



SUSTAINABLE DEVELOPMENT UNIT ■ LATIN AMERICA AND THE CARIBBEAN

Disaster Risk Management in Latin America and the Caribbean Region: GFDRR Country Notes

Haiti

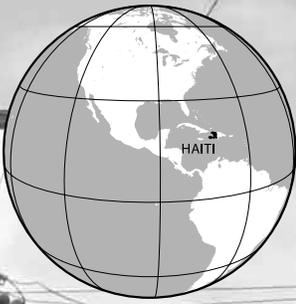


THE WORLD BANK



GFDRR

Global Facility for Disaster Reduction and Recovery



**COUNTRIES AT RELATIVELY
HIGH MORTALITY RISK
FROM MULTIPLE HAZARDS**
(Top 96 based on population
with 2 or more hazards)^a

1. Bangladesh
2. Nepal
3. Dominican Republic
4. Burundi

5. HAITI

10. Guatemala
13. Trinidad and Tobago
20. Niger
37. Peru
54. St. Vincent and the
Grenadines
55. Mexico
57. St. Kitts and Nevis
61. Belize
63. United States
78. Bolivia
96. Thailand

^a Dilley et al. (2005). Table 1.2.

The implications of climate variability and change on the intensity and frequency of adverse natural events underscore the importance of a proactive approach to disaster risk management.

Natural Disasters from 1980 - 2008^b

Affected People

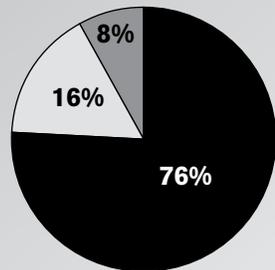
Disaster	Date	Affected (Number of People)
Storm	1994	1,587,000
Storm	1980	1,165,000
Drought	1992	1,000,000
Storm	1988	870,000
Storm	2004	315,594
Flood	2003	150,000
Storm	2008	125,050
Storm	2007	108,763
Drought	1980	103,000
Flood	1986	98,860

Economic Damages

Disaster	Date	Cost (US\$ x 1,000)
Storm	1980	400,000
Storm	1998	180,000
Storm	1988	91,286
Storm	1994	50,000
Storm	2004	50,000
Storm	2005	50,000
Flood	2002	1,000
Storm	2004	1,000
Storm	2005	500
Storm	1996	100

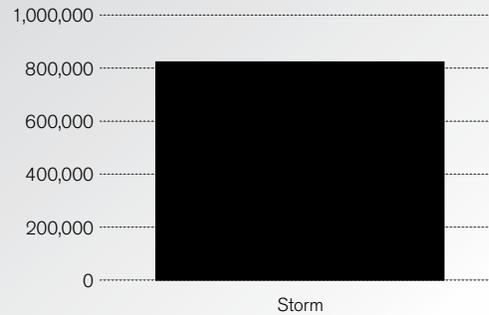
Statistics by Disaster Type^b

Population Affected by Disaster Type



■ Storm □ Drought ■ Flood

Economic Damages / Disaster Type (1000s US\$)



^b UN (2009). <http://www.preventionweb.net/english/countries/statistics/?cid=74>. Source data from EM-DAT. Data displayed does not imply national endorsement.

This DRM Country Note updates the April 2009 version. The Note was prepared following consultations with members of the World Bank’s Haiti DRM Country team and the task team leaders overseeing projects in Haiti. The programmatic DRM approach proposed within this document has been presented to the World Bank’s development partners. Following discussion with the Government of Haiti, a workshop was organized in mid September 2010 to further discuss the strategic vision of the National Disaster Risk Management System and the subsequent program to support the realization of this

vision. The Note will be updated following the conclusion of this exercise.

DISASTER RISK PROFILE

Haiti ranks as one of the countries with the highest exposure to multiple natural hazards, according to the World Bank’s Natural Disaster Hotspot study.¹ Haiti has been heavily exposed to

Table 1. Most destructive natural hazards in Haiti since the 18th century.

Hazards	No. Events	%	Fatalities	%	Affected	%
Hydrometeorological	97	69.29	19,262	7.53	5,363,876	45.60
Droughts	20	14.29	-	-	2,668,000	22.68
Earthquakes and tsunamis	13	9.29	235,952	92.22	3,721,730	31.64
Landslides and torrential debris flows	10	7.14	635	0.25	10,509	0.09
TOTAL	140	100.00	255,849	100.00	11,764,115	100.00

