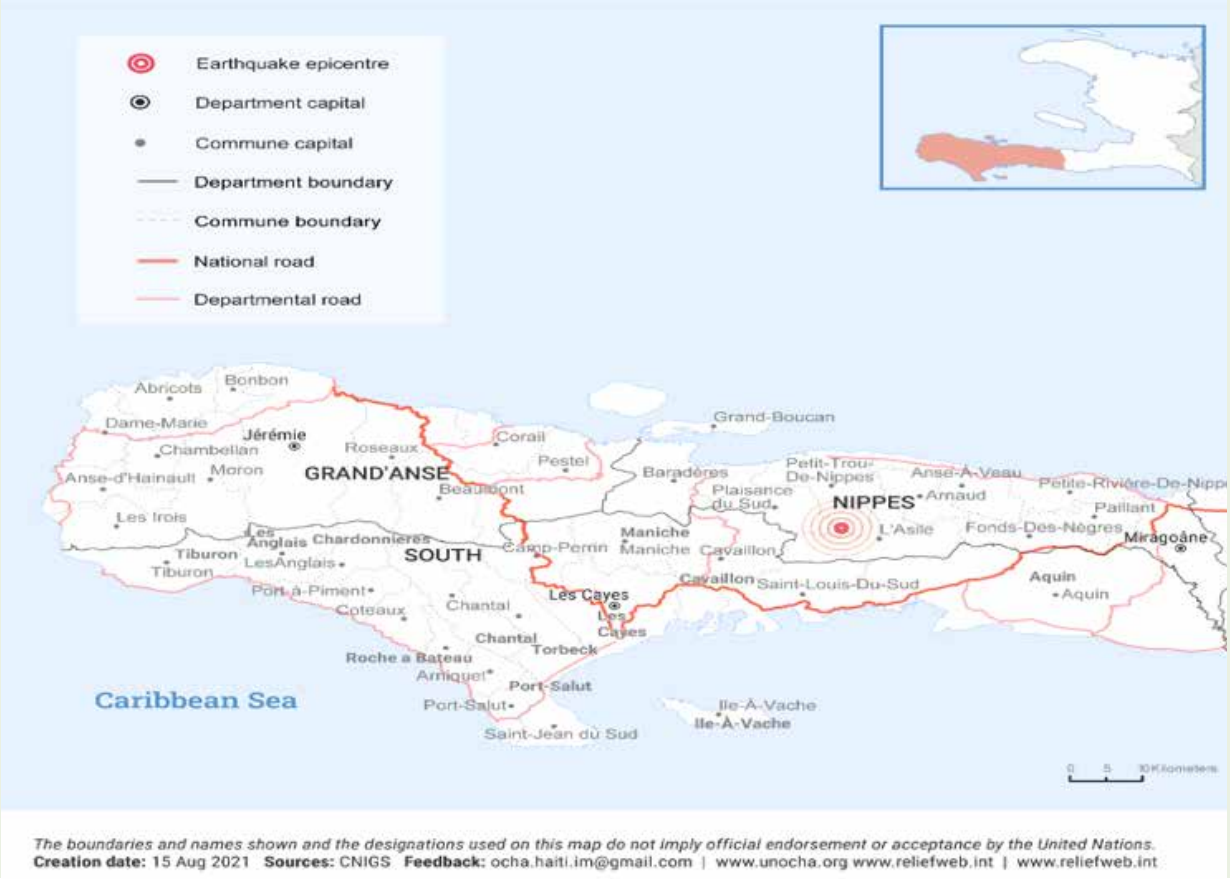
Recovery needs totaled **US$1,978,063,102,** of which **76 per cent** are attributed to the social sectors, followed by the **productive sectors** with **10 per cent and the infrastructure sector** with **9 per cent.**



2. EARTHQUAKE OF 14 AUGUST 2021: HUMAN ASSESSMENT, IMMEDIATE RESPONSE AND CONTEXT ANALYSIS

2.1. THE EARTHQUAKE OF 14 AUGUST 2021 IN THE SOUTHERN PENINSULA

On 14 August 2021 at 8:29 am, a 7.2-magnitude earthquake struck the Southern Peninsula of Haiti comprising the departments of Sud, Grand'Anse and Nippes; its epicenter was in Petit-Troup-de-Nippes, some 125 km west of the capital of Port-au-Prince.[1]



The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.
Creation date: 15 Aug 2021 **Sources:** CNIGS **Feedback:** ocha.haiti.im@gmail.com | www.unocha.org www.reliefweb.int | www.reliefweb.int

1 According to some sources, the epicenter is more precisely 12 km northeast of Saint-Louis du Sud in the Massif de la Hotte

Just like the earthquake of January 2010, the hypocenter was close to the earth›s surface (at a depth of 10 or 20 km depending on the sources) and suggests an oblique thrust fault along the Enriquillo-Plantain Garden fault, which cuts across the country from Tiburon[2] [3].

According to preliminary results, the earthquake occurred in two stages: a first segment broke between the municipalities of Asile and Baradès, releasing most of the energy; the rupture then spread westward, becoming more superficial in the Pic Macaya-Maniche-Camp Perrin area.

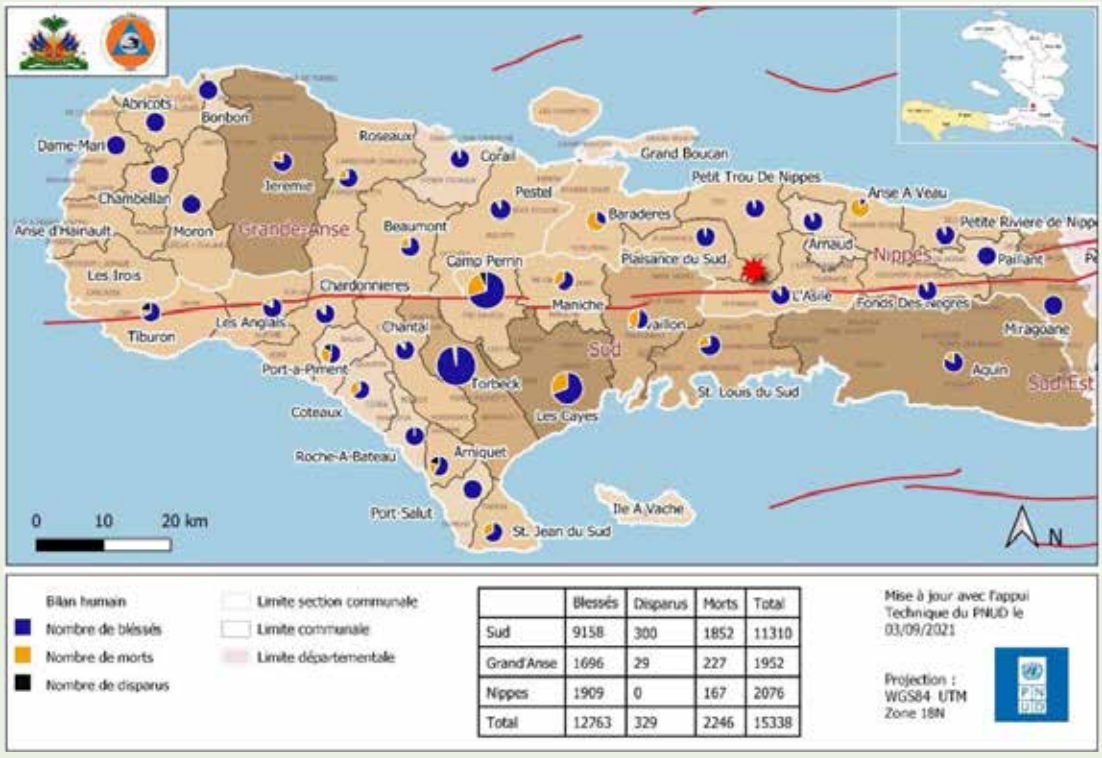
An estimated 971,198 people were exposed to the intensity of the tremors, or 59 per cent of the total population of the Southern Peninsula, according to the following breakdown by department[4]:

Departments of the Southern Peninsula	Number of people exposed to the most intense tremors (MMI VII + MMI VIII)	Percentage of the total population in the department
Sud	463,384	57%
Grand'Anse	44,430	9%
Nippes	463,384	90%
Total people exposed to the most intense tremors (MMI VII + MMI VIII)	971,198	people

2.2 The direct and indirect human toll of the earthquake

The direct human toll of the earthquake, illustrated below, resulted in 2,246 deaths, 12,763 injured and 329 missing in the three departments of the Southern Peninsula[5].

2 The Enriquillo fault is the main seismic structure in the region, and the earthquake was also felt in Cuba, Jamaica and the Dominican Republic
3 United States Geological Survey SGS, www.USGS.gov
4 OCHA Haiti, "Flash Appeal Haiti August 2021"
5 MICT/SNGRD/National Emergency Operations Centre, "Earthquake - Saturday 14 August 2021 - Southern Peninsula-Progress Report, 4 September 2021"



	Blessés	Disparus	Morts	Total
Sud	9158	300	1852	11310
Grand'Anse	1696	29	227	1952
Nippes	1909	0	167	2076
Total	12763	329	2246	15338

The direct and indirect human toll of the earthquake totaled 666,561 people in three departments of the Southern Peninsula, broken down as follows:

Direct and Indirect Human Toll of the Earthquake	Sud Department	Grand'Anse Department	Nippes Department	Total
Direct human toll[6]	11,310	1,952	2,076	15,338
Number of deceased	1,852	227	167	2,246
Number of injured	9,158	1,696	1,909	12,763
Number of missing	300	29	0	329
Indirect human toll	347,413	161,766	142,044	651,223
Number of people otherwise affected [7]	369,000	173,000	148,000	690,000
Number of people displaced (deducted from the number of people otherwise affected)[8]	21,587	11,234	5,956	38,777

6 MICT/SNGRD/National Emergency Operations Centre, "Earthquake - Saturday 14 August 2021 - Southern Peninsula- Progress Report, 4 September 2021"
7 MICT/SNGRD/COUN Technical Secretariat, 4 September 2021, idem
8 OCHA Haiti, Situation report n°6, 23 September 2021

A few hours after the shock, ground motion calculations[9] indicated violent tremors in a region extending from the commune of Les Cayes to Asile and across the entire width of the Southern Peninsula. It quickly became clear that damage would be *significant to very significant* for poorly constructed buildings and infrastructure. More than 900 aftershocks were subsequently recorded, including 400 greater than magnitude 3.0; that is, they were potentially felt and capable of damaging buildings. Buildings, weakened by the earthquake, collapsed following an aftershock of magnitude 4.85 recorded on Wednesday 18 August at midday[10].

The extreme vulnerability of the Southern Peninsula to multiple natural hazards is evident, but the three departments were not all affected equally. The mountainous parts of municipalities or municipalities in mountain areas (for example: Corail, Pestel, Camp-Perrin, Arnaud, Asile, Maniche or Torbeck) suffered the most damage in terms of destruction and landslides, which must be considered in the organization of relief efforts[11].

A first rapid assessment of the earthquake estimated that more than 83,000 homes were slightly or severely damaged, and nearly 54,000 homes were *completely destroyed* (see illustration below); the percentage of houses destroyed in rural areas is on average five to seven times higher than in urban centres. However, the collapse of urban buildings, constructed mostly of concrete, caused more loss of human life than rural dwellings made of wood and light materials[12]. On 27 August 2021, a rapid post-disaster damage assessment estimated that the economic impact of the event totaled US$1.12 billion, equivalent to 7.8 per cent of Haiti's GDP in 2019[13].

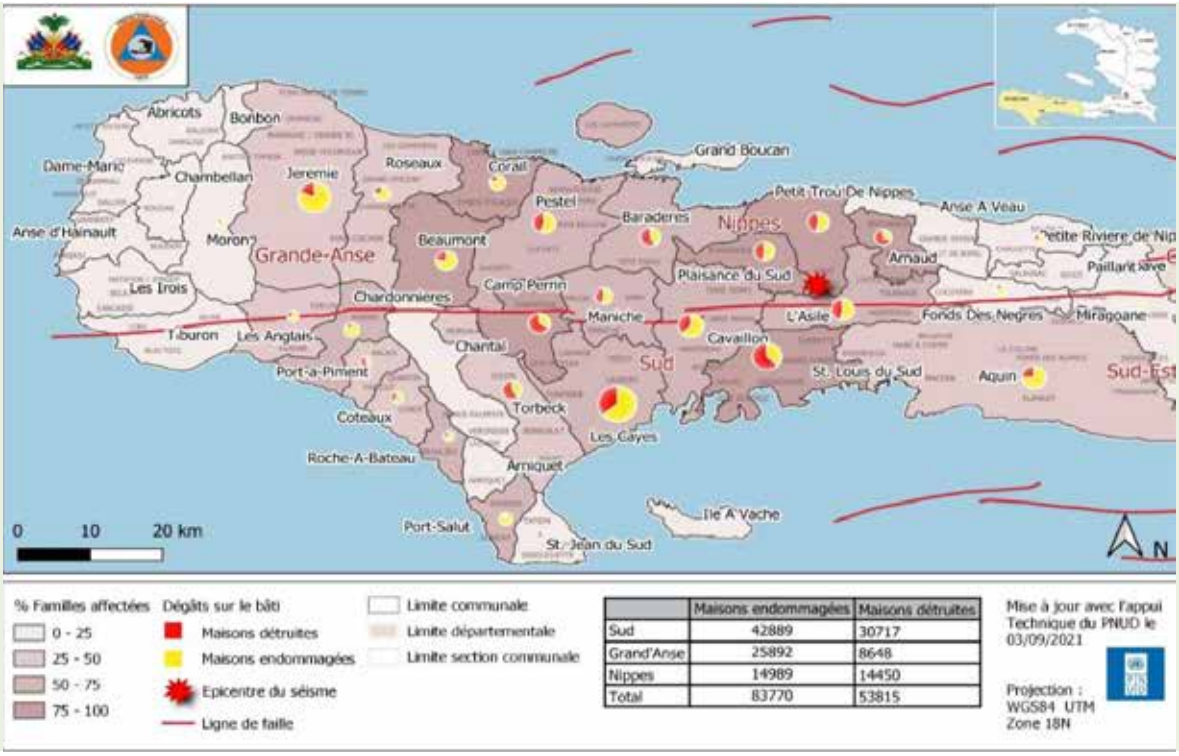
9 Were calculated by the USGS, which used the Saint-Louis du Sud accelerometer station.

10 MICT/SNGRD/COUN Technical Secretariat, "Earthquake, Saturday 14 August 2021 - Southern Peninsula", National Emergency Operations Centre Progress Report, 4 September 2021

11 MPCE/Prime Minister/Interministerial Committee for Regional Planning (CIAT), "Rapid assessment report 15-17 August 2021"

12 MICT/SNGRD/COUN Technical Secretariat, "Earthquake, Saturday 14 August 2021 - Southern Peninsula", National Emergency Operations Centre Progress Report, 4 September 2021

13 Rapid assessment conducted using GRADE 13 methodology https://www.gfdrr.org/sites/default/files/publication/DRAS_web_04172018.pdf for methodology details



2.3 The Immediate Response to the Earthquake

On 14 August 2021, the Prime Minister declared a one-month national state of emergency[14], activated the National Natural Disaster Risk Management System (SNGRD), the National Centre for Emergency Operations (COUN) and the Departmental Cente for Emergency Operation (COUD)[15]. The same day, the Ministry of Planning and External Cooperation (MPCE) notified all national and international partners of the authority of the General Directorate for Civil Protection (DGPC) to coordinate and guide the immediate earthquake response. The main priorities specified included: (i) immediate needs, (ii) basic necessities, (iii) psychosocial support and (iv) care for displaced people. In this regard and based on lessons learned, the MPCE called on organizations to not set up camps for the displaced but to provide them with the means to remain close to their places of residence[16].

