Risk Mapping Haiti
Sector Disaster Risk Reduction & Emergency Aid

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Appendix: hazard map Haiti
Republic of Haiti

Fast Facts

| Capital: Port-au-Prince (Ouest) | Official languages: French, Creole |
| Population: 9.7 (July 2011) | Climate: tropical and semi-arid |
| Administrative regions: 10 departments divided into arrondissements and communes. | World Risk Index: 32 (173) |
| Major religion: 96% Christian, 50% practice Voodoo | Cordaid sectors: CT, EA, DRR, H&W, Ondernemen, UM |

Hazards

Natural Hazards

Tropical storms/Hurricanes
Occur mostly from June to November. They can have a big impact usually resulting in flooding. The entire country is susceptible to tropical storms and hurricanes. About 2.5% of the population are directly exposed to the storms, they generally affect a large number of people and can cause a lot of economical damage. In fact this hazard affects the largest number of people out of all of Haiti’s natural hazards. Storms can be difficult to predict because they can change. But generally, these storms can be predicted and alerted for in terms of strength and where and when it will hit land. However, the precise location and intensity can not be predicted until only a few hours before it may strike.

Floods
The root cause is mostly tropical storms/hurricanes and the high rainfall. Low lying areas, coastal areas and estuaries are especially vulnerable to this hazard risk (which is 20% of land cover). Mountainous areas allow for water run-off. Areas highly exposed to flooding are Sud in the region of Les Cayes and the east of the department on the coast. Artibonite also faces high risk in the area of Gonaives running south-eastwards. Furthermore, Nord and Nord-Est are vulnerable on the northern coast of Cap-Haitien and Fort Liberte. Another major risk lies in the centre of the department of Ouest in the low-lying plains north of Port-au-Prince, around Leogane and the north-western coast of Ouest. A little under 1% of the population is directly exposed to floods yet they are the greatest hazard for the Haitians regarding frequency. However they do not affect many people. In addition Haiti experiences flash floods. The cleared hillsides due to deforestation and the uneven landscape are ideal for flash flood situations. Water from rainfall runs off mountain slopes and is not taken into the soil because it is already saturated, dry or eroded. The two rainy seasons are from April until June and August until October. Flood season is from March until December.

7 Government of Haiti (2010) Analysis of Multiple Natural Hazards in Haiti
Earthquakes
The island of Hispaniola is located in an active seismic region on major faults between the Caribbean and North American Plates. The probability of a tsunami triggered by an earthquake is low. A major earthquake occurred in January 2010 near Leogane and killed over 200,000 people and affected 3.7 million people. In general, the chances of an earthquake occurring are small but the impact is extensive.

Droughts
Historically, droughts have occurred in Haiti (1923-24, 1946-47, 1958-59, 1966-68, 1974-1977, 1981-1985), some of which have resulted in food insecurity and famine. Areas exposed to drought are the northwestern coast and some areas on the southern coast. More than 10% of the population is exposed to droughts so they tend to affect a large number of people. In the past droughts have occurred in the period between November and January and from March until May.

Landslides
The loose soil and rock formations on the hillsides are a cause of landslides in many hilly areas of Haiti. Due to deforestation the soil does not firmly hold together and triggers such as earthquakes and heavy rainfall may cause large pieces of land to slide of hillsides. The areas on mountain slopes and hillsides are most at risk. The whole country is at risk to landslides because of the mountainous terrain. This may cause extensive damage to housing and land and affect many people. Landslide risk is high from March until December.

Environmental hazards
Haiti is facing several environmental hazards. A major problem is the extensive deforestation. Haiti’s natural forest cover is about 4% of the natural territory (compared to 30% in Dominican Republic). This increases the vulnerability for floods by accelerating runoff, increases soil erosion and disrupts the water cycle. Flash floods, mud and landslides can be related to these issues of deforestation in Haiti. Soil erosion can also be a cause of flash floods.

Epidemics
Possibly due to the crowded IDP camps after the earthquake cholera has erupted in October 2010. Cholera is a highly infections disease which easily spreads around people in close contact through contaminated water. IDPs are especially vulnerable as they live in cramped spaces with little hygiene and sanitation. As of September 2011 more than 6000 people have died of the disease and near 500,000 cases have been reported. Haiti suffers from other poverty related diseases such as HIV/AIDS (1.9%). Tuberculosis is the second largest mortality cause in Haiti with an estimated 7000 deaths in 2007.