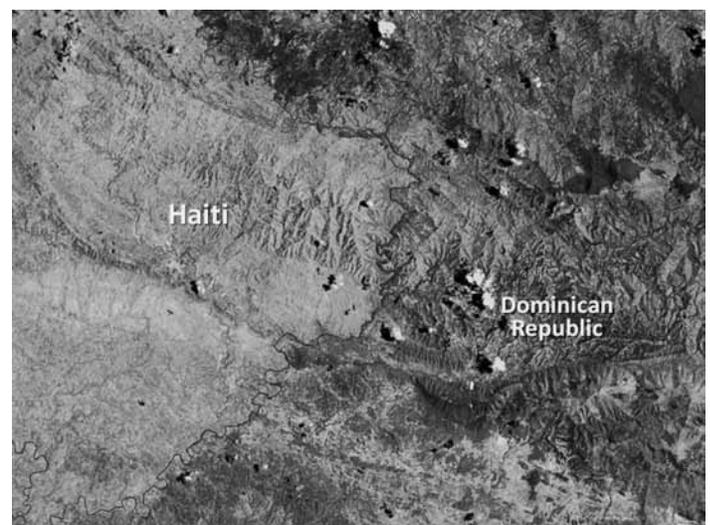
Sources: Observatoire du Petit Séminaire Saint-Martial (1701-1963; in Mora 1986); Haitian Red Cross (1968-1985); OPDES (1983-1997); DPC (2000-2010); CRED (2002-2008).

Period lacking or without complete/reliable information: 15th to 19th centuries; September 1997 to October 2000; October 2002 to April 2003.

natural hazards, and suffered the associated losses, throughout its recorded history (Table 1). With 96% of its population living at risk, Haiti has the highest vulnerability rating in terms of cyclones² among the region’s small island states (12.9 on a scale of 13).³ The effects of cyclones include wind damage, flooding, landslides, torrential debris flows, and coastal surges. In addition to the hydrometeorological hazards, Haiti is also located in a seismically active zone, intersected by several major tectonic faults. The country’s high population density (up to 40,000 per km² in Port-au-Prince) coupled with the large number of informal structures, and weak public and private infrastructure, render the country and its population particularly vulnerable.

Severe environmental degradation (Figure 1), and the presence of settlements in low-lying

Figure 1. Difference in vegetation cover between Haiti (left) and the Dominican Republic (right). The border in this area is drained by the Artibonite River.⁴



¹ Dilley et al. (2005). Table 1.2.

² Includes tropical depressions, storms and hurricanes.

³ UNDP (2004).

⁴ NASA (2010).

areas and floodplains are key contributing factors towards the country's vulnerability.

Further contributing factors include high levels of poverty, weak public infrastructure, weak environmental and risk governance, a history of ineffective governments, and serious fiscal problems.

Economic losses from adverse natural events are increasing in Haiti. As assets are created and concentrated, losses from adverse natural events are increasing. This was demonstrated in August and September of 2008 with the passage of Tropical Storm Fay and Hurricanes Gustav, Hanna and Ike (herein referred to as "FGHI") during a three-week period, resulting in damage and losses equivalent to 15% of the country's GDP. FGHI represented one of the largest disasters in Haiti's recent history, second only to the January 12, 2010 earthquake. The 7.0 earthquake resulted in more than 222,570 deaths, 300,572 injuries, 2.3 million displaced and an estimated US\$7.8 billion in damage and losses, slightly more than Haiti's GDP in 2009.⁵

The implications of climate variability and change on the intensity and frequency of adverse natural events underscore the importance of a proactive approach to disaster risk management (DRM). According to the report of the Climate Investment Fund's Pilot Program for Climate Resilience (PPCR) Expert Group, Haiti is one of the 10 global climate-change hotspots.⁶ The inability or failure of the government to address its vulnerability and to support the reduction of risk has drastically undermined the rate of development and growth, and the overall poverty reduction efforts.

Major Natural Hazards

A multiple-hazard assessment (NATHAT) performed in Haiti after the January 12, 2010

⁵ Government of Haiti (2010a).

⁶ PPCR (2009).

⁷ Understanding Risk (2010). See also Government of Haiti (2010b).