The search and rescue operations for victims began the day of the earthquake and officially ended on 3 September 2021 in the three affected departments. The action of the DGPC, which spearheaded the coordination

14 L'état d'urgence national a été prolongé par la suite.
15 En appui aux COUD, le Premier Ministre a confié la mission de superviser le déroulement des opérations de secours au Ministre de la Condition Féminine et Droits de Femmes pour le département du Sud, au Ministre de l'Environnement pour le département de la Grand' Anse, et au Ministre du Tourisme pour la département des Nippes.
16 MPCE, Communiqué n°307-3217, 14 août 2021

of the immediate emergency response, has been particularly effective in collaborating with non-governmental organizations, United Nations agencies, donors and social organizations from the civil and private sectors[17]. From 14 August to 3 September, several rescue teams worked to extract survivors from the rubble and people trapped in the Massif de la Hotte mountains following rockfalls and landslides. At the national level, 124 rescuers – including 27 women –, three groups of firefighters from the Nord Department, firefighters from the Haitian National Police (from Jacmel), volunteer firefighters from the Ouest Department (Carrefour and Gressier) and volunteer civil protection brigadiers from the departments of Sud and Nippes were mobilized to save lives and alleviate the suffering of the affected population. They were joined on site by groups of specialized rescuers and firefighters from Brazil, Chile, Colombia, the United States, France, Great Britain, Mexico and the Dominican Republic. Heavy equipment from the Ministry of Public Works, Transport and Communications (MTPTC) was also deployed to free access to various points along the road network.[18]

The DGPC was immediately supported by the country's friends with Haiti [19] and the international community,[20] which mobilized considerable technical, logistical and financial resources to save lives, support rubble and road clearing operations, and ensure the supply and delivery of immediate emergency aid (planes, helicopters, boats, emergency medical teams, multisectoral essential equipment, IT teams). A total of US$86.9 million was mobilized for this purpose as of 31 August 2021.

2.4. Context analysis

Beyond the human toll, the earthquake directly or indirectly affected an estimated 690,000 people,[21] representing 45 per cent of the total population of the three departments of the Southern Peninsula.[22] Unlike the 2010 earthquake, which primarily affected the urban areas of the Ouest Department, most of the population of the Southern Peninsula (77 per cent) lives in rural areas, 52.6 per cent of which are men and

17 The private sector, represented in the Alliance for Risk Management and Business Continuity (AGERCA), has been able to mobilize aid from the private sector and civil society, which it has coordinated with the DGPC. The civilian population did not hesitate to lend a hand immediately after the earthquake, and this solidarity among the population was manifested both at the national level and in the Diaspora.

18 MICT/SNGRD/COUN Technical Secretariat, "Earthquake, Saturday 14 August 2021 - Southern Peninsula", National Emergency Operations Centre Progress Report, 4 September 2021

19 Germany, Argentina, Brazil, Chile, Colombia, Costa Rica, France, Spain, United States, Great Britain, Mexico, Netherlands, Dominican Republic, Switzerland, and European Union

20 Central Emergency Fund: CERF - OCHA and Caribbean Catastrophe Risk Insurance Facility -Segregated Portfolio Company (CCRIF-SPC)

21 MICT/Technical Secretariat SNGRD/COUN, 4 September 2021, idem

22 IHSI, 2015

47.4 per cent are women.[23] These communities are still struggling to recover from the impact and effects of Hurricane Matthew in 2016, which largely affected the same geographic areas. In addition, the earthquake occurred in the middle of the hurricane season, and only a few days after the disaster, the Southern Peninsula and the Sud-Est Department were hit by Tropical Storm Grace on 17 and 18 August.

Even before the earthquake of 14 August 2021, the three departments of the Southern Peninsula – considered particularly vulnerable to natural disasters (hurricanes, floods, landslides, droughts and earthquakes) – showed extreme signs of environmental and socioeconomic vulnerability, which certainly contributed to the extent of the current damage. From an environmental perspective, and five years after Category 4 Hurricane Matthew, the earthquake and Tropical Storm Grace confirm the Southern Peninsula as a territory subjected to repeated major crises and the associated extreme effects. A biodiversity hotspot and biosphere reserve, the territory includes eight protected areas covering 196,257 hectares including the Macaya National Park, which has been classified as a "Key Biodiversity Area" in the Caribbean region due to its irreplaceable nature.

However, the Southern Peninsula is subject to many constraints such as the weakening of ecosystems due to deforestation and erosion; a generalized degradation of the watersheds with the intensification of the phenomena of diffuse, linear and mass erosion; sedimentation of coastal areas; extreme vulnerability to climate change; unsustainable agricultural and land management practices; uncontrolled waste management; and the considerable weakness of environmental governance, in particular the poor implementation of regulations. From a socioeconomic perspective, the situation of the three departments of the Southern Peninsula was already concerning before the earthquake, as illustrated by the following main indicators:[24]

23 IHSI, Department of Demographic and Social Statistics, "Mortality, Morbidity and Service Utilization Survey (EMMUS VI), 2016-17"

24 MSPP/IHE - EMMUS VI (2016-2017)

Main Socioeconomic Indicators	Sud Department	Grand'Anse Department	Nippes Department
Population	774,976	468,301	342,525
Percentage of the population in the lowest quintile of economic well-being	25.8%	42.6%	22.4%
Percentage of the population with a washing site nearby	11.1%	7.6%	12.2%
Primary school attendance rate	79.9%	83.8%	81.4%
Percentage of women with no schooling	12.3%	13.6%	11.8%
Percentage of men with no schooling	8.2%	11.2%	7.8%
Percentage of women who give birth in a health facility	36%	27%	43%
Percentage of children under 5 years of age who are stunted	22%	22%	17%
Percentage of children aged 6-59 months with anemia	70%	68%	67%
Inequality index	0.40	0.47	0.38

Also, the earthquake occurred in a general context of crisis fraught with concerns and uncertainties regarding institutional and human development. Haiti experienced a very serious economic and social situation during the Peyi Lok (country lockdown) in 2018-2019, exacerbated by the emergence of the COVID-19 pandemic in March 2020.[25] For the first time in ten years, the GDP growth rate experienced a contraction of 1.7 per cent in 2019 followed by a contraction of 3 per cent in 2020. Following the assassination of Haitian President Jovenel Moïse in his residence on 7 July 2021, executive power was transferred to the Council of Ministers which, under the direction of the Prime Minister, aimed to (i) control insecurity, (ii) revive the economy and (iii) organize general elections as soon as possible, which should have been held in October 2019.

25 MPCE/MEF, "PREPOC 2020 - 2023, Draft Report", 27 September 2020.

Box – Human Development Profile of the Republic of Haiti [26]

Haiti ranked 170 out of 189 countries and territories on the Human Development Index in 2020. The country has experienced economic stagnation for the last 30 years and a low level of development despite all its potential. Recognized as the most unequal country in Latin America and the Caribbean (LAC), its average inequality-adjusted human development index was 40 per cent in 2020, while that of the LAC was 21.5 per cent, disaggregated as follows:

Inequality-adjusted Human Development Index 2020	Inequality in Life Expectancy	Educational Inequality	Income Inequality
Haiti	32.2%	37.3%	50.4%
LAC	11.6%	18.0%	34.9%

Also in 2020, Haiti ranked 152 out of 162 countries on the Gender Equality Index. The situation of women in Haiti therefore remains very fragile: 26.9 per cent of adult women have completed secondary school compared to 40 per cent of men. For every 100,000 live births, 480 women die from pregnancy-related causes, and the adolescent birth rate is 51.7 births per 1,000 women aged 15-19. On the other hand, female participation in the labour market is 61.9 per cent compared to 72.8 per cent for men, especially in the informal sector which represents 60 per cent of the country›s economic activity. Source: http://hdr.undp.org/sites/default/files/Country-Profiles/HTI.pdf

Finally, the earthquake struck the three departments of the Southern Peninsula in a context of widespread proliferation of insecurity experienced by the country since 2018. More specifically – and following a short pause in the wake of the earthquake – insecurity resurfaced the first week of September 2021, notably but not exclusively due to the activity of armed groups who resumed blockages of the capital's southern exit, which significantly hampered the delivery humanitarian and recovery aid to the disaster areas by road. Very costly alternative logistics resources have been mobilized, specifically by air or sea.

26 http://hdr.undp.org/sites/all/themes/hdr_theme/country-notes/fr/HTI.pdf

3. ASSESSMENT OF THE SECTORAL EFFECTS OF THE EARTHQUAKE: DAMAGE, LOSSES AND NEEDS

3.1 Productive Sectors

AGRICULTURE

Agriculture, which includes the sub-sectors of crops, livestock and fisheries, represents a significant part of the economy in Haiti, contributing 19.8 per cent of its GDP.[27] It employs 50 per cent of the population: 66 per cent in rural areas, of which 25 per cent are women.

Close to 20 per cent of the Haiti's annual maize and bean production in 2019 was produced in the Southern Peninsula. The department of Grand'Anse is the main yam producer, and the Chardonnières commune in the Sud Department is the largest grape producer in the country. The peninsula's three departments concentrate 18 per cent of Haiti's livestock, as well as the largest number of fishermen, with 16.6 per cent in Sud, 20.5 per cent in Grand'Anse and 6 per cent in Nippes.

The departments affected by the earthquake and Tropical Storm Grace were already food insecure,[28] a situation exacerbated by a poor agricultural season due to below-normal rainfall between April and May 2021.

The effects of the earthquake on the agriculture sector: damage, losses and needs

The effects of the earthquake: for the agriculture sector (crops, livestock and fishing) effects totaled US$43.66 million,[29] distributed into US$24.5 million in damage and US$19.1 million in losses.

Damage: the crop sub-sector experienced the most serious damage, with significant damage to agricultural land as a result of numerous rockslides and landslides (US$13.9 million) and to hydro-agricultural infrastructure, mainly in the Sud Department (US $ 2.4 million). The livestock sub-sector, which was particularly affected by the disappearance of animals and the destruction of infrastructure (henhouses, pigsties) and

27 World Bank, 2020, World Bank National Accounts Data and OECD National Accounts Data Files. Consulted on https://donnees.banquemondiale.org/indicateur/nv.agr.totl.zs?locations=HT
CIRAD, 2016, A comprehensive and strategic study of the Haitian agricultural/rural sector and the public investments required for its development

28 Refer to the human impact section for information on food safety.

29 It should be noted that the difficult access conditions on the ground limited the assessment of the total damage in the Southern Peninsula.

pastures, suffered total damage of US$4.9 million. In the fishing sub-sector, damage mainly consisted of the destruction or burial of fishing equipment (US$0.55 million)[30].

Losses: losses were estimated at US$19.2 million, with the majority (US$16.9 million) in the crop sub-sector, primarily in the irrigated crops in Sud because of the destruction of irrigation structures that compromised fall and winter seasons. The livestock sector registered estimated losses of US$1.7 million, attributed to the disappearance of dairy cows and laying hens. The loss of fishing equipment reduced fishermen income by an estimated US$0.5 million.

Food safety: immediately after the earthquake, the number of food insecure people increased sharply. [31] The loss of crops, livestock and fishing equipment, as well as transport difficulties (blocked roads, damage to market infrastructure) have led to an increase in food prices. In some areas of Sud, the cost of certain agricultural products increased up to 25 percent in local markets.

Recovery needs: the preliminary assessment identified a total of US$41 million in recovery and reconstruction needs for the agriculture sector.

Summary of earthquake costs in the agricultural sector

Departments	Damage in HTG		Losses in HTG		Total Damage and Losses		Recovery Needs	
	Public	Private	Public	Private	HTG	US$	HTG	US$
Sud	304,236,962	1,005,580,311	-	1,592,661,188	2,902,478,461	29,833,910	2,732,036,787	28,081,979
Grand'Anse	55,045,000	759,490,905	-	196,310,625	1,010,846,530	10,390,260	951,486,787	9,780,114
Nippes	69,300,000	188,392,465	-	75,580,563	334,273,028	3,435,916	314,643,578	3,234,149
Total	**428,581,962**	**1,953,463,682**	**-**	**1,865,552,375**	**4,247,598,019**	**43,660,085**	**3,998,167,153**	**41,096,243**

30 ESM: Maritime Signaling Posts
31 Refer to the section on human impact regarding food security.

Summary of food security needs

Departments	Number of People Affected		Number of People Targeted by Emergency Food Aid	Emergency Food Aid Needs (3 months) in US$[32]	Number of People Targeted for Recovery (18 months) in US$ [33]	Food Aid Recovery Budget (18 months) in US$[34]
	Before the Earth-quake	After the Earth-quake				
Sud	232,000	369,000	237,852	17,080,500	130,405	25,820,190
Grand'Anse	190,000	230,000	127,506	7,435,500	80,453	15,949,296
Nippes	115,500	155,000	102,189	2,516,700	64,514	12,773,772
Total	**536,500**	**754,000**	**467,547**	**27,032,700**	**275,372**	**54,543,258**

Recovery strategy

The recovery strategy for the agriculture sector is intended to be realistic, targeting recovery priorities directly linked to the earthquake and Tropical Storm Grace and based on lessons learned from previous disasters (2010 earthquake, Hurricane Matthew in 2016). The strategy will also consider the influence of climate change and integrate adaptation measures as needed. It is broken down over the short, medium and long term and according to priority axes as follows:

Short-term strategy (0 to 1 year):

- Restoration of hydro-agricultural infrastructure and agricultural land to ensure the resumption of agricultural production.
- Support in diversified and good quality seeds, agricultural tools and strengthening capacities in affected communities on good agricultural and environmental practices and nutrition in support of farmers for the winter (October) and spring (March) growing seasons.
- Support farmers in restocking the livestock sector through the recovery and strengthening of herds and access to credit with specific conditions and repayment terms for small business activities, particularly focused on women and young people. Small livestock farming (poultry and goats) is an easily mobilized source of income in support of household food security.
- Support the recovery of fishing equipment and the sector and the protection of the livelihoods

32 Emergency needs are calculated on a unit basis of US$100 per household in cash or food over a period of three months
33 The number of people targeted is calculated based on 50 per cent of the sector target increased by 30 per cent of people living in IPC 3 and IPC 4 situations.
34 Recovery needs are calculated on a unit basis of US$55 per household in cash or food over a period of 18 months.

of fishermen whose equipment was destroyed in the earthquake.

Medium-term strategy (1 to 2 years):

- Rehabilitation and reconstruction of infrastructure with the need to build back better to reduce risks and vulnerabilities to future events.
- Support the rehabilitation of community assets, processing and storage facilities, agricultural tracks and watersheds with a participatory approach.

Long-term strategy (2 to 4 years):

- Support the development of the resilience, restoration and recovery of the agricultural sector through watershed redevelopment projects (gully repair, soil protection); the diversification of the sector with an agroecological and environmental approach and actions aimed at disaster prevention and preparedness such as support for community savings and agricultural microinsurance to support value chains and agricultural investments; diversification of production with strengthening of agroforestry (fruit trees, cocoa, coffee, timber), especially in areas that are difficult to access; and for the development and use of improved energy-efficient stoves.

COMMERCE, INDUSTRY AND FINANCIAL SECTORS

Haitian businesses are relatively young, have low productivity and are more likely to retain few employees due to relatively weak managerial and technical capacities. This limits their access to markets, as well as energy, water and financing. The financial sector is dominated by a few banks whose portfolios are focused on wholesale and retail commerce, with little support to the agricultural sector or to small and medium-sized enterprises. Formal small and medium-sized enterprises are generally served by microfinance institutions, while financial cooperatives provide services to semi-formal or informal enterprises. Financial agents that channel national and international transfers (via digital wallet or remittance house) are subject to non-competitive practices that hamper the development of electronic financial services.