12 Government of Haiti (2010) Analysis of Multiple Natural Hazards in Haiti
17 Government of Haiti (2010) Analysis of Multiple Natural Hazards in Haiti
21 ReliefWeb (2011) http://reliefweb.int/node/453042
Vulnerability

Indicators

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Value 1</th>
<th>Value 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Human Development Index (out of 187)</td>
<td>145</td>
<td></td>
</tr>
<tr>
<td>GDP per capita (USD)</td>
<td>1,040</td>
<td></td>
</tr>
<tr>
<td>Gini Coefficient</td>
<td>59.5</td>
<td></td>
</tr>
<tr>
<td>Living below 1,25 (USD) a day (% pop)</td>
<td>24</td>
<td>59.5</td>
</tr>
<tr>
<td>Life expectancy at birth (years)</td>
<td>61.7</td>
<td></td>
</tr>
<tr>
<td>Infant mortality rate (per 1000 live births)</td>
<td>87</td>
<td></td>
</tr>
<tr>
<td>Adult literacy rate (% aged &gt;15)</td>
<td></td>
<td>65.3</td>
</tr>
<tr>
<td>Mean years of schooling (of adults)</td>
<td></td>
<td>4.9</td>
</tr>
<tr>
<td>Gender inequality index</td>
<td></td>
<td>0.705</td>
</tr>
<tr>
<td>Global hunger index (&gt;20 alarming)</td>
<td></td>
<td>28</td>
</tr>
<tr>
<td>Corruption perceptions index (10 = clean)</td>
<td></td>
<td>2.26</td>
</tr>
</tbody>
</table>

Since the earthquake (2010) we have seen an increase in all major categories of crime. There is a threat of internal conflict due to armed gangs, violent crimes, gender-based violence and drug trafficking. There is weakening of the rule of law and an increase of civil and social unrest. The national government and police force are still too weak to tackle this problem.

Exposure to risk in Haiti is high, the area is mountainous and people live on slopes which may increase vulnerability. Houses are located in exposed areas (such as ravines, slopes and foothills), and the Léogâne, Jacmel, Carrefour, Cul-de-Sac Plain and Cité Soleil river flood-plains. Port-au-Prince houses more than 2.1 million people. This area is highly vulnerable to storms and hurricanes and is also located near a flooding zone in the centre of Haiti. The capital is also situated on an active fault line. There are densely populated slum areas in Port-au-Prince with people living in extreme poverty in poor housing e.g. Vila Rosa. These areas are also prone to violence.

IDPs living in shelters are very vulnerable and they put a lot of stress on the people already living in the area. Due to the earthquake many people have become internally displaced. More than 1.3 million people remain displaced, spread across 1,300 settlement sites. These people are exceptionally at risk because their housing situation is poor and they may be located in high risk areas. Women are in danger to become victims of sexual violence in the IDP camps.

Capacity

Government

Prior to the earthquake in 2010 the World Bank and others were aiding Haiti in incorporating disaster risk management into its policies. Yet, these capacities were still in the early stages and aimed at tropical storms and flooding rather than earthquakes.

A long history of political instability has significantly weakened the institutions and mechanisms of government. This also affects the effectiveness of Haiti’s National Disaster Risk Management System (SNGRD). The Government of Haiti mainly focuses on short-term reactive actions to cope with disaster rather than focusing on strategies to address the causes in the long term. This orientation changed after the National Disaster Risk Management Plan (NDRMP) was validated in 2001 which includes a focus on

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strengthening the capacity for protecting populations. Yet, the implementation of the principles of decentralisation, creating a responsible civil society and an innovative private sector to protect physical capital all remain limited. The focus mainly lies on protecting life, which has had positive results. The 2008 Growth and Poverty Reduction Strategy (SNCRP) also includes DRM as a cross-cutting issue. The Ministry of the Interior and Territorial Communities (MICT) is the only institution with organic law in DRM and works via the Civil Protection Department (DPC) which is mandated to coordinate response and prevention. However, the ministries mandates still leave it too weak on a political and operational level. The efforts to decentralise and strengthen local capacities of the DPC departments have been reasonably successful and several departmental, communal and local DPCs have been created.\(^{34}\) Besides the governmental DRM structure there a support group of civil society, GACI, is set up which consists of the UN system, the donor community, the international NGOs and the Red-Cross Movement.\(^{35}\)

### Civil Society

After decades of turbulence in the country, Haitians have been forced to look elsewhere for the delivery of basic services and they turned to NGOs. However, giving aid through NGOs limited the capacity growth and incentives of the government to provide these services themselves. The effect of a large number of INGOs on the capacities of civil society remains disputed. Yet, in Haiti, organised civil society is actually quite strong and effective with well-established networks. The cooperation between INGOs and local NGOs, however, still is weak.\(^{36}\)

The relationship between the Government of Haiti and local civil society is poor. The IHRC fails to engage with local organisations, they are criticised for giving priority to donors, governments and the business sector. Some Haitian civil society and community based organisations are still being excluded, also in coordinating structures within the SNGRD.\(^{38}\)

### International Coordination

OCHA coordinates international preparedness planning in collaboration with the government and international and national partners. The Haiti Reconstruction Fund (HRF) is a partnership between the international community and the Government of Haiti to help finance post-earthquake reconstruction. The HRF mobilizes, coordinates and allocates contributions from bilateral and other donors to finance high-priority projects, programs and budget support.\(^{39}\) The Interim Haiti Recovery Commission (IHRC) is organised to help project executors, donors and investors towards a plan that is in line with the major goals of the Government of Haiti and the Action Plan for National Development and Recovery of Haiti (2010). The government plays a crucial role in this commission.\(^{40}\) The IHRC is co-chaired by Prime Minister Bellerive and President Clinton.