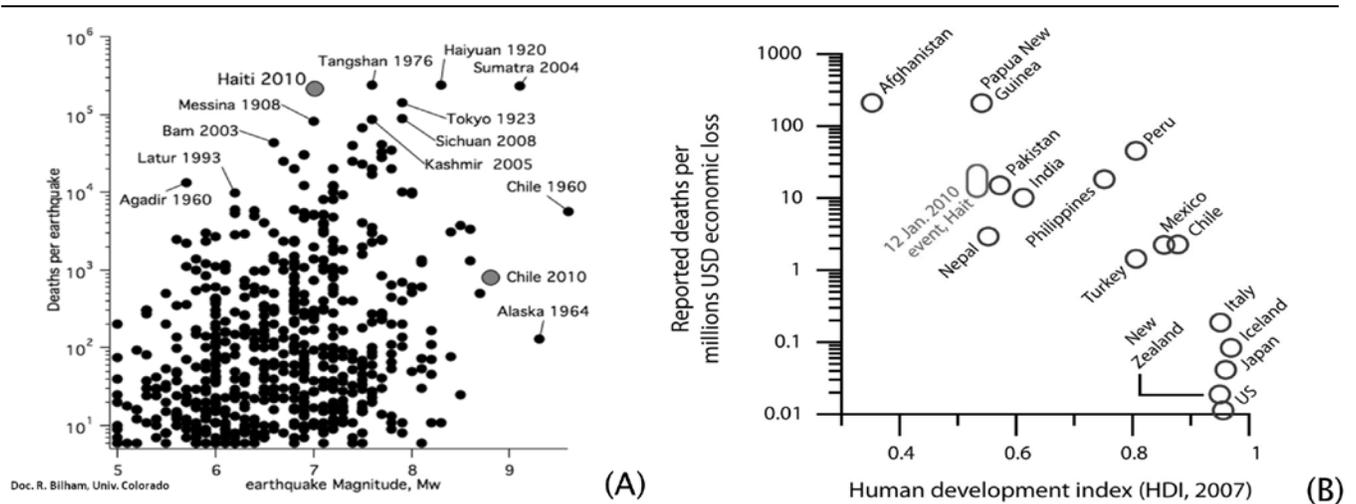
earthquake identified the spatial, temporal and relative intensity of the most severe natural hazards.⁷ The assessment is preliminary and subject to further review and improvement as the quantity and quality of available data improves. The multi-hazard perspective has been designed to serve as the platform for the ensuing risk assessments; orient the vision for integrated risk management; serve as a tool to understand and communicate risk; serve to assist political and managerial decision-making for development investments; and serve to assist with land use planning, risk reduction and transfer, financial protection, and emergency and disaster management.

The most intense natural hazards are seismic and hydrometeorological (Table 1). Seismic hazards are associated with the interaction of the Caribbean and North American tectonic plates. Hydrometeorological hazards are related to the precipitation caused by northern polar fronts, tropical cyclones and waves, the Inter-Tropical Convergence Zone, and convective-orographic activity. El Niño/ ENSO episodes have tended to delay the arrival of the rainy season, create drought conditions, and increase the number and intensity of cyclones, some of which could approach and hit Hispaniola. Other secondary hazards impacting Haiti include landslides, torrential debris flows, soil liquefaction and tsunamis.

Exposure and Vulnerability

The collapse of several buildings prior to the earthquake, and the stunning impact of the January 12, 2010 earthquake serve as a sharp reminder of the weak and unregulated public construction sector and the potential implications involved. This resulted in the disproportionate number of deaths and injuries and amount of damage, given the magnitude (Figure 2). Unless enforceable national building norms are

Figure 2. The ratio of deaths.



The ratio of deaths: (A) In relation to the magnitude of the earthquake (Bilham 2010). The January 12, 2010 earthquake resulted in the highest number of deaths for the given 7.0 magnitude. More fatalities only occurred in instances of higher magnitude. (B) Deaths per economic losses, inversely related to socio-economic development level. Circles show direct, tangible earthquake losses (1950–2009) for some countries commonly affected by earthquakes (blue) as well as recently estimated losses from the January 2010 Haiti earthquake (red) (Roberts et al. 2010).

created, Haiti, particularly Port-au-Prince due to its adverse soil conditions, will suffer equivalent or worse damage in future, inevitably larger, seismic events.

Haiti suffers from severe environmental degradation, as evidenced by only 2% forest coverage and the overall degradation of the country’s land and watersheds (Figure 1). In past decades, water catchment areas have suffered an accelerated process of expansion of the agricultural frontier and deforestation to satisfy local food, energy and other income-generating demands. Most of the forested lands have been converted to agricultural and livestock use, or simply deforested for charcoal production, without replanting. This has provoked reductions in infiltration capacity and led to extensive erosion and loss of nutrients and biomass. This, combined with intense demand pressure in urban areas, further reduces the availability of potable water from surface and underground sources.

These pressures, exacerbated by Haiti’s mountainous topography, changing climatic

environment, environmental degradation and the movement of small land title holders to increasingly fragile upland soils, have resulted in extensive deforestation, accelerating erosion, depleting fertility, and silting of waterways, lakes, reservoirs and shorelines. This, in turn, diminishes the agrarian bearing capacity of the land and contributes to a downward socio-economic and environmental spiral.

With 77% of the Haitian population living on less than US\$2 a day and 52% living on less than US\$1 a day, extreme poverty represents a significant social vulnerability. This translates into precarious living conditions for the majority of the population, drastically decreasing their coping abilities and resilience to the impact of adverse natural events, further enhancing the vicious circle of poverty, environmental degradation, rapid urbanization and vulnerability. Currently, more than 60% of Haiti’s 9.8 million inhabitants live in urban areas. The high population density (average up to 35,400/km² in Haiti, and higher in Port-au-Prince) coupled with

unregulated construction, weak social and economic public infrastructure, lack of land-use planning, and unstable governance, further aggravates the extensive social vulnerability.