The priority sectors in the three departments affected by the earthquake are: (i) industry: vetiver, honey, and artisanal activities (carpentry, welding, baking, sewing, small-scale agribusiness), (ii) trade services and (iii) financial services. The damage and losses assessment focused on these key areas.

The effects of the earthquake on the commerce, industry and financial services sector: damage, losses and needs

Effects of the earthquake: for commerce and industry, the effects of the earthquake are estimated at HTG 14.4 billion (US$148 million), broken down into HTG 2.1 billion (US$21.3 million) in damage and HTG 12 billion (US$127 million) in losses. The effects of the earthquake on trade, industry and finance will have a significant impact on the Haitian economy given that these sectors represent approximately 48 per cent of the national GDP and more than 50 per cent of Haitian employment. Business disruption affects the livelihoods of stakeholders across the supply chain and especially in the agricultural sector. In the aftermath of the earthquake, access to markets for goods and services has been complicated, more so because access to Port-au-Prince was already seriously compromised.

Damage and losses to trade and industry: companies that process vetiver, a major export commodity, suffered damage of approximately HTG 437 million (US$4.5 million) and losses of HTG 729 million (US$7.5 million). The public sector is expected to assume demolition and debris removal costs for the commerce and industry sectors (around HTG 88 million or US$905,000), while the private sector will have to bear the brunt of changes in economic flows (around HTG 10.7 billion or US$109.6 million). Most of these losses are concentrated in the Sud Department, which was the largest economic hub of the three affected departments.

Damage and losses are highest in the informal sector, estimated at HTG 8 billion (US$82.3 million) compared to HTG 4.8 billion (US$49.5 million) in the formal sector. Within the informal sector, women-owned businesses have been most affected, indicating that the recovery strategy should include actions tailored to their needs.

Damage and losses in the financial sector: the main financial institutions operating in the departments affected by the earthquake may have suffered a loss of between HTG 900 million and HTG 1.6 billion (US$9 million to US$16 million). Financial institutions are in the process of assessing losses client-by-client. For commercial banks located in the affected areas of the Southern Peninsula, 2 per cent of their credit portfolios (around HTG 2.5 billion) are exposed to losses. Microfinance institutions and financial cooperatives are proportionately more affected, since 10 per cent to 19 per cent of their credit portfolios have been potentially affected. In addition, reduced access to financing in these departments will affect not only businesses but also households that may rely on the financial sector to manage emergencies.

Recovery needs: the sector's recovery and reconstruction needs are estimated at HTG 10.1 billion (or US$104.4 million). Strategies aim to (i) revitalize businesses in the Southern Peninsula (including improving the business climate and developing value chains), (ii) strengthen the intervention capacity of public institutions and (iii) promote the rehabilitation and new construction of buildings. There is an urgent need for companies to restart their economic activities to preserve, create or limit the loss of jobs. These initiatives must be adapted to the profile of the company (sector of activity, size, formality), consider technical challenges (managerial capacities and access to energy, markets and financing) and behaviours (psychological support, self-confidence, etc.) faced by entrepreneurs.

Summary of earthquake costs for the commerce, industry and financial services sector

Damage		Losses		Total Damage and Losses		Recovery Needs	
HTG	US$	HTG	US$	HTG	US$	HTG	US$
2,073,207,815	**21,310,027**	**12,342,093,412**	**126,861,546**	**14,415,301,227**	**148,171,574**	**10,158,121,503**	**104,413,000**

The recovery strategy

The short-term strategy prioritizes the establishment of a reference framework for intervention in partnership with the private sector and technical and financial partners. This framework will include proposals focused on four axes: (i) business development service programmes, grants to entrepreneurs with growth potential, as well as income transfers accompanied by financial inclusion and employability initiatives for subsistence entrepreneurs; (ii) activities for key value chains, particularly for construction; (iii) improvement of the business climate; and (iv) financing mechanisms for rehabilitation and new construction. The design and establishment of a recapitalization fund for microfinance institutions and financial cooperatives, initiatives to renegotiate loan contracts and the establishment of interoperability of electronic financial services operators are also immediate priorities.

In the medium term, a line of credit accompanied by guarantees to financial institutions is essential to finance the economic recovery. Likewise, strengthening the operational capacities of the departmental directorates of public institutions is prioritized (for the Ministry of Trade and Industry and the Fund for Industrial Development).

In the long term, structuring needs include the establishment of shared

solutions to develop and enhance labour-intensive value chains, and the strengthening of institutional capacities to improve the availability of statistics of Haitian companies.

TOURISM

In 2015, tourism was still active in Haiti with 515,804 tourist arrivals, an increase of 10.9 per cent compared to previous years. The port of Labadee also welcomed 673,501 cruise passengers in 2015, and in this sub-sector Haiti was considered a leader in the region. According to data provided by the Haitian Institute of Statistics and Informatics, tourism contributed 4.2 per cent to Haiti's GDP.

According to data from the World Tourism Organization, tourism in 2019 represented 8 per cent of GDP and 9 per cent of total employment in Haiti. Within the accommodation and catering sector, women represented 63 per cent of total employment.

From 2018 to 2019, Haiti›s tourism sector was strongly affected by the country›s internal security situation: the total number of tourists decreased by 30 per cent. Of these, overnight visitors decreased by 36 per cent, and same-day visitors (excursionists) decreased by 26 per cent. The situation of insecurity was compounded by the COVID-19 pandemic: the Economic Commission for Latin America and the Caribbean (ECLAC) estimates that Haiti lost 76 per cent of the tourism income projected prior to the pandemic and expects tourist flows from Caribbean countries to be negatively affected until 2023.

The affected departments in the Southern Peninsula are not visited by cruise passengers, who primarilty visit areas near the cruise port of Labadee (in the north of the country). However, the three departments receive tourists arriving by plane and benefit from domestic tourism. As there is no data for domestic tourism, loss estimates focus on tourists arriving by air.

According to data from the Haitian Ministry of Tourism, tourism is a significant source of income in the Sud Department. It accounts for 68 per cent of hotels and 75 per cent of rooms in the three most affected departments, followed by Grand›Anse (19 per cent and 14 per cent, respectively) and Nippes (13 per cent and 11 per cent, respectively.)

Tourist flows were drastically reduced in the weeks immediately following the earthquake. It was assumed that pleasure travel would continue to be minimal between 14 August 2021 and 31 December 2021 given the destruction experienced in the area[35].

35 Specifically, between 14 August and 30 November 2021, this flow is assumed to be zero, increasing to 5% until 31 December. These are arbitrary values, but they ultimately seek to explain the slow evolution in a situation where hotel infrastructure, roads and utilities have been affected. However, the high proportion (close to 70 to 80 per cent at least) of tourists from the Haitian diaspora could affect travel at the end of 2021 for family and solidarity reasons.

The effects of the earthquake on the tourism sector

Effects of the earthquake: the effects are estimated at HTG 281 million, with 77 per cent extended over a period of four years and not solely dependent on the reconstruction of the tourism sector. The private sector experienced 99 per cent of these effects.

Summary of the effects of the earthquake in HTG:

Category	Private Sector	Public Sector
Category	Private Sector	Public Sector
Pertes		
2021	429,678,597	
2022	1,015,712,434	
2023	617,443,025	
2024	112,700,769	
Total Losses	2,175,534,825	
Additional costs		33,079,154

Damage: damage is estimated at HTG 601,439,171 and distributed by department as follows:

Departments of the Southern Peninsula	Damage in HTG
Sud	524,611,867
Grand'Anse	47,602,610
Nippes	29,224,695
Total	**601,439,171**

Losses: losses in 2021 are estimated at HTG 429,678,597 with projections to 2024 presented in the table below:

2021 Losses in HTG	2022 Losses in HTG	2023 Losses in HTG	2024 Losses in HTG	2021-2024 Total in HTG
429,678,597	1,015,712,434	617,443,025	112,700,769	2,175,534,825

It is important to note that 67 per cent of losses occur during the first two years, and the biggest losses will be experienced in 2022 as reconstruction begins. The monthly evolution of losses is marked by the annual variations in monthly arrivals in the country and follows the assumption that tourist flows to the affected departments reflect behave in the same way. The recovery of the tourism sector depends on the progress of reconstruction in general, not just within the sector itself, and will take time. From 2023, tourist flows should recover, following the trend of a typical Gompertz curve.[36]

The recovery strategy

Although the assessments are not fully comprehensive, the main recovery objectives and sector needs are as follows:

- Recapitalize tourist operators to help them resume their activities as soon as possible
- Reopen the Les Cayes Hotel School
- Strengthen the creative industries sector
- Secure tourism resources and facilities
- Sanitize and clean the beaches
- Strengthen the organizational capacities of the Departmental Directorates of Tourism, as well as human and material resources
- Restore damaged infrastructure
- Set up a development programme for tourist and natural sites
- Implement a regulation and monitoring programme to facilitate the implementation and strict compliance with standards and regulations

The implementation of the proposed strategy requires a total of HTG 5,034,648,825 (US$51,750,000).

3.2 Social Sectors

HOUSING

For decades, Haiti has suffered the repercussions of increased informal urbanization within the territory, exacerbated by the deterioration of the living conditions of households and a strong migration of the rural population to urban centres. The main consequences of this uncontrolled urbanization are: (i) disorderly development of working-class neighbourhoods and the increased density of buildings in and on the outskirts of population centres, (ii) environmental degradation and (iii) the development of housing stock built with very poor-quality materials that fail to meet construction

36 A Gompertz function is a sigmoid curve with a typical “S” shape. In this case, the function makes it possible to describe the evolution of the recovery of visitor flows but also of prices.
The discrete formula: Nt = Nt-1 * (Nt-1 / L) ^ (a * log (b)) Where: Nt is the fraction of visitors (or price) compared to the baseline at time t. L is the upper asymptote, in this case 100 per cent. a and b are the parameters which govern the curvature of the function. In the case of this exercise, the value of a and b is 0.6.

standards, not to mention resistant to earthquakes, hurricanes and other hazards. The precariousness of housing, most of which have an average area of 22 square meters and are overcrowded, make them clearly vulnerable to natural disaster risks. The sector is also marked by a chronic deficit of decent housing.[37]

The effects of the earthquake on the housing sector: damage, losses and needs

The effects of the earthquake: the total effects are estimated at HTG 79 billion, distributed into HTG 74 billion in damage and nearly HTG 6 billion in losses.

Damage: 34 per cent of the housing stock of the Southern Peninsula was damaged, or 115,183 houses, including more than 39,850 destroyed or very seriously damaged. Sud was the most affected of the three departments with 62 per cent of the total damaged housing (71,413 houses), followed by Nippes with 24 per cent (27,644 houses) and Grand'Anse with 14 per cent (16,126 houses). Cinder block or concrete constructions suffered the most extensive damage (58 per cent of damaged houses) followed by rock masonry (18 per cent). The former accounts for more than 90 per cent of the total damage in the sector, i.e., over US$685 million that falls to the private sector.

Losses: 95 per cent of the estimated losses are linked to the demolition and clearing of rubble; the establishment of temporary housing for the affected population; the operation and maintenance costs of this housing; the provision of transitional shelters; and the cost of emergency and food kits. The loss of landlord income is estimated at over US$3 million, a cost also borne by the private sector.

Recovery needs: the needs related to the recovery and reconstruction of the housing sector totaled nearly HTG 100 billion (or US$1 billion) and are focused on five main areas: (i) temporary housing and provision of transitional shelters, (ii) demolition and rubble clearing, (iii) training and communication, (iv) housing repair and reconstruction and (v) institutional strengthening, which aims to provide additional technical support and human resources to ensure effective recovery coordination. In addition, training and communication activities will be key to the strategy to "build back better" through the dissemination of information to town halls, homeowners and the general public, as well as through technical training for builders and homeowners on these good construction practices.

37 In 2015, a study carried out by the Haitian Institute of Statistics and Informatics (IHSI) found that of the 2,360,771 housing units in the national stock, 17 per cent should be replaced, 46 per cent should expanded and 26 per cent were considered acceptable. Decent housing only accounted for some 11 per cent of this stock, and the decent housing deficit in the country was over 89 per cent

Summary of earthquake costs for the housing sector

Damage (millions in HTG)			Losses (millions in HTG)			Total Damage and Losses (millions in HTG)			Recovery Needs	
Public	Private	Total	Public	Private	Total	Public	Private	Total	**Millions in HTG**	**Millions in US$**
-	**73 328,03**	**73 328,03**	**5 672,30**	**296,44**	**5 968,74**	**5 672,30**	**73 624,47**	**79 296,77**	**99 929,00**	**1 027,97**

The recovery strategy

The objective of the housing recovery strategy is to ensure the rehabilitation of the sector in the areas affected by the earthquake by improving housing conditions in the Grand Sud region through a combination of assistance to self-reconstruction efforts and targeted support for vulnerable households to ensure that equitable reconstruction activities. Technical assistance and targeted support will focus on promoting earthquake and cyclone resistant construction techniques to reduce disaster risks for housing rebuilt post-earthquake. The recovery strategy will also establish the conditions for strengthening the sector's resilience in the longer term.

The strategy will address both short-term temporary and transitional housing needs and the recovery of the long-term housing sector. Both in the short term (from 0 to 1 year) and in the medium and long term (1 year to 4 years), the strategy aims to: (i) improve the quality, safety and speed of recovery, in particular by offering transitional shelter options, (ii) increase the skills of builders and homeowners by expanding training activities successfully implemented during the recovery period following the 2010 earthquake and Hurricane Matthew in 2016, (iii) support initiatives for the mobilization and recovery of local organizations and (iv) monitor the supply of construction material inputs, as well as the impact of housing rehabilitation activities on the environment and disaster risk prevention. The recovery programme will be implemented beyond 48 months with the objectives of (i) reducing disaster risks during the reconstruction phase, (ii) strengthening the capacities of local actors from masons to municipalities and (iii) promoting equitable recovery.

HEALTH

The earthquake of 14 August 2021 had particularly acute effects and impacts on the health sector given the pre-existing fragility of the system, the gaps in access to health services and the stress of the COVID-19 pandemic.

The destruction and damage caused to public, private and mixed health facilities

occurred in a context defined by sanitary conditions aggravated by food insecurity, evidenced by the severe levels of malnutrition among vulnerable population groups; the prevalence of endemic diseases; and the limited access to water and sanitation. In addition to reducing the capacity of both ambulatory and hospital services, the earthquake created extraordinary response and recovery costs.

Health services prior to the earthquake were distributed as follows:

Population of the Departments of the Southern Peninsula		Health facilities					Ressources Humaines	
		Total	Total Health Centres	Health Centres with Beds	Hospitals	Number of Inhabitants per Health Facility	Total	Service Providers
Sud	774,976	80	58	18	4	9,687	1,041	469
Grand'Anse	468,301	53	44	5	4	8,835	1,002	404
Nippes	342,525	32	25	4	3	10,703	35	176
Total	1,585,802	165	127	27	11	9,610	2,078	1,049

The effects of the earthquake on the health sector: damage, losses and needs

The effects of the earthquake: more than 60 per cent of health facilities of all categories have been affected; 23 per cent experienced severe damage and 39 per cent minor damage. A multidisciplinary, inter-agency team led by the Ministry of Public Health and Population (MSPP) conducted an assessment using the PDNA methodology and the data available at the time. The needs identified relate mainly to the short term, and more detailed studies and assessments will be carried out to formulate a sectoral recovery strategy and provide an assessment of medium to long term needs.