In 2010 a new coordination was set in place as follows:

<table>
<thead>
<tr>
<th>Sectors/Clusters(^{31})</th>
<th>Lead Agencies (UN &amp; Partners)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>FAO</td>
</tr>
<tr>
<td>Camp coordination and Camp Management</td>
<td>IOM</td>
</tr>
<tr>
<td>Early recovery</td>
<td>UNDP</td>
</tr>
<tr>
<td>Education</td>
<td>UNICEF</td>
</tr>
<tr>
<td>Food</td>
<td>WFP</td>
</tr>
<tr>
<td>Health</td>
<td>PAHO/WHO</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Logistics</th>
<th>WFP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protection</td>
<td>OHCHR with UNICEF for Child Protection and UNFPA for GBV</td>
</tr>
<tr>
<td>Emergency Shelter and Non-Food Items</td>
<td>IFRC</td>
</tr>
<tr>
<td>Water and sanitation</td>
<td>UNICEF</td>
</tr>
<tr>
<td>Nutrition</td>
<td>UNICEF</td>
</tr>
<tr>
<td>Emergency Telecommunications</td>
<td>WHO / PAHO</td>
</tr>
</tbody>
</table>

**Cordaid & Partners**

Cordaid’s activities are coordinated by SHO. Cordaid has one field office in Haiti and cooperates with others that are also active in the area such as Caritas, UN and local partners.

### National NGO partners of Cordaid

<table>
<thead>
<tr>
<th>GRET</th>
<th>VETERIMEND</th>
<th>BND</th>
<th>GADRU</th>
<th>CPH</th>
<th>GTIH</th>
<th>OJUCAH</th>
<th>GRIDAP</th>
<th>HELP HOSPITAL</th>
</tr>
</thead>
</table>

Mental Health & Psychosocial support programmes:

IDEJEN
ICC
HELP
St. Croix
SOE
Health & Womens rights
CSS
OJUCAH
POZ
SOE
URAMEL

<table>
<thead>
<tr>
<th>INGOs working with partners</th>
</tr>
</thead>
<tbody>
<tr>
<td>CARE NL</td>
</tr>
<tr>
<td>CONCERN</td>
</tr>
<tr>
<td>OXFAM GB</td>
</tr>
<tr>
<td>CARITAS network</td>
</tr>
</tbody>
</table>

**Cordaid & Caritas**

<table>
<thead>
<tr>
<th>CARITAS</th>
<th>DRR strategy</th>
<th>DRR experienced</th>
<th>Activities</th>
<th>Partner in DRR</th>
<th>Interest in DRR &amp; Potential collaboration</th>
</tr>
</thead>
<tbody>
<tr>
<td>CARITAS PaP</td>
<td>In process supported by Caritas Canada</td>
<td>Trained by TROCAIRE in DP &amp; DM Mainstream DRR (food security - agriculture project)</td>
<td>Project mitigation 2011-2013 funded by Caritas UK</td>
<td>Caritas UK Caritas Canada</td>
<td>Interested in CMDRR training to strength their capacities</td>
</tr>
<tr>
<td>CARITAS SWISS</td>
<td>No DRR strategy</td>
<td>No experience in DRR</td>
<td></td>
<td></td>
<td>Would like to learn CMDRR approach to strength CARITAS PaP in</td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>CARITAS CZECH</th>
<th>A 3 year country strategy integrating DRR</th>
<th>Mainstream DRR in agriculture project Leogane 3eme section</th>
<th>CBOs direct implementation</th>
<th>Would like to train in CMDRR their CBOs in Leogane and their trainers</th>
</tr>
</thead>
<tbody>
<tr>
<td>CARITAS UK</td>
<td>Need to be checked</td>
<td>Support to Caritas PaP; To be checked</td>
<td>Mitigation project 2011-2013</td>
<td></td>
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<tr>
<td>CARITAS CANADA</td>
<td>Need to be checked</td>
<td>Support to Caritas PaP. To be checked</td>
<td>Training in DRR for 3 years to support Caritas PaP 2011-2013</td>
<td></td>
</tr>
</tbody>
</table>

**Synthesis**

Haiti has exposure to multiple hazards and high vulnerability levels. The exposure time per year is also very high so there is little time for recovery.

- Hurricanes and storms are a main threat for Haiti. 250,000 people are exposed to hurricanes. Historically, tropical storms have not affected a large number of people, up to 20,000 people (which is a high estimate).
- Flooding and mudslides as a consequence of heavy rains occur often but affect small numbers in the hundreds or low thousands who are displaced.
- Poverty related diseases and epidemics are expected to recur often. Past cases have affected up to half a million people and killed up to 6000.

**Resources & Contacts**


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