Additionally, Haiti suffers from significant governance issues that further increase its vulnerability to natural hazards. Haiti's long history of political instability has greatly weakened its institutions and governance mechanisms (Haiti has the lowest index of corruption perception⁸) which contribute to, inter alia, serious fiscal, regulatory and planning issues. The lack of political stability has a significant impact on the continuity and effectiveness of the National Disaster Risk Management System (Système National de Gestion des Risques et des Désastres, SNGRD), in particular its risk management components. Often the Government of Haiti (GoH) is not afforded the time to develop strategic policies, programs and ensuing coordination, monitoring and evaluation tools, to successfully implement an effective DRM program. Rather, the GoH chooses short-term reactive actions to cope with disasters rather than develop longer-term strategies and programs to address their causes.

Recent Disasters and Tendencies

Recent disasters in Haiti confirm an increasing level of vulnerability facing its hard-won development gains. During the 20th century, Haiti experienced 97 internationally recognized disasters of hydrometeorological nature. Approximately 80% of the disasters happened after 1954 and 40% occurred in the 1990s alone. This trend is expected to continue due to climate change, continued concentration of assets and expected seismic activity. In the last

few years alone, a number of particularly significant disasters affected Haiti. In 2004, Tropical Storm Jeanne affected over 315,000 people; in 2008, FGHI affected more than 865,000 people; and in 2010, the January 12 earthquake directly affected more than 1.5 million people. The impact of the disaster on the national economy in terms of damage and losses for Tropical Storm Jeanne (2004) was evaluated at 7% of the GDP⁹, 15 % of GDP for FGHI (2008)¹⁰, and 120% of GDP for the January 12 earthquake (2010).¹¹

Climate change may also have adverse impacts in Haiti, classified as one of the 10 global climate change hotspots.¹² With a possible increase in the frequency and severity of storms and a decrease in average rainfall associated with climate change, the potential impact on populations and livelihoods will require a comprehensive and integrated approach towards the management of hazards associated with changing global and regional weather patterns.

DISASTER RISK MANAGEMENT FRAMEWORK

The January 12th earthquake has led the GoH, with support from its technical and financial partners, to undertake a broad reconsideration of the country's National Disaster Risk Management System (System National de Gestion des Risques et des Désastres - SNGRD). The broad consultative process held for the Post-Disaster Needs Assessment (PDNA) in conjunction with the elaboration of the GoH's Action Plan for National Recovery and Development of Haiti have contributed to the development of the proposed revision of the system. These documents, presented by the GoH during the UN Donor Conference in New York in March 2010, emphasize the need to

⁸ Transparency International (2006) classifies Haiti as 163rd among 163 countries.

⁹ ECLAC (2005).

¹⁰ Post-Disaster Needs Assessment (PDNA). 2008. UN, World Bank, European Commission.

¹¹ Government of Haiti (2010c).

¹² PPCR (2009).

(i) strengthen the operational capacities for disaster response; (ii) set up a permanent structure for crisis management; and (iii) continue work on risk prevention. The period leading to the upcoming presidential and senatorial elections, and subsequent political transition, offers an opportunity to discuss different institutional and policy options for each of these priorities. This process will form the foundation for a legislative framework which, for the first time, will clearly define roles and responsibilities of all stakeholders.

Haiti's SNGRD was signed into effect in 2001 by 10 key line ministers and the President of the Haitian Red Cross. The SNGRD has achieved significant results in disaster preparedness and response since its inception. While the 2004 hurricane season resulted in 5,000 casualties over 300,000 affected people, FGHl resulted in less than 800 casualties over 865,000 affected people. Strong collaboration between the key members of the SNGRD and its technical and financial partners (TFP)¹³ was critical to improving the speed and efficiency of the response capacity. It is to be stressed that the crisis following the January 12, 2010 earthquake was beyond the capacity of the SNGRD due to its unexpected catastrophic nature.

Haiti's hard-won development gains are often jeopardized by adverse natural events. To ensure a rapid and effective transition from the emergency response phase to the subsequent recovery and reconstruction phases following the January 12, 2010 earthquake, it is important to begin integrating DRM activities and to set the foundation for a successful recovery process and reducing vulnerability throughout the reconstruction phase. This process ensures that DRM will be mainstreamed as a core component of sustainable poverty reduction and economic growth strategy.

While efforts to further strengthen the SNGRD's preparedness and response capacities continue,

there is a greater need to focus on protecting investments as well as livelihoods, to facilitate the transition from a "living at risk" to "living with risk" approach. DRM has been included as a key cross-cutting priority in the Government of Haiti's (GoH) Poverty Reduction Strategy Paper (PRSP: 2008-2011) and as a principle pillar of the United Nations Development Assistance Framework (UNDAF: 2009-2011), as well as the World Bank's Country Assistance Strategy (CAS: 2009-2011). More recently, the Post-Earthquake Disaster Needs Assessment 2010 and the Action Plan for National Recovery and Development of Haiti present DRM as a cross-cutting priority for both the public and private sectors and present it as an opportunity to promote (i) decentralization; (ii) a stronger civil society; and (iii) an innovative private sector. Overall, this demonstrates a growing consensus within the GoH and amongst its TFPs of the importance of integrating DRM as a critical component of a successful poverty reduction and economic growth.