Summary of earthquake costs for the health sector

Damage		Losses		Besoins en Relèvement	
HTG	US$	HTG	US$	HTG	US$
1,081,980,761	**11,121,432**	**790,037,285**	**8,120,612**	**3,105,462,868**	**31,920,340**

The recovery strategy

The post-earthquake recovery is compromised by the ongoing COVID-19 pandemic, the 2021 hurricane season and the need to adapt to climate change in a country already considered to be the most vulnerable in the Caribbean. Taking into account gaps in the health system, recovery faces several challenges in achieving the following objectives:

- Ensure the availability of resources for reconstruction
- Ensure trained human resources to guarantee access to all levels of care
- Ensure the financial viability of the health system in the Grand Sud
- Strengthen community-based primary health care
- Ensure access of vulnerable populations to drugs and diagnostics without financial burden
- Ensure adequate management of human and material resources
- Immediately restore basic essential services (including pre and postnatal services and childbirth)
- Continue child health and care services with special attention to newborns
- Maintain priority programmes (TB, Malaria, HIV/AIDS)
- Ensure access to services at the three levels of care through a functional referral and counter-referral system
- Strengthen the health information system with innovative approaches allowing reliable information feedback in real time
- Maintain and strengthen treatment capacities to cope with potential increase in COVID-19 cases
- Accelerate COVID-19 vaccination and routine vaccination in general
- Provide care without financial burden for populations at risk of catastrophic diseases and chronic communicable and non-communicable diseases
- Ensure that patients in health centres have access to functional and sustainable WASH services
- Ensure that health centres have functional water, sanitation and hygiene (WASH) services (functional water points; sex-segregated toilets, access for people with disabilities, solid and liquid waste management, hand washing sites and information, education and communication campaigns on hygiene)
- Promote health and behaviour change for the prevention of communicable and chronic diseases, hygiene and nutrition
- Decentralize and promote local governance based

on a vision of subsidiarity and the pyramid model proposed by the health policy

- Develop an intersectoral approach that links health to nutrition, a clean and uncontaminated environment, working conditions, and the customs and living conditions of the population.

EDUCATION

The Haitian education system has approximately 19,500 primary and secondary schools, including 1,620 in Sud, 823 in Grand'Anse and 844 in Nippes. It is divided into a formal sector and a non-formal sector made up of a multiplicity of public (various ministries), private and non-governmental institutions that enroll 77 per cent of students and represent 85 per cent of basic schools. While enrollment rates were 80 per cent in 2012, i.e., an increase of 20 per cent since the 2000s, the end of major school subsidy programmes and closures during the 2019-2020 school year due to the COVID-19 pandemic have greatly affected the progress of the sector.

The quality of educational services, academic results and teaching is still limited: 80 per cent of teachers have not received adequate training. The predominance of non-public education and a lack control by the state contributes to the low quality of the educational offer. These establishments often operate in inadequate buildings (for 35 per cent of public schools and 43 per cent of non-public schools) with limited access to basic services: only 50 per cent are connected to a water source, 53 per cent have latrines, and 25 per cent have access to an energy source.

The effects of the earthquake on the education Sector: damage, losses and needs

The effects of the earthquake: these effects are nearly HTG 32 billion, distributed into HTG 25 billion in damage (or 79 per cent of the costs generated by the earthquake) and nearly HTG 7 billion in losses. The Sud Department was the most affected with nearly 45 per cent of the estimated damage and losses, followed by the Grand'Anse with more than 30 per cent. Approximately 1,250 schools were reported damaged or collapsed, with Sud registering 540 of the damaged or destroyed schools. Of these, 530 are public and 520 are private.

In addition to the impact on the education of students in the affected schools, closures will result in a direct loss of income for damaged private schools as they will not be able to collect tuition. Some may be forced to close permanently. Finally, many schools are now used as temporary shelters for affected families, whether they are official DGPC shelters or not.

Damage: school buildings suffered the most significant damage; 66 per cent in the private sector. The cost of repair and reconstruction – calculated according to the level of damage and type of school – is estimated at HTG 25 billion (US$257 million) including HTG 11 billion in Sud, HTG 7 billion in Grand'Anse and HTG 6 billion in Nippes. To these amounts are added the costs of replacing equipment such as benches, desks, tables, chairs, bookcases, management equipment and computer equipment rendered inoperable. Estimated at HTG 181 million, they are distributed into HTG 97 million in Sud; HTG 41 million in Grand'Anse and HTG 43 million in Nippes.

Losses: they are estimated at nearly HTG 7 billion (nearly US$69 million), approximately 37 per cent in the public sector. Most of these losses are associated with the setting up of temporary or semi-permanent structures and school cleaning (29 per cent of the total), hygiene measures and the costs associated with measures to offset negative financial effects of the disaster on school enrollment.

Recovery needs: the repair and reconstruction needs of the education sector are estimated at HTG 39 billion (US$401 million). These needs focus on school infrastructure as well as the provision of materials and services to ensure the continuity of public and non-public education service; 36 per cent in the public sector and 64 per cent in the private sector. Infrastructure needs represent 87 per cent of the total identified needs. The remaining 13 per cent are related to the services required for the resumption of school activities, psychosocial support for teachers and students, and activities to strengthen the governance of the sector.

Synthèse des Coûts du Séisme pour le Secteur de l'Éducation

Damage in HTG			Losses in HTG			Damage and Losses in HTG			Recovery Needs in HTG
Public	Private	Total	Public	Private	Total	Public	Private	Total	Total
8,425,398,867	16,613,654,756	25,039,053,623	2,482,345,521	4,189,584,722	6,671,930,243	10,907,744,388	20,803,239,478	31,710,983,866	39,040,032,095
Damage in HTG			**Losses in HTG**			**Damage and Losses in HTG**			**Recovery Needs in HTG**
Public	Private	Total	Public	Private	Total	Public	Private	Total	Total
86,602,742	170,767,945	257,370,687	25,515,460	43,063,780	68,579,240	112,118,202	213,831,725	325,949,927	401,283,532

The recovery strategy

Financial needs were identified in three phases: 43 per cent or HTG 17 billion in the short term, HTG 11 billion in the medium term and HTG 10 billion in the long term. Temporary structures must be quickly put in place to secure the damaged or destroyed schools. In this context, the construction activities carried out by the technical and financial partners and the NGOs will have to be harmonized through the existing coordination structures, in particular the reconstruction technical group led by the emergency unit of the Ministry of National Education and Vocational Training (MENFP). The provision of subsidies to schools and parents to offset the financial effects of the earthquake on student education will be a priority. The reconstruction of schools in the medium and long term should follow the Build Back Better approach, and the recovery strategy will also seek to develop a national strategy to begin building resilience of the sector.

3.3 Infrastructure Sectors

TRANSPORT

The road network of the three departments of the Southern Peninsula is made up of 2,696 km of roads, 80 per cent of which are tertiary roads and agricultural roads. The network is characterized by a poor general condition reinforced by insufficient maintenance and high exposure to natural and climatic disasters.[38] The Southern Peninsula has five short seaports at Corail, Jérémie, Anse-d'Hainaut, Pestel and Les Cayes, while maritime transport is a key component of the Haitian economy and accounts for 85 per cent of international foreign trade. The region also has two airports in the towns of Les Cayes and Jérémie, which have recently benefited from major improvements.

The effects of the earthquake on the transportation sector: damage, losses and needs:

The effects of the earthquake: they total an estimated **US$152 million**[39] distributed into **US$119 million in damage** and **US$34 million in losses**.

Damage: the road network was most significantly affected with **close to US$ 117 million** in damage. Initial estimates show 860 km of damaged roads or 32 per cent of the road network of the Southern Peninsula. In the port sector, approximately US$1.95 million in major damage to infrastructure, lighthouses (57 per cent of damage of the port sector) and maritime signaling facilities (ESM) was identified in the five ports of Corail, Jérémie, Anse-d 'Hainaut, Pestel and Les Cayes.

38 At the national level, 50 per cent of the territory is poorly connected, particularly in rural areas where there are 3.2 million people with limited or no access within 2 km (30 min walk) of a road suitable for vehicles at all times.

39 It should be noted that the difficult access conditions on the ground limited the assessment of the total damage in the Southern Peninsula

Losses: they have been estimated at nearly **US$34 million** and are primarily associated with the increase in vehicle operating costs and the delays caused by road disruptions. In the public sector, they include the estimated cost of activities to meet immediate needs for the restoration of accessibility and connectivity, such as the clearing of roads.

Recovery needs: the preliminary assessment identifies US$142 million in repair and reconstruction needs for the transport sector. This includes the cost of repairs that follow the Build Back Better approach, which integrates higher construction standards and resilience criteria.

Synthèse des Coûts du Séisme pour le Secteur des Transports[40]

Sub-sectors	Damage (millions in US$)			Losses (millions in US$)			Total Damage and Losses (millions in US$)			Recovery Needs (millions in US$)		
	Public	Private	Total	Public	Private	Total	Public	Private	Total	Public	Private	**Total**
Road Network	116,7	---	116,7	17,7	16,02	33,72	134,4	16,02	150,42	139,68	---	**139,68**
Port and Maritime Signaling Infrastructure	1,95	---	1,95	---	---	---	1,95	---	1,95	2,34	---	**2,34**
Total	**118,65**	**---**	**118,65**	**17,7**	**16,02**	**33,72**	**136,35**	**16,02**	**152,37**	**142,02**	**---**	**142,02**

The recovery strategy

Financial needs were identified in three phases: US$42 million in the short term, US$48 million in the medium term and US$52 million in the long term. In the short term, this will include (i) restoration of the main road accesses in the affected areas, (ii) carrying out emergency repairs and stabilization on priority roads and various networks, (iii) supporting the MTPTC's mandate for the structural assessment of buildings and (iv) contributing to the initial recovery efforts through the mobilization of community workforces to carry out labour-intensive works to strengthen the accessibility and protection of road and related infrastructure. In the medium and long term, efforts will then focus on strengthening existing networks and engineering structures in the three departments affected by the earthquake, taking into account the significant needs related to the vulnerability and isolation of rural populations.

40 Un coût additionnel de 20 % au coût de construction traditionnel a été appliqué pour les mesures de BBB

WATER AND SANITATION

Despite considerable efforts to coordinate stakeholders and implement the investment packages from technical and financial partners, water and sanitation coverage and access continue to be low: management, exploitation and protection of the resource remain problematic, and water quality control in the distribution system is not systematic.

Before the earthquake of 14 August 2021, the country showed slight gains in the coverage and access to water and sanitation at the national level: 68 per cent of the urban population with access to drinking water compared to 48 per cent in rural areas.[41] In the three departments of the Southern Peninsula affected by the earthquake, 48 percent of the population is supplied with drinking water through 5,707 water points and 166 water supply systems.

The effects of the earthquake on the water and sanitation sector: damage, losses and needs

The effects of the earthquake: total effects were **US$6.70 million**, distributed into US$6.6 million in damage and US$0.1 in losses.

Damage: regarding **drinking water**, the most significant damages are estimated at US$2.4 million, affecting 57 rural water supply systems. In addition, the two water supply systems in the cities of Les Cayes and Jérémie suffered damage of US$80,000 and US$260,000, respectively. Regarding sanitation, individual **sanitation** facilities suffered the most damage, estimated at nearly US$4 million, while public sanitation facilities – identified in markets and schools – suffered an estimated US$45,000 in damage.

Losses: these are estimated at US$111,000 and are primarily related to the loss of revenues for operators and four Technical Exploitation Centre (CTE) offices, calculated over three months (50 per cent losses on the monthly amounts usually collected), which are added to the costs of mobilizing damage assessment teams and the loss of income of the water supply and sanitation committees (CAEPA) in the private sector.

Recovery needs: needs are estimated at nearly **US$11 million**. The most significant are related to **sanitation** – estimated at US$6.57 million – with 59 per cent allocated to the private sector for the reconstruction of household toilets. **Water supply needs** total US$4.35 million for the rehabilitation and reconstruction of networks and to ensure the supply of drinking water to the population.

41 SIEPA, 2021

Summary of earthquake costs for the water and sanitation sector

Damage (millions in US$)			Losses (millions in US$)			Total Damage and Losses (millions in US$)			Recover Needs (millions in US$)		
Public	Private	Total	Public	Private	Total	Public	Private	Total	Public	Private	Total
2,79	**3,87**	**6,6**	**0,11**	**-**	**0,11**	**2,90**	**3,87**	**6,77**	**7,05**	**3,87**	**10,92**

The recovery strategy

In the short term, it will be necessary to meet the water and sanitation needs of earthquake victims, followed by a detailed assessment of the damaged water supply systems and the provision of financial support to the CTEs and CAEPAs affected by a loss of income.

The medium-term strategy should prioritize the reconstruction and rehabilitation of major water supply systems, namely systems that require minor interventions but supply a maximum number of beneficiaries, as well as the reconstruction of health facilities.

In the long term, strategy will focus on continuing support to private operators in the management of water supply systems and strengthening awareness and communication actions to ensure payment of the service.

In both the short and long term, the water and sanitation sector will apply the Build Back Better approach to increase the resilience of the sector to the impact of earthquakes and other hazards to which the country is exposed.

ENERGY

Electricité d›Haiti (EDH) supplies the Southern Peninsula through (i) three power plants with a total installed capacity of 9.0 MW in Sud, (ii) a thermal power plant with a capacity of 6.69 MW in Grand'Anse and (iii) a power plant with an installed capacity of 4,735 MW in Nippes. The electricity distribution network includes a total of 288.5 km of lines, but certain sections of the network need to be rehabilitated.

In addition, the microgrids and power plants have 133 km of lines. Only the microgrids in Sud, which are managed by private operators, supply customers between 15 to 24 hours a day.

The sector therefore suffers from major maintenance and fuel supply problems, with some cities disconnected from the grid or receiving only six hours of electricity per day. Before the earthquake, these networks already required major rehabilitation work. In addition, repairs to the networks and power plants damaged by Hurricane Matthews were not fully completed.

Les Effets du Séisme sur le Secteur de l'Énergie : Dommages, Pertes et Besoins

Les Effets du Séisme : ils s'élèvent à près de 1 milliard 733 millions de HTG, dont 98% incombent au secteur public.

Damage: the sector's infrastructure suffered a total HTG 448 million in damage: cracks in the structure of buildings and power plants, damaged posts and transformers and cut line sections.

Losses: they are estimated at **HTG 1.28 billion**, with costs linked to the reduction in income and the commercial losses suffered by EDH and the Town Halls.

Recovery needs: a budget of HTG 1.86 billion has been estimated to restore the operability of the network and to carry out the commercial reconnection of customers. A contingency of around 30 per cent of needs has been forecast, primarily to respond to the price hikes in international markets following the COVID-19 pandemic.

Synthèse des Coûts pour le Secteur de l'Énergie

Damage (millions in HTG)			Losses (millions in HTG)			Total Damage and Losses		Recovery Needs	
Public	Private	**Total**	Public	Private	**Total**	**Millions in HTG**	**Millions in US$**	**Millions in HTG**	**Millions in US$**
448,37	**0,03**	**448,41**	**1 249,61**	**34,96**	**1 284,56**	**1 732,98**	**17.45**	**1 866,39**	**19,17**

The recovery strategy

The reconstruction strategy must be integrated into the sectoral development plan while increasing the resilience of the sector. It will focus on the following actions: (i) recommissioning by EDH of all the electrical circuits that may be rehabilitated with equipment available at EDH, prioritizing circuits that supply hospitals or health centres and public lighting, (ii) setting up a project team to manage the reconstruction of infrastructure and (iii) development and the implementation of a medium and long-term master plan for infrastructure reconstruction with technical improvements for network management. The latter will require the gradual rebuilding of a skilled, motivated and larger workforce.