ACTIVITIES UNDER THE HYOGO FRAMEWORK FOR ACTION

**Hyogo Framework for Action (HFA)
Priority #1: Policy, institutional capacity
and consensus building for disaster risk
management**

Haiti's National Disaster Risk Management System (SNGRD) was signed into effect in 2001 by 10 key line ministers and the President of the Haitian Red Cross. The National Disaster Risk Management Plan (PNGRD) provides the operational framework for the SNGRD and identifies the specific roles and responsibilities of the participating

¹³ Including International Financial Institutions (IFIs), bilateral donors, NGOs and the private sector.

institutions. The system is headed by the National Disaster Risk Management Council (CNGRD), which is led by the Prime Minister¹⁴ and composed of the signatory Ministers of the SNGRD and the President of the Haitian Red Cross. At a more operational level, the Directorate of Civil Protection (DPC) and the Permanent Secretariat for Disaster Risk Management (SPGRD) are responsible for the implementation of the PNGRD. Established in 1997, the DPC is the institution most involved in the implementation of the PNGRD, yet as a line ministry Directorate, it does not have the mandate or the technical capacity to design national or sectoral DRM strategies for adoption and implementation by the government and its key line ministries. The SPGRD, led by the Director General of the Ministry of Interior and Collective Territories (MICT)¹⁵, is composed of technical representatives for the signatory Ministries of the SNGRD and the Red Cross and is divided into two branches: a disaster management branch consisting of the Emergency Operation Center; and a risk management branch, composed of thematic and sectoral committees.

While the PNGRD emphasizes a proactive approach vis-à-vis risk reduction and mitigation rather than disaster management, its implementation so far has focused on the latter. The PNGRD identifies the following three axes of intervention: i) risk management at the central level, ii) disaster management at the central level, and iii) disaster and risk management at the local level. The SNGRD has historically focused on disaster preparedness and response with the objective of reducing fatalities associated with adverse natural events. Most of the existing DRM programs evolve around the DPC and SPGRD, but there has recently been an increase in sector integrated DRM projects and activities. Efforts made in 2009 to reinforce and update the national policies for Emergency Response and Risk Management were interrupted by the January 12, 2010 earthquake.

The SNGRD has prioritized the engagement of local communities and the strengthening of their capacities in an effort to decentralize their operations and bolster the system's capacities.

The SNGRD has established an extensive network of Departmental Disaster Risk Management Committees (Comité Départementaux de Protection Civile, CDPC) present at the departmental level (all 10 departments) and municipal level (more than 110 of the existing 165 municipalities). Under the leadership of relevant senior government officials (the delegate of the President at the departmental level and the mayor at the municipal level), the CDPCs are composed of the representatives of government, civil society and international technical partners. Trained initially to focus on disaster management activities (preparedness and response), the CDPCs are acquiring the tools and capacities to assume greater responsibility in the development of their respective DRM strategies and execution of local risk reduction activities.

Currently, most line ministries do not have the legal mandate, strategic framework or technical capacity to effectively fulfill their DRM role and responsibilities as defined within the PNGRD.

Although the PNGRD was signed in 2001 by 10 ministries and the Red Cross, the MICT is the only institution with a clear DRM mandate. The existing insufficient legal framework makes it difficult to allocate financial resources and limits the involvement of the signatory ministries at the institutional level. As a result, the SNGRD has come to rely mostly on multi-sectoral coordination committees without the necessary corresponding institutional involvement.

At the highest level, the GoH has yet to assume full ownership over the SNGRD. The apex political body of the SNGRD, the CNGRD has never officially met and the SPGRD, headed by the DPC, is in the difficult position of attempting to 'chair' the system and streamline cooperation

¹⁴ Leadership delegated to the Minister of the Interior and Collective Territories (MICT).

¹⁵ Leadership delegated to the Director of the Directorate of Civil Protection.

and coordination among international actors. This task has become ever more challenging since the January 12, 2010 earthquake on account of a significant increase in international actors.

While the support to a central coordination body remains a priority, the need to re-think format and level of political engagement for this structure is imperative. As outlined by the Action Plan for National Recovery and Development of Haiti, a National Council for Civil Protection will be established, responsible for defining a new vulnerability reduction strategy and a more general crisis response strategy, for both natural and man-made crises. In support of this council, legal frameworks and decrees have been proposed to render the SNGRD more operational and raise the status of the DPC to the level of General Directorate. While no effort has been spared to modernize the risk management structure, its effectiveness and the required political will has yet to take root.

HFA Priority #2: Disaster risk assessment and monitoring

Over the last 8 years, the SNGRD has made some improvements in data collection for risk assessments. Although there is currently no updated national, departmental or sectoral comprehensive risk assessment, there exist a number of initiatives, namely: i) Oxfam elaborated in 2002 the first national natural hazard and disaster vulnerability maps, ii) the National Center for Geospatial Information has developed two pilot local flood maps, and iii) the Ministry of Planning and External Cooperation (MPCE) and several line ministries are interested in developing sectoral risk assessments to better inform their strategic investment program decisions. At the local level, risk assessment has improved over the last five years. The close collaboration between the DPC and its technical and financial partners

(TFPs)¹⁶ has allowed for each CDPC to develop a rudimentary risk map based on available data.

Following the January 12, 2010 earthquake, the GoH requested funding from the World Bank for a multiple-hazard assessment (NATHAT).

The study was funded by the World Bank-hosted Global Facility for Disaster Reduction and Recovery (GFDRR) and carried out with the collaboration of UNESCO, the Inter-American Development Bank, and several Haitian institutions and professionals. The study was designed to:

- Conduct an inventory of natural hazards across the country;
- Provide an assessment of imminent hazards and vulnerability of disaster victims in light of the approaching rain season and potential of another severe earthquake;
- Summarize recommendations for a medium- and long-term strategy to improve risk management;
- Formulate an action plan and offer recommendations for the reconstruction phase.

The analysis and outcomes were intended to inform a varied target audience (decision-makers, general population, international community, scientists and engineers). In view of the quantity, quality of data collected and the time available, the work was prioritized along the following lines:

- In the very short term, during humanitarian and rehabilitation work, determine the hazards at temporary transitional camp sites (nearly 1.2 million people);
- Considering the likelihood of another major earthquake striking Haiti in the future, examine the possible magnitude, intensity, acceleration, and secondary effects (aftershocks, soil liquefaction, landslides and tsunami);

¹⁶ Including International Financial Institutions (IFIs), bilateral donors, NGOs and the private sector.

- Evaluate the hydrometeorological hazards (tropical cyclones and waves, El Niño/ENSO, polar thrusts) and their secondary effects (heavy rainfall, floods, windstorms, surge, drought, torrential debris flows, landslides).

Haiti relies on limited natural-hazard-specific data collection and monitoring capacity and there is currently no structured national observatory or early warning (alert-alarm) system. The systems that are currently operational fail to provide the coverage and data-sharing required. Haiti's National Meteorological Center (NMC) relies on two weather-monitoring stations and a network of volunteer observers around the country to provide the data necessary to supplement the United States' National Oceanic and Atmospheric Administration's (NOAA) National Weather Service (NWS) forecasts. With 13 unique microclimates, Haiti's capacity to accurately forecast the local weather conditions and provide timely early warning is limited. Although several institutions and organizations have local rainfall monitoring capacity, a formal network to gather, share and action the data does not exist, thereby undermining the ability of the NMC to fulfill its mandate. Similar situations exist for other major hazards including seismic activity, landslides, liquefaction and tsunamis, where the combination of a lack of equipment, formal networks, databases, and limited institutional capacities constitute a challenge.

The SNGRD has successfully managed to reduce mortality rates associated with hydrometeorological events from thousands to hundreds as a result of better diffusion of warning messages and increased local awareness. The current flood and hurricane warning system depends heavily on the regional data provided by the NWS's Hurricane Center in Miami and from local observers. More work is needed to improve the forecasting capacities and further decentralize the monitoring capacity. Several pilot activities have been executed on flood early warning systems (FEWS) financed by USAID and UNDP, a national

program covering the installation of FEWS across 13 priority watersheds funded by the Inter-American Development Bank and a simulation exercise carried out by the SPGRD. The United States Geological Survey is providing assistance for the installation of seismic stations on the main active tectonic faults.

While analyses, studies and data collection mechanisms exist, there are no established updating and integration mechanisms. Due to the tightly coupled relationship between Haiti's different vulnerability factors, it is essential to create a work dynamic among the ongoing observatory initiatives (poverty, environment, food security, etc.) under one platform that can be used as the basis for formulating a comprehensive risk assessment. The implementation of such an initiative will require considerable funding, technical assistance, networking and partnership building. With required resources not yet mobilized and the drive for quick and visible interventions, this may take some more time.

HFA Priority #3: Use of knowledge, innovation, and education to build a culture of safety and resilience at all levels

The SNGRD has benefited from significant increases in financial and technical support from the GoH's TFPs, for the purposes of, *inter alia*, institutional strengthening activities. The technical expertise mobilized in support of the institutional strengthening agenda has resulted in improved procedures and products and the development of new tools as well. To ensure that the acquired knowledge and tools are institutionalized, thus contributing to long-term impact of the outputs, the implementation of a knowledge management system is essential. While there is an ongoing initiative to set up a disaster management database (following the guidelines of the Regional Center for Disaster Information) with support from UNDP, more resources are required to establish a dynamic knowledge and

information management system for the promotion of a culture of vulnerability reduction.