3.4 Crosscutting Sectors

DISASTER RISK MANAGEMENT

The law of 5 June 2020 created the National Disaster Risk Management System (SNGRD), formalized the National Disaster Risk Management Plan (PNGRD 2019-2030) and designated the General Directorate for Civil Protection (DGPC) as an autonomous body responsible for technical coordination, knowledge management, technical support and strengthening the capacity and mobilization of the SNGRD. The SNGRD is decentralized through territorial committees at the departmental, communal and local level, which in the event of a crisis, are activated through emergency operation centres whose mission is to coordinate (i) humanitarian assistance, (ii) crisis

information and analysis, (iii) emergency operations and (iv) needs assessment.

The PNGRD focuses on disaster prevention and preparedness, and civil protection has led several initiatives in recent years to strengthen response capacity, risk knowledge and contingency planning. In addition, the SNGRD has a network of 20,000 volunteers across the country.

The earthquake highlighted the lack of seismic risk preparedness at the national and local level despite lessons learned from previous events. Following the 2010 earthquake, careful attention was paid to the seismic risk in the north of the country; simulation exercises had been scheduled for May 2021 but were postponed due to COVID-19. Furthermore, the 2013 seismic contingency plan has never been revised, and therefore the failure to preposition stocks for a seismic crisis has resulted in a shortage of heavy and rescue equipment in Grand Sud. In addition to this lack of preparedness, shortcomings were observed in the capacities of the seismic stations in the Grand Nord and in Sud, and at the level of the Technical Seismology Unit.

The effects of the earthquake on Disaster Risk Management (DRM): damage, losses and needs

The effects of the earthquake: the total effects are estimated at **US$424,848** (HTG 41,332,600) distributed into **US$205,997** (HTG 20,041,000) in damage and **US$218,851** (HTG 21,291,600) in losses.

Damage: damage is estimated at 48 per cent of the total effects. Communal Emergency Operations Centres (COUC) were most affected, particularly those located in Sud, which accounted for 80 per cent of the total damage, or HTG 16 million.

Losses: losses are estimated at 52 per cent of the total effects, primarily related to the expenses incurred by the DGPC and its decentralized structures in the management of the crisis, which accounted for 98 per cent (or US $214,474), and 2 per cent allocated for demolition and clearing of rubble from damaged buildings (US$4.37).

Recovery needs: needs for DRM and the strengthening of SNGRD are estimated at **US$11.8 million** (HTG 1,147,090) and are divided into five categories: (i) rehabilitation and reconstruction of infrastructure (2 per cent), (ii) improvement of disaster risk knowledge (18 per cent), (iii) improvement of DRM governance (21 per cent), (iv) development and use of sustainable and innovative financial mechanisms (21 per cent) and (v) strengthening of preparedness, response and rapid disaster response capacities (38 per cent).

Summary of earthquake costs for the DRM Sector

Damage		Pertes		Total Dommages et Pertes		Besoins de Relèvement	
HTG	US$	HTG	US$	HTG	US$	HTG	US$
20,041,000	205,997	21,291,600	218,851	41,332,600	424,848	1,147,574,090	11,795,651

The recovery strategy

Financial needs totaling HTG 1,147,574,090 (US$11,795,651) are divided into three phases: (i) HTG 262 million (US$2.7 million) in the short term, (ii) HTG 530 million (US$5.4 million) in the medium term and (iii) lHTG 355 million (US$3.6 million) in the long term. The recovery strategy will be aligned with the four strategic axes of the 2019-2030 PNGRD used to categorize the recovery needs.

The strategy will focus on the adoption of a multi-risk approach and on the integration of DRM in each affected sector by taking preventive measures specific to each sector to ensure better reconstruction and increase long-term resilience of the country, and through the strengthening of the capacities of the DGPC.

THE ENVIRONMENT

The region affected by the earthquake is a biodiversity hotspot and includes the Massif de La Hotte biosphere reserve – which covers 30 of the municipalities in these three departments – and eight land and marine protected areas. In addition, the Macaya National Park, which straddles the departments of Sud and Grand'Anse, contains one of Haiti's last primary forests and is crucial for biodiversity in the Caribbean.

This region is therefore endowed with a biodiversity and rich ecosystems that, if protected and valued, provide ecosystem services essential to resilience and local development (livelihoods, food security, water regulation, protection against natural risks, health and well-being). However, ecosystems are currently weakened by human activities and frequent extreme weather events. Haiti's Sud-Ouest region is currently facing a triple crisis of ecosystem degradation, biodiversity loss and worsening of extreme weather events linked to climate change. The earthquake of 14 August 2021 exacerbated an already critical situation given that the well-being of affected populations is intimately linked to ecosystem services as well as their capacity for resilience in the face of climate change.

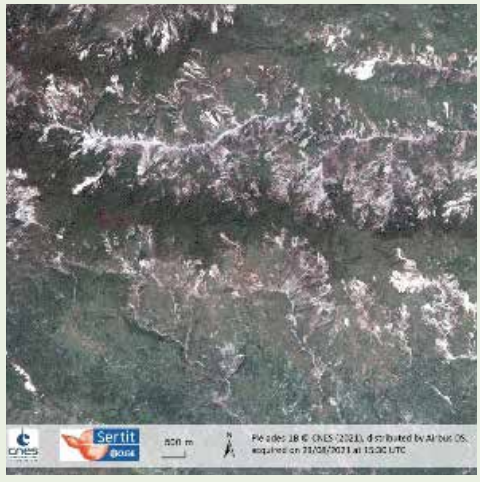
The effects of the earthquake on the environment: damage, losses and needs

The effects of the earthquake: the impact of the environmental effects of the earthquake is crosscutting and therefore multisectoral. Environmental losses, in terms of ecosystem

services, greatly contribute to the losses registered in other sectors, particularly: the drop in agricultural production and yields, food insecurity, an increased risk of destruction of infrastructure as a result of erosion during landslides, pressure on fishery resources due to increased sedimentation and pollution, and consequences on population health from the contamination of water resources and the proliferation of waste. The effects of the earthquake were divided into three major environmental categories, namely: (i) ecosystems and nature, (ii) climate (adaptation and mitigation) and (iii) pollution and waste.

Ecosystems-nature: the natural environment was severely affected by the earthquake. Rockfalls, landslides and subsidence were observed in several areas of the three departments. The situation is particularly critical in Sud around the Macaya National Park. Located on the fault line that crosses the Southern Peninsula, its steep slopes and bare and degraded soil[42] contribute to the fragility of the park's environment and the extent of the earthquake damage. Images dated 23 August collected from the Committee on Earth Observation Satellites (CEOS)[43], show a total of 856.19 ha of landslides in a limited area of 3,679 ha, and land surveys confirm that rockfalls and landslides occurred throughout the park and its surrounding areas.

Before the earthquake



After the earthquake

42 Formont Peak 2,219 m; Le Ciel Peak 2,179 m and Macaya Peak 2,347 m

43 Committee on Earth Observation Satellites, CNES- Sertit: Pléiades image from 23 August 2021

Many rivers have also been impacted by subsidence or landslides in the three departments. Nearly a million people depend on these rivers for their irrigation and drinking water, and springs and rivers provide habitats for aquatic biodiversity. The three departments experienced a decrease in flow, the drying up of certain sources and turbidity.

In all three departments, the earthquake caused a direct loss of forest cover and a clear increase in the pressure on forest resources, including illegal clearing around the La Visite and Macaya National Parks. All three departments recorded a sharp increase in the cutting of mangroves in marine protected areas for the reconstruction of small houses or for charcoal production. There is also an increase in anthropogenic pressures on mangrove wood resources due to the uncontrolled storage of materials from destroyed buildings, which threatens to reduce mangrove areas and impacts water quality.

Rockfalls and landslides have also affected marine ecosystems through the deposit of tons of material and sediment, which has already produced negative impacts on fishery resources.

Pollution-waste: significant waste management problems intensified in the wake of the earthquake. First, the debris of destroyed infrastructure is stored randomly, and this uncontrolled management aggravates domestic waste disposal practice, which are neither well established nor managed. There is also a proliferation of plastic and biomedical waste.

Climate change/adaptation/ mitigation: the electricity grid is damaged in several places. In Sault-Mathurine in particular, the reservoir of the hydroelectric power station has been overwhelmed by rockfall fragments, and further study must determine the impact on energy production. If the production capacity of the plant is affected, the alternative use of thermal energy will generate an increase in greenhouse gases (GHGs). In addition, the increase of the use of charcoal for cooking may also impact GHG emissions.

The recovery strategy

Any recovery action must produce net gains for biodiversity in these critical habitats and improve the resilience of ecosystems and populations, with particular attention to the most vulnerable and affected groups. The reconstruction strategy is therefore articulated around three complementary axes: (i) the restoration of ecosystems, more particularly an extensive reforestation campaign and the restoration of coastal and marine ecosystems, (ii) the establishment of an integrated waste management system and (iii) multisectoral integration of crosscutting environmental issues as well as environmental governance. These recovery costs are estimated at HTG 7,977,535,807 (US$81,999,260).

4. HUMAN IMPACT OF THE EARTHQUAKE

4.1. The Demographic Profile of the Southern Peninsula

The latest official demographic information for the three departments of the Southern Peninsula is as follows: [44]

Total population by Department		Persons aged 18 and over (total)/%		Number of Men/%		Number of Women/%		Rural Population/%	
Sud	774,976	472,419	61%	400,672	52%	374,304	48%	360,666	46,5%
Grand'Anse	468,301	281,238	60%	244,488	52%	223,813	48%	357,813	76,4%
Nippes	342,525	209,370	61%	179,657	52%	162,869	48%	280,314	81,8%
Total	1,585,802	963,027	61%	824,837	52%	780,985	49%	738,793	45%

4.2. The Human Impact on Productive, Social and Infrastructure Sectors

Derived directly from the damage, losses and needs assessment, the human effect of the earthquake has serious consequences for the population in the Southern Peninsula, namely:

Sectors	Sub-Sectors	Human Impact
Productive Sectors	Commerce	Damage and losses are highest in the informal sector and among women-owned businesses.
		The businesses in the departments affected by the earthquake are 70 per cent managed or owned by women and will require special attention to recover.
	Tourism	Women represent 63 per cent of total employment in the accommodation and catering sector.

44 MEF/IHSI/Direction des Statistiques Démographiques et Sociales, " Ménages et Densité Estimées en 2015 », Mars 2015

Sectors	Sub-Sectors	Human Impact
Social Sectors	Housing	115,000 household were affected with 34 per cent of homes destroyed and 22 per cent severely damaged.
	Health	33,908 pregnant and breastfeeding women are directly affected by the earthquake.
		167,118 children under the age of 5 suffer from the direct effects of the earthquake.
	Education	307, 359 students are directly or indirectly affected by the discontinuity of school services in the three southern departments.
		Some 7,512 teachers and more than 1,000 school principals are believed to be affected by the effects of the earthquake.
Infrastructure Sectors	Transport	1,069,000 people were affected by blockages in the road network.
		407,081 people found themselves totally isolated due to landslides with restricted or no access to basic services in 53 communities.
	Water & Sanitation	More than 379,000 people are affected by a lack of access to water and sanitation.
	Energy	Power line breaks and the decline in the supply of electricity have a direct and very damaging impact, primarily on hospitals and health centres.
		The lack of public lighting is an additional factor of insecurity for the most vulnerable, already identified before the earthquake.

4.3. Human Impact according io PDNA Indicators

The human impact of a disaster is assessed based on five indicators: (i) living conditions, (ii) livelihoods and employment, (iii) food security and nutrition, (iv) gender equality and (v) inclusion and social protection. The key recommendations of the human impact assessment are presented in the appendix.

Living conditions: The human impact of the earthquake on living conditions is measured in terms of access to basic social services including water and sanitation, health, education and housing. The PDNA shows that:

Basic Social Services	Human impact of the Earthquake on Living Conditions
Access to drinking water and sanitation	60% of households in the three departments suffer from a shortage of drinking water and sanitation services
Access to health services	33,908 pregnant and breastfeeding women are directly affected by the earthquake
	167,118 children under the age of 5 suffer from the direct effects of the earthquake
	68% of social service providers found that women had little or no access to health services[45]
Access to education	307, 359 students are affected by the discontinuity of school services
	Some 7,512 teachers and more than 1,000 school principals are believed to be affected by the effects of the earthquake
Access to housing	115,000 household were affected with 34 per cent of homes destroyed and 22 per cent severely damaged

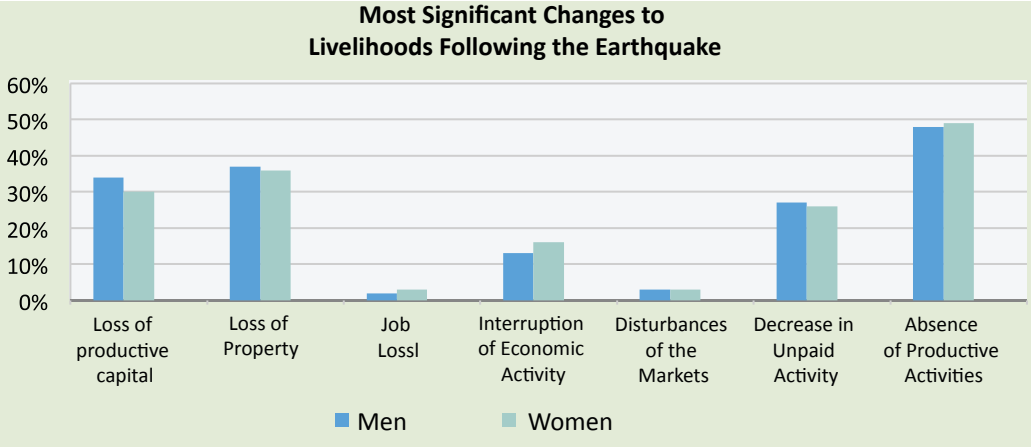
Livelihoods: The human impact of the earthquake is measured in terms of people's access to livelihoods, income and resources including those produced by the natural environment. According to the information available, the PDNA has shown that 363,000 households lost a total of HTG 110 million in income due to the reduction in agricultural production and other productive activities following the earthquake; this represents the loss of an equivalent of 91,681 full-time jobs.

Food Security: the PDNA demonstrated that after the earthquake food security deteriorated seriously in the three departments of the Southern Peninsula, as shown in the following table:

45 MCFDF/UN WOMEN/CARE, "Rapid Gender Analysis: Haiti August 2021", 11 September 2021.

Departments of the Southern Peninsula	Number of People Affected (IPC 3 and IPC 4)		Deterioration of Food Security (as a percentage after the earthquake)
	Before the earthquake	After the Earthquake	
Sud	232,000	369,000	+ 59%
Grand'Anse	190,000	230,000	+ 21%
Nippes	115,500	155,000	+ 34%
Total	**536,500**	**754,000**	**+ 41%**

Gender Equality: considering the general vulnerability of men and women, the assessment of the damage and losses to infrastructure and basic social services, and the displacement of populations following the earthquake, it is estimated that 59 per cent of women and 41 per cent of men in Sud are more exposed to vulnerability; as well as 59 per cent of women and 41 per cent of men in Grand'Anse and 60 per cent of women and 40 per cent of men in Nippes.[46] The following graph shows the most significant changes in livelihoods following the earthquake by decreasing order of importance: (i) absence of productive activities, (ii) loss of assets and (iii)) loss of productive capital.



46 https://reliefweb.int/sites/reliefweb.int/files/resources/Haiti%20-%20Flash%20Appeal%20-%20Earthquake%20%28August%202021%29.pdf

Social inclusion: during a disaster, certain populations may be disproportionately affected due to their situations of vulnerability. These population groups include, among others: (i) women and girls, (ii) people living with HIV or at high risk of HIV exposure, (iii) people living with physical, sensory or mental disabilities, (iv) migrants or internally displaced persons, (v) older persons, (vi) persons living in remote areas and (vii) persons deprived of liberty.