Through the CDPC network and efficient partnerships with the media, the SNGRD has made progress in raising the public's awareness on DRM. The SNGRD has targeted national, departmental and local government officials, the general public and the vulnerable groups (women, elderly and children) with specific messages for preparedness and response. The SNGRD also disseminates general DRM information through the media on various occasions. The thematic committee working on public awareness and education is developing a more structured public communication strategy and plans for raising awareness in schools. In addition, the thematic committee is supporting the development of a DRM module for integration into the national curriculum. Also, the World Bank is supporting an additional initiative focused on the production of diverse risk communication tools based upon the results of the NATHAT analysis, addressed to the general public (in Kréyole Ayisien, and accessible in French), to the decision makers (in French) and to the international donor community (in French and English).

The development of human capital with the necessary strategic and technical expertise remains a major challenge. In order to capitalize on the improved institutional capacities and effective outreach programs, additional human capital with DRM expertise is needed to successfully promote the introduction of safety and resilience into the culture. This is also critical to protect against the potential loss of knowledge and expertise through the anticipated turnover of the limited staff working within the SNGRD. Through an academic partnership between the University of Florida and the University of Quisqueya Haiti, 20 people completed a DRM Masters program during the 1990s. Unfortunately

this partnership no longer exists, although recent efforts to reestablish new university-level graduate and postgraduate programs partnership are underway.

HFA Priority #4: Reduction of the underlying risk factors (reduction of exposure and vulnerability and increase of resilience)

The PRSP represents a significant opportunity for the integration of DRM into the national development process, with the objective being to transition from “living at risk” to “living with risk”. Following FGHI in 2008, the GoH revised the PRSP to place a much greater emphasis on the integration of DRM into the national and sectoral strategies and investment programs as a means of securing its investments.

The integration of DRM at the strategic level translates into more effective operations at the sectoral level. In addition to the Ministry of Planning and External Cooperation (MPCE) and the Ministry of the Environment (MDE), numerous line ministries are interested in strengthening their respective DRM capacities as evidenced by emerging ministerial rhetoric. The GoH's TFPs have taken notice and are beginning to support the GoH's shift in strategy by allocating significant portions of post-disaster recovery and reconstruction assistance towards mitigation and DRM capacity-building activities. While the World Bank is working with select line ministries through its existing portfolio to mainstream DRM¹⁷, it has launched an advocacy campaign - in support of the SNGRD - to further orient pipeline investments of the GoH's TFPs.

Risk management at the departmental level has increased, yet departments require additional technical and financial support to successfully

¹⁷ Emergency Recovery and Disaster Management Project, Emergency Bridge Reconstruction and Vulnerability Reduction Project, Emergency School Reconstruction Project.

address the high level of vulnerability. Departmental and local governments are acutely aware of the risk they face, yet struggle to implement a comprehensive DRM program due to limited technical and financial resources. The World Bank, the EC and the UNDP currently finance local risk management activities (using a community-driven approach) and capacity-building activities at the departmental level. However, additional resources are required to ensure the integration of DRM in local governance activities, i.e. through land use planning, local development plans, etc.

The next step on the risk management agenda is a multi-layered approach to strengthen both the institutional capacities at national, sectoral and local levels and to increase the volume of investments and projects taking into account DRM factors. For the institutional component, the objectives are to i) establish a central strategic and coordination capacity within the ministries of Planning and Economy, ii) build up the sectoral DRM capacities of line ministries and support investment securing activities, and iii) strengthen local governments for the integration of DRM in their plans and the execution of risk management activities through the sectors. For this, the World Bank is working in close collaboration with the most relevant TFPs, including UNDP, EC, IADB, and USAID.

HFA Priority #5: Disaster preparedness, recovery and reconstruction at national, regional, and local levels

The SNGRD has achieved significant results in the areas of disaster preparedness and response, effectively reducing the mortality rate. Although the mortality associated with the impact of natural hazards remains high, significant advances were made based upon a strategy encompassing the areas of working towards i) strengthened local capacities, ii) increased early warning capacity and effective public awareness campaigns, iii) development of partnerships

with key actors, iv) establishment or strengthening of the PNGRD coordination mechanisms, and v) development and operationalization of technical tools for disaster preparedness and response. It is clear that all stakeholders involved must undertake additional and sustainable measures to support this capacity-building.

In the wake of the January 12, 2010 earthquake, the local structures of the SNGRD played a critical, though relatively unknown, role in search-and-rescue operations as well as in the management of IDP camps and food distribution, among other things.

At the local level, the establishment of the CDPCs has been effective in the development of local knowledge and capacity. With close to 4,000 people involved through the departmental and local CDPCs, the true operational capacity of the SNGRD is at the decentralized level. The CDPCs bring local actors together to plan for the hurricane season and coordinate and conduct disaster response operations with support from the SNGRD's TFPs.

The SNGRD is working on improving its flood warning system capacity. The number of evacuated people (6,000 in 2006; 33,000 in 2007; and 122,000 in 2008) is an indicator of the improved structuring and dissemination of warning messages and the public responsiveness to the warnings. The establishment of warning protocols and their application by the majority of institutions involved in the SNGRD has also contributed to a faster and more efficient mobilization for response operations.

The recent creation of municipal evacuation plans (including the related communication strategy) and shelters in 31 municipalities at high risk of floods throughout the country (an IADB-supported initiative) is a stepping stone in this direction. Next steps include scaling this initiative up throughout the entire country, expanding it to several types of hazards, and creating and improving observation and surveillance capacities.

To increase its span of work, the SNGRD has established or strengthened a number of coordination mechanisms as defined in the PNGRD. To support the DPC and the SPGRD, the two central institutions in charge of DRM activities, the SNGRD has strengthened the thematic committees (early warning system, public awareness and education, environment, shelter management) and plans to establish several more. These committees are composed of all institutions involved and other partners working on a specific theme for strategy development, activity planning and coordination. The committees often need technical assistance, as most of the expertise is not available. The SNGRD has also put in place and improved the Emergency Operation Centers (EOCs), with one at the central level and several at the departmental and municipal level, enabling faster and more efficient initial disaster response.

Strengthening the operational capacities for disaster preparedness and response remains the key priority for the SNGRD. Specifically, this will include:

1. **Streamlining operational emergency procedures and technical tools procedures for disaster preparedness and response at national, departmental and municipal levels.** For instance, the SNGRD devises annual hurricane preparedness strategies (contingency planning, simulation exercises, communication campaigns, etc.) as well as post-cyclone-season evaluation activities. However, these activities need to be further institutionalized and developed at the local level.
2. **Completing construction and adequate equipment of Emergency Operation Centers at the departmental and municipal level.** This needs to be completed with the allocation of small operational budget for DRM Committees at the departmental and municipal level to allow mobilization of their members.
3. **Creating a body of professional first**

responders to include fire brigades, police, and medical doctors. This will be complemented by a reorganization of the civil protection volunteer sector to allow broader mobilization of human resources in response to disasters.

4. **Strengthening technical capacities and professionalization of NDRMS members** through (internal and external) training, study visits and exchanges with foreign DRM institutions, etc.
5. **Strengthening government's training delivery capacity** through the standardization of training modules, creation of a pool of nationally recognized instructors, and introduction of a training certification process.

One of the greatest challenges facing the SNGRD is to facilitate a rapid and smooth transition from recovery to development following disasters. Typically, emergency response operations begin immediately following a disaster. However, as evident by the results of the GoH and their TFPs' response to Jeanne in 2004 and the current efforts after the January 12, 2010 earthquake, failure to identify and launch recovery activities designed to bring the affected communities back to a self-sustainable situation through social and economic activities can prove a hindrance for the reconstruction effort. Furthermore, the reconstruction suffers from the lack of land use planning and normative tools and often fails to reduce the underlying risk factors. The next steps would be to strengthen the recovery-planning capacities through institutional support and work at strategic and technical levels to raise awareness for such needs and their critical role to ensure proper return from crisis management to development. It is clear that only with adequate risk knowledge and risk information tools would this be a reachable goal. The World Bank is currently working on developing such tools and on the design and implementation of an institutional framework to acquire, stock and share data and information on risk.



ADDITIONAL OBSERVATIONS

The GoH has successfully introduced DRM as a condition for sustainable development and is working to build consensus among its institutions and partners. The consensus represented within the respective strategic documents is of particular importance because the international community has financed more than 60% of the investment prior to the earthquake, only to be multiplied given current circumstances.

More work lies ahead to ensure that DRM priorities identified in the national development plans are integrated within sectoral agendas. There is currently no ministry or any other agency or entity integrating DRM into their respective strategies, although there is now a strong political will to act on the extreme level of vulnerability. Key coordination ministries such as the MPCE, MICT and MEF and several line ministries have expressed

interest. Funding from the GFDRR is available to provide technical assistance to the MPCE and comes in addition to World Bank financed emergency reconstruction projects. Now that the MPCE has an operational DRM cell (Cellule de Réduction de la Vulnérabilité, CRV), the next stage will focus on building the necessary institutional capacity (both strategic and technical) and fostering consensus among the actors involved in each specific sector. Among the TFPs, there is a clear adjustment of overall strategy among the most influential actors (G10) and there are more organizations integrating DRM in their assistance plans. In addition to the World Bank and the UN system, USAID is planning for greater investment in DRM over the coming years: USAID in the form of technical assistance to the Ministry of Agriculture, Rural Development and Natural Resources (MADRNR) and the Ministry of the Environment (MDE) in the context of national risk reduction through a watershed rehabilitation program.



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