Women and girls: women and girls are more vulnerable to sexual violence and abuse due to insecurity, tensions and lack of access to services.[47] The recent UNICEF study[48] reveals that 47 per cent of those polled say that women are the most affected by the earthquake and indicates that gender-based violence and sexual violence (at 25 per cent each) are the main risks for women. Another study[49] shows that half of the organizations consulted said that although both men and women are victims of violence and insecurity, women and girls are particularly vulnerable due to overcrowding, the lack of sex-segregated toilets and the lack of sanitation facilities in the camps. In this situation, 70 per cent of women and men surveyed said that fear of sexual violence increased after the earthquake.[50]

People living with HIV and key populations at high risk of exposure to HIV – such as the LGBTI community, men who have sex with men (MSM) and sex workers – are particularly vulnerable to social exclusion in society in general.[51] Before the earthquake of 14 August 2021, these key populations were already suffering from prejudice, discrimination, violence and gender-based violence (GBV). Discriminatory and stigmatizing behaviour against PLHIV and key populations affected their access to work, health services and education. A recent survey[52] found that around 11 per cent of PLHIV who have experienced stigma and discrimination have been forced to change their place of residence or have been unable to rent accommodations over the last 12 months; 17 per cent experienced the loss of a job or source of income.

Following a natural disaster, PLHIV often suffer the interruption of antiretroviral

47 Before the earthquake at the national level, 29 per cent of women aged 15 to 49 had experienced physical violence since the age of 15. Among non-single women, this violence was perpetrated, in 45 per cent of cases, by the current husband/partner. One in eight women (12 per cent) reported that they had suffered from sexual violence and 34 per cent from domestic violence. Only a quarter (24 per cent) of women who experienced physical or sexual violence said they had sought help, and 76 per cent said they had never sought help, the majority (54 per cent) said they had not spoken to anyone.

48 UNICEF: https://www.dhsprogram.com

49 MCFDF/UNWOMEN/CARE, "Rapid Gender Analysis: Haiti August 2021", 11 September 2021.

50 MCFDF/ONWOMEN/CARE, "Rapid Gender Analysis: Haiti August 2021", 11 September 2021.

51 Multisectoral National Strategic Plan for HIV/AIDS, 2018-2023, (2019), MSPP.

52 Post-Disaster Rapid Evaluation in the Southern part of Haiti, Fondation SEROvie, September 2021.

(ARV) treatment, tuberculosis treatment and the treatment of opportunistic infections: a study revealed that 23 per cent of PLHIV surveyed interrupted their ARV treatment, and 67 per cent lost their ARVs in the earthquake.[53] In the face of this situation, it is recommended to ensure and intensify (i) the continuity of HIV care and services (prevention, treatment, care and support) for people on ARVs in the Southern Peninsula, (ii) the continuity of tuberculosis care and services for patients in treatment and with respiratory symptoms, (iii) the provision of psychosocial support for PLHIV and key populations, as well as for HIV and tuberculosis service providers, (iv) the continuation of prevention and detection of sexually transmitted infections and (v) prevention of transmission of SARS-CoV-2 in the general population and for people more vulnerable to COVID-19, such as PLHIV.

Haitian authorities estimate that there are one million people living with a physical, sensory or mental disability including at least 200,000 children.[54] Unfortunately, this data is not disaggregated, which makes it difficult to identify people in need and hinders the establishment of a coherent institutional and legal response. The socioeconomic situation of people living with disabilities is marked by glaring inequalities, which deteriorated following previous shocks such as the 'Peyi Lok' (2018-2019) and the COVID-19 pandemic (2020). The Haitian Federation of Associations and Institutions of Persons with Disabilities (FHAIPH), with the support of organizations of persons with disabilities and OCHA, is currently mapping the affected disabled persons by municipality and estimates their number at 5,294 individuals. This estimate will be completed when all the remote rural localities are reached.[55] An in-depth analysis of the situation of people living with a physical, mental or sensory disability in the three departments of the Southern Peninsula is essential to specify the needs and to propose adequate responses to those people affected by the earthquake.

Older person, who make up 7 per cent of the total population in the country according to the Haitian Institute of Statistics and Informatics, are also among the most vulnerable to social exclusion, particularly because their decreased physical capacities and economic vulnerability increase their dependence on basic needs such as health and food. An in-depth analysis of the

53 Reports of evaluation visits to HIV clinics in the departments of Grand' Anse, Nippes and Sud, PNLS, August 2021.
54 Leave No One Behind (LNOB), Haiti CCA 2021
55 OCHA, FHAIPH, number of people with disabilities per commune: https/www.humanitarianresponse.info/en/operations/haiti/infographic/haiti-2021-earthquake-number-persons-disabilities-commune

situation of older persons in the three departments is essential to specify the needs and to propose adequate responses to these people affected by the earthquake.

The migrant or internally displaced population**:** their access to essential services is restricted, which poses critical risks for their survival. Also, migrants and internally displaced persons tend to settle in vulnerable places, generally in less accessible and poorly served areas where rents are cheaper. These areas are often most exposed to disaster as demonstrated in the aftermath of Hurricane Matthew in 2016. People on the move (as a result of violence, insecurity and natural disasters) find it difficult to meet their basic needs on their own. Their means of subsistence are very limited, and their income does not allow them to prioritize expenditures on essential services like health, education, water, hygiene, sanitation and housing - when these services are available.[56]

In particular, migrants and displaced persons who do not have personal documents are particularly vulnerable to social exclusion and the restriction or denial of access to basic social services. Following the earthquake of 14 August 2021, a total of 38,777 people were living in 89 displacement camps, 75 of which hosted more than 100 people. The 89 displacement camps are distributed among the three departments as follows: [57]

Departments of the Southern Peninsula	Number of camps	Number of displaced persons
Sud	44	21,587
Grand'Anse	30	11,234
Nippes	15	5,956
Total	**89**	**38,777**

56 Haiti – Humanitarian Needs Overview (HNO) 2021
57 IOM Haïti, dtmhaiti@iom.int, 20 September 2021

People living in remoted areas: these people struggle to meet their basic needs due to access barriers, which deprive them of essential basic services and diverse economic opportunities. According to data from the Ministry of Social Action and Employment, the proportion of very vulnerable households is nearly twice as high in rural areas as in urban areas (39 per cent and 22 per cent, respectively). The Ministry of Public Works, Transport and Communication (MTPTC) established that the earthquake had a considerable effect on population mobility due to the difficulties encountered on the primary, secondary and tertiary roads in the three departments. Indeed, mapping shows that before the earthquake, a total of 280,000 people lived in hard-to-reach areas in the three departments, increasing to 980,0000 people in 111 communal sections of the departments following the earthquake.[58] In addition, the MTPTC estimates that ***407,081 people are totally isolated***[59] mainly due to landslides. An in-depth analysis of the situation of the communities in the remote areas of the three departments is essential to specify the needs and to propose adequate responses to these people affected by the earthquake.

Social protection: prior to the earthquake, the three affected departments already had a high proportion of inhabitants living in conditions of significant poverty and vulnerability. According to the latest information available, the percentage of households in multidimensional poverty was 46 per cent in Sud, 60.7 per cent in Grand'Anse and 41.8 per cent in Nippes.[60] Meanwhile, severe multidimensional poverty affected 21.9 per cent of households in Sud, 29.4 per cent in Grand'Anse and 16.4 per cent in Nippes. It is generally recognized that the social protection measures put in place to alleviate the effects of this poverty are too limited and very fragmented.

In view of the country's extreme vulnerability to recurring natural and man-made shocks, the authorities approved the National Policy for Social Protection and Promotion (PNPPS) on 5 June 2020. This new policy calls for profound changes to the governance of the social protection system in Haiti. However, the success of this process will require the establishment of a set of prerequisites and accompanying measures to gradually improve the impact on beneficiaries, in particular through the

58 MTPTC/WB/ UNOPS, "Presentation of the impact of the earthquake on the road network", PDNA Technical Workshop, 15 September 2021.

59 MTPTC/WB/ UNOPS, "Presentation of the impact of the earthquake on the road network", PDNA Technical Workshop, 15 September 2021.

60 EMMUS-VI, 2016-2017.

operationalization of the Unified Social Registry. Nevertheless, the PNPPS is slow to be translated into an annual action plan, budgeted on the basis of a broad consensus and the inclusion of all stakeholders and social partners.

Finally, humanitarian needs increased rapidly following the earthquake, leading to the deterioration of an already very complex humanitarian scenario.

The latest humanitarian situation report for Haiti in 2021 identified more than 610,000 people with acute humanitarian needs in the three departments of the Southern Peninsula, of which 350,000 had extreme and catastrophic needs before the earthquake.[61] The humanitarian appeal of 25 August 2021 estimates needs of US$187.3 million and targets 500,000 of the 650,000 people in need of humanitarian assistance. Key humanitarian assistance provided as of 23 September 2021[62] includes:

- Almost half of those in need of humanitarian assistance following the earthquake received aid through the coordinated efforts of national and departmental authorities in collaboration with local and international humanitarian partners.
- By way of illustration, the National Directorate for Water Supply and Sanitation of the MTPTC and its partners have provided drinking water to more than 250,000 people; more than 210,000 people benefited from food products and shelter kits; 196 medical kits were distributed to 68 health facilities; and 22 tons of cargo were transferred to Jérémie and Les Cayes.
- More than 201,000 pregnant women and children under the age of 5 are still in need of emergency nutritional interventions.
- The DGPC is in the process of recalibrating its response strategy to ensure that assistance is provided to populations in remote areas difficult to reach.

61 OCHA, HNO, 2021
62 OCHA Haiti, “Situation report n°6”, 23 September 2021.

5. MACROECONOMIC IMPACT OF THE EARTHQUAKE

Context

Against the backdrop of the international crisis caused by the SARS-CoV-2 (COVID-19) pandemic and a persistent political crisis at home, the Haitian economy suffered a 3.3 per cent contraction during fiscal year 2019-2020, after a drop of 1.7 per cent the previous year. The poor economic performance in 2018-2019 was mainly due to the deterioration of domestic macroeconomic conditions in reaction to the considerable worsening of the political context beginning in 2018 and the negative impacts of the Peyi Lòk countrywide lockdown.

During 2020-2021,
The persistence of an unfavourable sociopolitical environment and institutional instability, growing insecurity, social unrest and the assassination of President Jovenel Moïse were also expected to impact the Haitian economy, and a contraction of .6 per cent of Haiti's GDP was projected before the earthquake. Between April and July 2021, the country experienced an increase in new COVID-19 infections, which forced the reinstatement of the state's public health emergency. This, together with worsening conditions of insecurity and recurring conflicts between the authorities and multiple sectors of opposition over the feasibility of holding a general election, affected the reduced the range of options for economic recovery.

Macroeconomic impact of the earthquake

Damage and loss are estimated at US$1.6 billion, which represents 10.9 per cent of GDP in 2019-2020, broken down into 8.4 per cent in damage and 2.5 per cent in production flow losses. The disasters caused by the August 2021 earthquake in the country's Southern Peninsula caused a significant imbalance in the main macroeconomic aggregates.[63] For this reason, it is possible that the GDP will experience a larger decline than the 0.6 per cent contraction predicted for 2020-2021 before the earthquake.

According to the statistical and econometric models developed by the assessment

63 Les effets cumulatifs des catastrophes et leur dynamique intertemporelle ont des effets qui peuvent être quantifiés, à l'aide de techniques dont l'application dépasse le cadre de ce rapport.

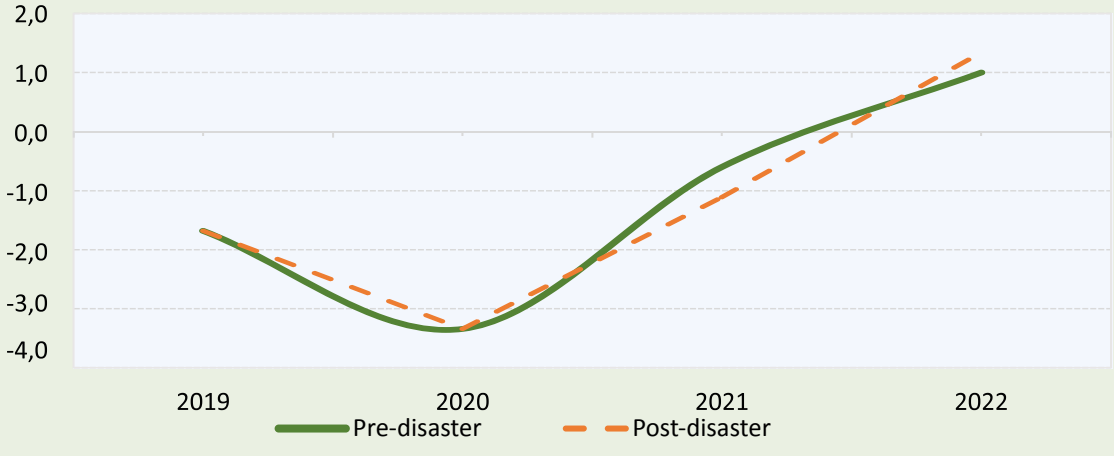
team, it is likely that the percentage in the change of Haiti's GDP in 2020-2021 will drop by an additional 0.5 per cent because of the earthquake, without considering the cumulative effects from Tropical Storm Grace or other external or internal shocks. Thus, GDP would decrease by 0.6 to 1.1 per cent.

Damage in HTG/US$			Losses in HTG/US$			Total Effects (Damage and Losses)
Public	Private	Total	Public	Private	Total	
25,842,202,576	95,427,148,591	121,269,351,167	14,575,421,564	21,768,573,000	36,343,994,564	157,613,345,730
265,626,070	980,873,763	1,246,499,834	149,817,414	223,754,167	373,571,580	1,620,071,414

In terms of public finances, the overall public sector deficit (central government) is expected to increase slightly by around 0.1 per cent of GDP. In addition, a slight increase in public debt (0.2 per cent of GDP) is expected, based only on the estimated additional drop in GDP in 2020-2021, without taking into account the possibility of contracting new debts to support earthquake-related reconstruction.

For the external sector, the increase in imports – mainly linked to agriculture and reconstruction – and the fall in exports caused by the disaster will be partially offset by the increasing flow of private remittances (which represented 23.8 per cent of GDP in 2019-2020). This could generate a moderate increase in the current account deficit of the balance of payments in 2020-2021. This effect could be felt more acutely in 2021-2022, when most of the reconstruction work will be carried out.

Expected GDP scenario before and after disasters, 2019 to 2022 (growth rate)



6. BASIC ELEMENTS OF THE RECOVERY STRATEGY: VISION, GUIDING PRINCIPLES AND PRIORITY AREAS

6.1 Introduction

The PDNA technical group developed the basic elements of the recovery strategy during a workshop held on 23 September 2021 at MPCE with the participation of officials from MPCE, MEF and other national institutions and representatives of the World Bank, United Nations and European Union. This technical work was validated during the consultations organized in the three departments on 27 and 28 September 2021, the report of which may be found in the appendix. These basic elements will make it possible to subsequently develop a realistic post-disaster recovery framework based on national priorities and capacities, according to the following vision, guiding principles and priority axes identified by the technical group:

VISION	Towards a resilient recovery in the face of multiple and complex hazards by adopting innovative and sustainable approaches based on an inclusive and coordinated process
GUIDING PRINCIPLES	1. Inclusion of marginalized territories and populations affected in the Southern Peninsula 2. Ownership of the recovery process by all territorial actors 3. Development of an inclusive and sustainable economic recovery dynamic
PRIORITY AXES	Governance Economic recovery Resilient infrastructure, land-use planning and better living conditions Social protection and inclusion

6.2 La Vision du Relèvement

˝Towards a Resilient Recovery in the face of multiple and complex hazards by adopting innovative and sustainable approaches based on an inclusive and coordinated process˝.

This vision reflects the need to institutionalize public policies that are resilient as well as structures and coordination mechanisms that integrate disaster risk reduction and climate change adaptation in order to build community resilience at the national and local level. This vision incorporates systemic risks into public policy recovery interventions and into physical and human investments while recognizing that current risk measurement and management approaches are inadequate to address the interconnected challenges of natural hazards and a very vulnerable environment. Future interventions must reflect a much better understanding of the systemic nature of risks, particularly evident in Haiti in 2021 due to the simultaneous impact of the highly complex political situation, the COVID-19 pandemic, the earthquake of 14 August and Tropical Storm Grace.

6.3 The Guiding Principles

1. **“Inclusion of the affected marginalized territories and populations of the Southern Peninsula”**

To achieve the vision, this principle of equity requires that actions consider not only the communities directly affected by the shock but also the less affected upstream and downstream communities.

2. **“Ownership of the recovery process by all territorial actors”**

In order to avoid past mistakes, this guiding principle highlights the urgent need to include all local actors in the identification of recovery axes in the execution and monitoring of the implementation. Departmental and local authorities, civil society and decentralized state services must be strongly involved and take ownership of the recovery process.

3. **“Development of an inclusive and sustainable economic recovery dynamic»**

This principle is based on the social justice that stems from a solidarity economy based on inclusive, green, resilient and sustainable recovery.

6.4 Priority Axes for Recoveryt

To implement the vision and the guiding principles of the recovery, four strategic axes were considered and reflect the main objectives identified by the technical group, as well as the main recommendations formulated by the PDNA in this area.

Governance in recovery

The objective is to ensure very close coordination and integration of local authorities and communities in the recovery and reconstruction process through participatory and inclusive mechanisms that: ensure intersectoral links between interventions, prevent duplication and allow capitalization of projects and programmes. The main interventions suggested in the PDNA are listed in the table below and should be prioritized in the context of post-disaster recovery.

Interventions	Sectors
Strengthen the capacity of the ministry in the affected departments	Commerce
Provide training in earthquake and hurricane resistant construction techniques in terms of governance (town halls), implementation (builders and heads of households) and through the organization of an awareness and communication campaign	Housing
Develop recovery strategies, policies and procedures, and disseminate the tools for stakeholders to implement a Build Back Better approach with a long-term vision	Housing
Provide human resources with technical skills to ensure the development of the reconstruction strategy, not only infrastructure but also institutions with the pyramid model of the subsidiarity of services; and ensure commitment at the departmental level	Health
Strengthen the health information system with innovative approaches allowing reliable information feedback in real time	Health
Decentralize and promote local governance based on a vision of subsidiarity and the pyramid model proposed by the health policy	Health
Develop an intersectoral approach, taking into account that health is linked to nutrition, a clean and uncontaminated environment, working conditions, customs and living conditions of the population	Health
Ensure the population's access to the services at the three levels of care through a functional integrated referral and counter-referral system	Health
Harmonize the construction activities of temporary structures carried out by technical and financial partners and NGOs through existing coordination structures, in particular the reconstruction technical group, which will be led by the MENFP emergency unit. The reconstruction of schools in the medium and long term should be carried out with a Build Back Better approach	Education
Ensure sectoral and intersectoral coordination at the central, departmental and local levels under the leadership of the MENFP and its deconcentrated structures such as departmental directorates of education and school district offices	Education

Interventions	Sectors
Estimate the financial needs for recovery and reconstruction based on the MTPTC analysis aimed at increasing network connectivity and resilience in the three southern departments	Transport
Ensure prompt and coordinated actions to facilitate economic recovery and the functioning of water supply and sanitation services; promote rapid assistance near places of residence of populations to reduce the stay of affected populations in the camps	WASH
Develop a medium and long-term master plan, and create decentralized and resilient operational units	Energy
Improve the governance of disaster risks through a political, institutional and legal system; continue to strengthen the DPGC at central, departmental, municipal and local levels in its role as General Directorate to continue to improve preparedness, response and prevention actions	DRM
Promote the adoption of risk reduction techniques in all sectors as well as the application of building codes resilient to hazards with a sustainability perspective	DRM
Institutional strengthening and revision of tourism legislation, particularly on construction standards.	Tourism
Environmental governance (including monitoring and evaluation)	Environment

Economic recovery

The objective is to strengthen the country's development agenda in an inclusive and sustainable manner by ensuring: the sustainability of value chains, the use of new resilient and adapted technologies, effective and efficient governance mechanisms, the development of human capacities and support services, as well as the strengthening of the financial sector.

Interventions	Sector
Provide support to farmers in rebuilding and strengthening their herds	Agriculture
Grant credit under specific repayment terms and conditions for small business activities, particularly focused on women	Agriculture
Provide livelihood assistance to support the resumption of the next winter cropping season while facilitating access (physical and financial) to inputs (seeds, plant material, access to credit etc.) and agropastoral inputs (pest control, mass vaccination of cattle)	Agriculture
Revitalize businesses in the Southern Peninsula	Commerce
Ensure trained human resources to guarantee access to all levels of care	Health
Ensure the financial sustainability of the health system in the Southern Peninsula	Health
Strengthen community-based primary health care	Health
Finance a grant to schools and parents to offset the financial effects of the disaster on student enrollment	**Education**
Restore the main road accesses to the affected areas and carry out emergency repairs and stabilization on the prioritized roads and other networks	Transport
Provide financial support to EDH reestablish service of all networks	**Energy**

Interventions	Sector
Develop and use sustainable and innovative financial mechanisms through a national risk financing strategy to increase the resilience of Haitians and institutions	DRM
Effectively ensure preparedness, response and rapid post-disaster recovery by strengthening the technical, material and financial capacities of national, departmental, communal and local institutions in charge of disaster management	DRM
Redevelopment of tourist and natural sites.	Tourism
Recapitalization and support for tourism operators.	Tourism
Ensure the reopening of the School for Hospitality in Les Cayes	Tourism
Reconstruction of agroforestry plots, particularly in the protected area of the Macaya Park.	Environment
Rehabilitation of coastal and marine areas downstream	Environment

Resilient infrastructure, land-use planning and improvement of living conditions

The objective is to reduce the risks and vulnerabilities of physical infrastructure to natural hazards, conserve the country's natural resources and manage land-use planning using risk-sensitive planning methods.

Interventions	Sectors
Rehabilitate and build back better, using local artisans, materials and businesses (Atelier school, Les Passerelles d'Haïti, TECLA network)	Agriculture
Adapt watersheds (gully correction, soil protection); strengthen the development of agroforestry (fruit trees, cocoa, coffee, timber) with a view to contribute to ecosystem resilience; promote access to short-cycle seeds (corn, beans, rice, potatoes, vegetables, sorghum, wild peas, spinach, eggplant, etc.), allowing for rapid cultivation and plot improvement	Agriculture
Strengthen the technical control procedures for buildings, reconstruction of buildings and repairs while respecting resilient construction standards	Housing
Strengthen the use of building codes and standards to ensure proper design and construction of homes, public and private buildings, and other infrastructure	Housing
Promote disaster risk informed land use and planning	Housing
Address the insecurity on Route Nationale #2 (deployment of teams) and access restrictions in remote areas	All sectors
Provide resilient WASH services to ensure access to water, sanitation and basic hygiene services, including in temporary structures	WASH
Strengthen the existing networks in two urban centres (Les Cayes and Jérémie), 57 rural water supply systems and a river intake, and provide tanks for the collection of fecal sludge from shelters and camps housing disaster victims	WASH

Interventions	Sectors
Develop an investment plan for improving the infrastructure and resilience of the sector, including the strengthening of planning capacities and prioritization of the reconstruction sites, strengthening the capacity of public and non-public establishments and the MENFP information system to regulate school buildings	**Education**
Strengthen the existing networks in the three departments affected by the earthquake, given the significant needs relating to the vulnerability and isolation of rural populations	Transport
Strengthen the resilience of the network, particularly engineering structures, and increase maintenance of drainage systems	Transport
Systematically connect rural areas to an all-weather road network, health centres and water supply networks	Transport
Establish measures to improve the operation and maintenance of production, transmission and distribution equipment	**Energy**
Adopt a multi-risk approach and ensure the integration of disaster risk management in each affected sector, taking preventive measures specific to each sector that ensure a Build Back Better approach	DRM
Consider not only seismic risks but also hydrometeorological risks, particularly those linked to climate change: do not displace or reconstruct the risk	DRM
Beach sanitation and cleaning including the establishment of a solid waste technical landfill center.	Tourism
Environmental infrastructure and equipment.	Environment
Restoration of forest ecosystems - Reforestation.	Environment
Stabilization of banks and cleaning of rivers.	Environment
Management of excess construction material waste.	Environment
Restoration and protection of critical perimeters of water points.	Environment

Social protection and inclusion

The objective is to improve the quality of life of the population through the strengthening of social protection programmes designed to build resilience to disasters and climate shocks.

Interventions	Sectors
Distribute local seeds (farmers organizations) that can easily be integrated into agroforestry systems and market garden production systems already in place, and of available agricultural services	Agriculture
Develop and enhance labour-intensive value chains	Commerce
Prepare displaced populations for the return to their areas of origin	Housing
Support self-reconstruction and self-repair	Housing
Strengthen community-based primary health care	Health
Ensure access to drugs and diagnostics without financial burden for vulnerable populations	Health
Ensure proper management of human and material resources	Health
Immediately restore basic essential services (including pre and postnatal services and childbirth)	Health
Continue child health and newborn care services with special attention to newborns	Health
Maintain priority programmes (TB, Malaria, HIV/AIDS) and accelerate COVID-19 vaccination and routine vaccination in general	Health
Ensure care without financial burden for populations at risk of catastrophic diseases and chronic communicable and non-communicable diseases	Health
Enable the resumption of school activities in appropriate structures (temporary or rehabilitated and ready for the start of the school year) in the 1,250 damaged or destroyed primary schools	**Education**
Provide an emergency school canteen for affected students to minimize the humanitarian impact of the disaster on children's development	**Education**
Provide psychosocial support to affected students and teaching staff to enable them to return to school in adequate mental conditions	**Education**
Restore and improve the connectivity of rural areas through the rehabilitation of the local secondary and tertiary road network, by reviving the local economy through the High Labour Intensive (HIMO) approach aimed at recapitalizing the vulnerable populations affected by the earthquake	Transport
Use local small and medium-sized enterprises (SMEs) in the works as well as local labour as much as possible, building on successful experiences in recent transport operations	Transport
Ensure the priorities, safety and needs of women and girls in the identification and financing of complementary small-scale investments, and encourage the recruitment of female staff to carry out the work	Transport
Provide financial and technical support to operators of mini-energy grids and rebuild a skilled, motivated and larger workforce	**Energy**
Improve the understanding of disaster risk, in all its dimensions, at the central, departmental, municipal and local levels	DRM
Psycho-social support and ongoing awareness	Tourism

6.5 Next Steps

The PDNA not only provided a solid basis for quantifying the damage and losses following the earthquake, as well as estimating the costs of recovery, but also provides a solid foundation for the formulation of a post-disaster recovery framework based on national priorities and capacities.

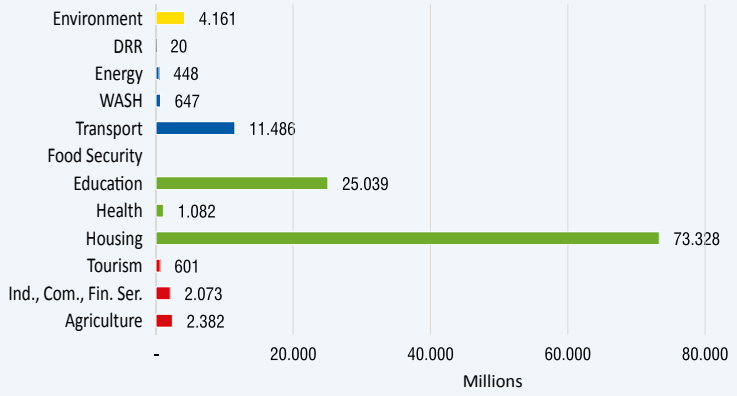
In this context, three steps have been identified to establish a roadmap for an effective and efficient recovery process:

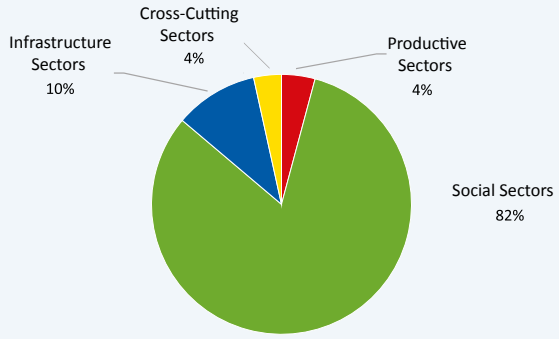
1. Development of a recovery action plan that considers the cumulative effects of the political situation, the COVID-19 pandemic, the current hurricane season and the effects of the earthquake of 14 August 2021
2. Identification of internal and external funding gaps
3. Capacity development to lead the recovery process

These three stages will be detailed and consolidated in a Post-Disaster Recovery Framework (DRF).

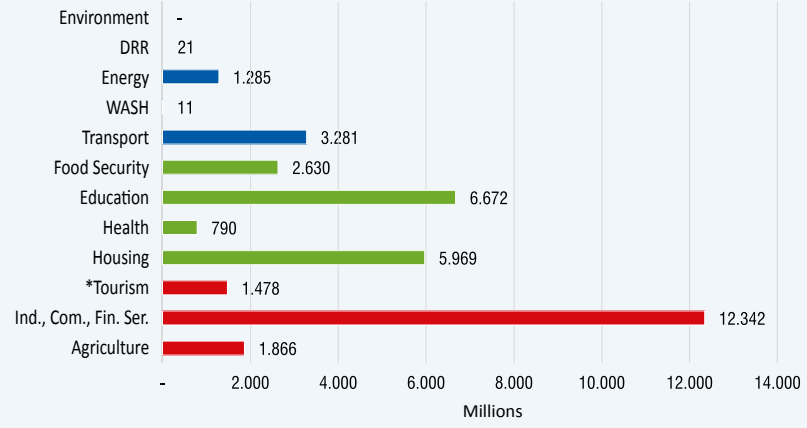
Annex 1

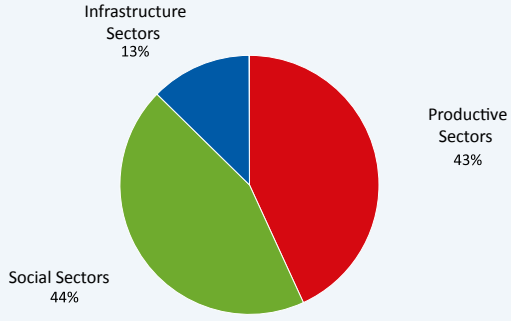
Total Damage 121,269.4 millions HTG





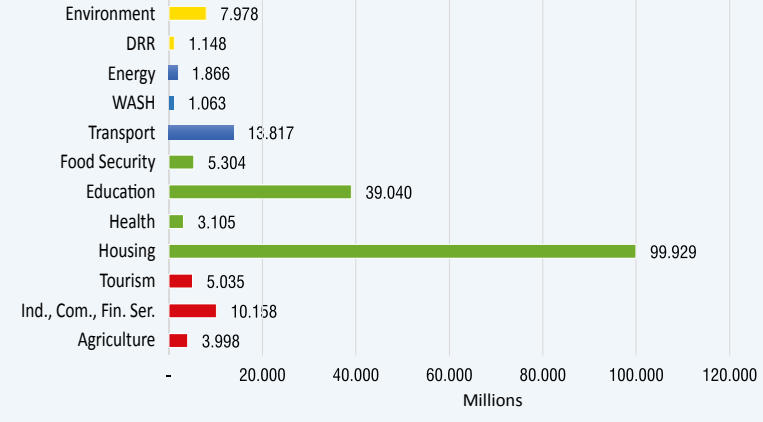
Total Loss 36,344 million HTG





*Loss in the short term only

Recovery Needs 192,442 million HTG



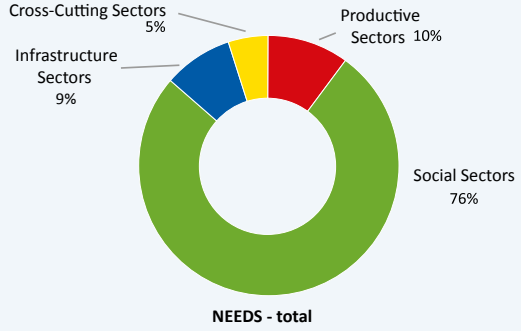


TABLEAU DES DOMMAGES, PERTES ET BESOINS

Sector	Damage HTG			Loss HTG			Total Effects HTG	Needs HTG
	Damage Public	Damage Private	Total Damage	Loss Public	Loss Private	Per. Totales		
Productive Sectors	516.652.335	4.540.040.295	5.056.692.630	-	15.686.115.972	15.686.115.972	20.742.808.602	19.190.937.481
Agriculture	428.581.962	1.953.463.682	2.382.045.644	-	1.865.552.375	1.865.552.375	4.247.598.019	3.998.167.153
Ind., Comm., Fin. Serv.	88.070.373	1.985.137.442	2.073.207.815	-	12.342.093.412	12.342.093.412	14.415.301.227	10.158.121.503
Tourism		601.439.171	601.439.171		1.478.470.185	1.478.470.185	2.079.909.356	5.034.648.825
Social Sectors	8.938.503.145	90.510.565.208	99.449.068.353	11.574.636.853	4.486.024.853	16.060.661.706	115.509.730.059	147.379.364.524
Housing		73.328.033.969	73.328.033.969	5.672.299.432	296.440.131	5.968.739.563	79.296.773.532	99.929.377.568
Health	513.104.278	568.876.483	1.081.980.761	790.037.285	-	790.037.285	1.872.018.046	3.105.462.868
Education	8.425.398.867	16.613.654.756	25.039.053.623	2.482.345.521	4.189.584.722	6.671.930.243	31.710.983.866	39.040.032.095
Food Security				2.629.954.614	-	2.629.954.614	2.629.954.614	5.304.491.993
Infrastructure Sectors	12.205.516.173	376.543.088	12.582.059.261	2.979.493.111	1.596.432.175	4.575.925.286	17.157.984.547	16.746.193.370
Transport	11.486.198.626	-	11.486.198.626	1.721.995.830	1.558.552.158	3.280.547.988	14.766.746.614	13.816.827.558
WASH	270.946.802	376.504.173	647.450.975	7.880.320	2.918.637	10.798.957	658.249.932	1.062.967.595
Energy	448.370.745	38.915	448.409.660	1.249.616.961	34.961.380	1.284.578.341	1.732.988.001	1.866.398.217
Cross-Cutting Sectors	4.181.530.923	-	4.181.530.923	21.291.600	-	21.291.600	4.202.822.523	9.125.109.897
DRR	20.041.000	-	20.041.000	21.291.600	-	21.291.600	41.332.600	1.147.574.090
Environment	4.161.489.923		4.161.489.923			-	4.161.489.923	7.977.535.807
Total HTG	25.842.202.576	95.427.148.591	121.269.351.167	14.575.421.564	21.768.573.000	36.343.994.563	157.613.345.730	192.441.605.272
Total USD	265.626.070	980.873.763	1.246.499.834	149.817.414	223.754.167	373.571.580	1.620.071.414	1.978.063.102

Annex 2:

STRUCTURE AND SECTOR COORDINATION

GENERAL COORDINATION

MPCE Simon D. Desras

UN Bruno Lemarquis
EU Bérénice Muraille
WB Laurent Msellati
BID Yvon Mellinger

Technical Coordination
MPCE Peretz E. Peltrop
UNDP/UN, EU, WB

SOCIAL SECTORS
Logement, Éducation, Santé
UCLBP, SNGRS, MTPTC, MAST, DGPC, MSPP, MENFP

IOM, UNDP, UNHABITAT, UNICEF, PAHO, UNESCO WB, EU, CDB

PRODUCTIVE SECTORS
Agriculture, Tourisme, , Industrie, Commerce et Services Financiers
MARNDR, MTIC, MCC, MCI, BRH

EU, FAO, WFP, WB, UNESCO, ECLAC

INFRASTRUCTURE SECTORS
Transport, Eau et Assainissement, Énergie
MTPTC, ANARSE, DINEPA,

UNICEF, WB, IADB, UNOPS

IMPACT MACROÉCONOMIQUE

Ministère de l'Économie et des finances, MPCE

WB, IADB, ECLAC

IMPACT HUMAIN ET SECTEURS TRANSVERSAUX

EMS, Égalité de Sexes, Sécurité Alimentaire et Nutritionnelle, Inclusion et Protection Sociale, Environnement, GRD, Gouvernance

MCFD, MPCE, MEF, DGPC, MICT, MdE, MAST

UNDP, UNWOMEN, WFP, UNFPA, UNEP, ILO, OIM, ONUSIDA, CDB

Annex 3 :

KEY RECOMMENDATIONS RELATING TO THE HUMAN IMPACT OF THE EARTHQUAKE

INDICATOR 1 - LIVING CONDITIONS	
1.	Design an integrated socioeconomic and environmental recovery strategy in each of the three departments affected by the earthquake, based on data made available by the PDNA in the health, water and sanitation, housing and environment sectors.
2.	Include in each integrated departmental recovery strategy the specific needs linked to gender equality and of the most vulnerable groups (older persons, people living with a physical, mental or sensory impairment, PLHIV, people with COVID-19 and communities living in hard-to-reach areas).
3.	Ensure the leadership of departmental and local authorities in the design and implementation of this integrated departmental recovery strategy, in close coordination with grassroots associations, civil society and the private sector.
4.	Implement recovery interventions that are realistic and over time, without creating expectations that cannot be met.
5.	Mobilize national and international resources for the implementation of integrated departmental recovery strategies according to the principles of responsibility, transparency and accountability to the affected populations.

INDICATOR 2 - LIVELIHOODS AND EMPLOYMENT	
1.	Generate immediate employment and identify other livelihood options for affected households. Interventions should be implemented using a local resource-based approach, ensuring the participation of the affected communities.
2.	Align livelihoods and employment interventions with decent work principles and focus on community activities beyond infrastructure repair and restoration that will create longer-term, productive jobs and improve access to other livelihoods in a conflict-sensitive manner, in order to improve the interfaces between humanitarian assistance, development and peace.
3.	Design and implement conflict-sensitive employment, decent work and livelihoods initiatives to ensure that they do not cause harm in already unstable and stressful environments confronted with multiple crises and challenges. Interventions should avoid creating or aggravating grievances related to unequal access to services, livelihoods and resources, or violating fundamental principles and rights at work and other international labour standards.
4.	Use nature-based solutions, such as agroforestry/agroecology that contribute significantly and measurably to the creation of sustainable productive jobs, and to resilience. Reforestation (plantation of forest and fruit species for agroforestry/agroecology lots can be carried out using labour-intensive strategies (nurseries, bagging of seedlings, planting).

5.	The recovery strategy should enable households to (i) recover their productive assets and income, (ii) increase the resilience of their livelihoods to future shocks, (iii) lay the foundations for economic development and decent employment, with an approach sensitive to the existing and potential conflicts of the areas affected by the earthquake, (iv) compensate for the losses in productive employment and livelihoods among young people to prevent them from resorting to negative adaptation mechanisms (such as prostitution, dependence and crime, etc.), (v) facilitate women's access to productive employment opportunities created by the recovery interventions and (vi) protect children against all forms of labour, trafficking and violence, particularly the phenomenon of child domestic workers, which is likely to increase due to the impact of the earthquake on household conditions.
6.	The main priority axes of the livelihood and employment recovery strategy are presented in Annex 1 and are broken down over three periods: 0 months to 1 year, 1 to 2 years and 2 to 4 years.

INDICATOR 3 - FOOD SECURITY AND NUTRITION	
1.	Provide immediate and urgent humanitarian assistance to populations experiencing high levels of acute food insecurity (IPC Phase 3 or higher) in order to save lives, reduce food deficits and prevent a total collapse the means of subsistence.
2.	At the same time, provide livelihood assistance to support the resumption of the upcoming winter cropping season while facilitating access (physical and financial) to inputs (seeds, plant material, credit, etc.) and agropastoral inputs (pest control, mass vaccination of livestock).
3.	Intensify and extend specific actions for the management and prevention of global acute malnutrition in all areas with a larger populations in Crisis or Emergency (IPC Phase 3 and 4).
4.	Target the people and households facing the most difficulty in accessing food and prioritize direct assistance to pregnant and breastfeeding women, older persons, only children, female heads of household, sick people, PLHIV and communities living in hard-to-reach rural areas.
5.	Allow the free and unhindered movement of people, goods and supplies.
6.	The priority axes of the food security and nutrition recovery strategy are presented in Annex 2 and are broken down over the following periods: 0 to 6 months, 6 months to 1 year, 1 to 2 years and from 2 to 4 years.

INDICATOR 4 - GENDER EQUALITY	
1.	Ensure that recovery operations are planned and conducted in an inclusive manner with male and female community leaders.
2.	Foster mechanisms for consultation and participation with civil society and meaningful community engagement channels for emergency response and recovery.
3.	Create security conditions to prevent the risks of violence and sexual abuse against women, girls, boys and the LGTBIQ + community.
4.	Establish community feedback and accountability mechanisms.
5.	Strengthen the capacity of women and women's organizations in terms of responsible participation and leadership.
6.	Systematize the production and use of data disaggregated by sex for egalitarian decision-making.

INDICATOR 5 - INCLUSION AND SOCIAL PROTECTION	
1.	Urgently conduct a representative survey in the three affected departments to capture the reality of the specific needs of people living with physical, mental or sensory disabilities, older persons, PLHIV, people with COVID-19 and communities living in hard-to-reach areas.
2.	Design an integrated strategy that addresses the specific needs of these most vulnerable populations.
3.	Identify, establish and strengthen community protection mechanisms, particularly to identify, prevent, mitigate and respond to human rights violations, and ensure the inclusion of all vulnerable groups in the recovery of the three departments.
4.	Provide immediate economic protection and opportunities for women affected by the earthquake, including those living in displacement sites, temporary shelters and host communities.
5.	Facilitate access to employment and economic activities for women and groups in vulnerable situations; support income-generating micro-activities in the informal sector.
6.	Consider the implementation of “cash for work” programmes with a strong participation of women.
7.	Promote the access of women's networks to financial initiatives linked to the sustainability of local markets.
8.	Organize recovery interventions that ensure the safety of PLHIV and protect key populations from discriminatory and homophobic attacks, ensuring access to life-saving services and support in an equitable manner.
9.	Coordinate information and support for victims of sexual abuse and other situations of vulnerability and violence that they may have suffered during the emergency and could suffer during the recovery.

Annex 4 :

REPORT OF CONSULTATIONS IN THE THREE DEPARTMENTS OF THE SOUTHERN PENINSULA

As part of the PDNA development process, three workshops were held in the departments of the Southern Peninsula that registered significant damage during the earthquake of 14 August 2021. They build on the technical work already carried out in Port-au-Prince by the sectors, the MPCE and the technical and financial partners. With the aim of identifying the perception of departmental actors of the reconstruction in their areas, these workshops took place on 27 and 28 September 2021 in the cities of Jérémie, Miragoâne and Les Cayes.

To carry out this mission, one of three teams was tasked with leading the work in each department. Recovery needs identified at the departmental level are summarized as follows:

Strategic Line 1. Governance for recovery
The state must guide the actions of NGOs working in the housing sector
Establishment of a housing policy based on a development plan
Training at all levels
Strengthening the municipal administration
Real integration of local authorities/women in planning and decision-making
Inclusion of local human resources of equal competence in post-earthquake projects
Strengthening the coordination of NGOs linked to the recovery and reconstruction of the Southern Peninsula
Establishment of a coordination and communication mechanism at the territorial level that includes Territorial Communities as stakeholders
Controlling interference and negative influence of parliamentary authorities in the implementation of recovery projects
Ensuring respect for the decisions made in the coordination between the national and territorial level
Preparation of TORs for the proposed mechanism with the participation of representatives of the communities and departmental networks of civil society organizations
Mobilization of MTPTC skills and capitalization on past experiences
Strategic Line 2. Economic recovery
Revitalization of micro and medium-sized enterprises, particularly in the food industry
Implementation of the labour-intensive programme in useful areas related to development

Strategic Line 3. Resilient infrastructure, land use planning and better living conditions
Reinforcement of lightly and moderately damaged buildings according to standards
Construction of health centres and all other public buildings
Dissemination of construction standards
Energy production, financial needs to ensure the operation of networks
Energized reconstruction
Rehabilitation, reconstruction of public buildings
Rehabilitation of Quai de Corail
Rehabilitation of irrigation networks
Restoration of electricity supply
Rehabilitation of municipal intersection roads and agricultural tracks
Relocation of displaced persons from the commune of Pestel
Reconstruction that integrates measures related to the challenges posed by climate change
Strategic Line 4. Protection and social inclusion
Construction of hangars for the temporary housing of schools and health centres
Availability of mortgage loans (housing)
Strengthening the systematic chlorination of water, compensation for revenue loss, emergency actions, water hygiene kit

ACRONYMS

ANARSE	National Regulatory Authority of the Energy Sector
CDB	Caribbean Development Bank
CIAT	Interministerial Committee for Territorial Planning
CNSA	National Commission on Food Security
DGPC	General Directorate for Civil Protection
DINEPA	National Directorate for Drinking Water and Sanitation
ECLAC	Economic Commission for Latin America and the Caribbean
EU	European Union
FAO	Food and Agriculture Organization
GDP	Gross Domestic Product
IDB	Inter-American Development Bank
ILO	International Labour Organization
IOM	International Organization for Migration
IPC 3 and IPC 4	Integrated Food Security and Humanitarian Phase Classification (IPC 3 = Emergency; IPC 4-Crisis)
MARNDR	Ministry of Agriculture, Natural Resources and Rural Development
MAST	Ministry of Social Affairs and Labour
MCI	Ministry of Trade and Industry
MDE	Ministry of the Environment
MENFP	Ministry of National Education and Vocational Training
MFDF	Minister for the Status of Women and Women's Right
MICT	Ministry of the Interior and Territorial Communities
MPCE	Ministry of Planning and External Cooperation
MSPP	Ministry of Public Health and Population
MTPTC	Ministry of Public Works, Transport and Communication
OCHA	United Nations Office for Coordination of Humanitarian Affairs
PAHO	Pan American Health Organization
PDNA	Post-Disaster Needs Assessment
PLHIV	People Living with HIV
UCLBP	Unit for the Construction of Housing and Public Buildings
UNAIDS	Joint United Nations Programme on HIV/AIDS
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFPA	United Nations Population Fund
UN-HABITAT	United Nations Human Settlements Programme
UNICEF	United Nations Children's Fund
UN WOMEN	United Nations Entity for Gender Equality and the Empowerment of Women
WB	World Bank
WFP	World Food Programme