



# Haiti Earthquake PDNA: Assessment of damage, losses, general and sectoral needs



Annex to the Action Plan for National Recovery  
and Development of Haiti

## Foreword

We are pleased to present you with the results of the post-disaster needs assessment conducted in Haiti from February 18 to March 24 2010, at the request of and under the direction of the Government of the Republic of Haiti, with the technical support of the UN, the IDB, the ECLAC, the World Bank and the European Commission.

The earthquake on January 12, 2010 has caused an unprecedented situation in Haiti with enormous repercussions affecting all sectors of society, well beyond the areas directly affected by the catastrophe. Over 200,000 lives were lost. Hundreds of thousands of Haitians have been left homeless and have fled the affected area to find refuge in the provinces, adding to an economic situation which was already difficult in these regions.

In order to respond to a catastrophe of this scale, this assessment has been designed to go further than traditional post-disaster assessments. The objective has been to lay the foundations for a fresh start in the country's development efforts, as well as to reconstruct the damaged areas and contribute to a long-term national strategic development plan, in order to begin rebuilding Haiti.

This assessment was carried out under the supervision of the High Level Management Team led by the Prime Minister and including the following members: the United Nations Humanitarian/Resident Coordinator, a representative of the United Nations Special Envoy for Haiti, the World Bank Mission Leader, the Resident Representative of the IDB, three G11 representatives, and the European Union Head of Delegation. The Management Team has given strategic advice and provided the necessary resources throughout the process.

In addition to the damage and loss assessment which usually constitutes the central part of this type of assessment, an analysis of short-term rehabilitation needs and an analysis of the needs to rebuild the country have led to costed assessments for eight essential themed sectors: governance, the environment, disaster risk management, social sectors, infrastructure-related sectors, the production sector, a macro-economic analysis, and cross-cutting sectors (youth, gender, vulnerable persons, employment).

The government led each of these themed teams, which had the responsibility of collecting and collating information on damage, losses, the impact of the earthquake on human development, and post-disaster needs for reconstructing and rebuilding the country.

The work accomplished by the teams of experts now enables us to present (i) a multi-sector review of damage and losses incurred following the earthquake on January 12, 2010 and an estimation of the impact of the earthquake on each themed sector; (ii) an action plan for the identification of needs for recovery and rebuilding the country in the very short term (6 months), short term (18 months), medium term (3 years) and long term (10 years).

Jean Max Bellerive  
Prime Minister  
Port-au-Prince  
March 2010

## Acknowledgements

This Post-Disaster Needs Assessment (PDNA) report was prepared by a joint team composed of representatives of the Government and members of the International Community, under the direction of the Government of the Republic of Haiti.

Coordination was provided by a coordination team composed of representatives of the Government, the World Bank, the Inter-American Development Bank, the United Nations system, the European Commission and the Economic Commission for Latin America and the Caribbean.

Over two hundred national and international experts worked in eight themed teams: governance, production, social sectors, infrastructures, regional development, the environment and disaster risk management, cross-cutting themes and a macro-economic analysis.

The PDNA Coordination Team wishes to acknowledge the strong, positive support of bilateral donors, who have exhibited great interest in the exercise, as well as the technical and financial partners: Germany, Canada, the United States of America, Great Britain, Italy, Japan, Norway, the Dominican Republic, Sweden, Switzerland, the International Monetary Fund and the International Financial Corporation together sent 35 experts in agriculture, civil society affairs, disaster risk management, education, energy, the environment, governance, health, housing, trade and industry, telecommunications, regional development, and urban infrastructure to work with their counterparts from Haitian and international agencies on the arduous assessment of damage, loss and needs in these important sectors.

In addition to identifying and sending experts, the bilateral donors also provided financial support and food supplies. Furthermore, they exchanged current and previous assessments and reports which were of invaluable help to the themed teams.

The bilateral donors showed great interest in being kept informed of the progress of the preparation of the PDNA and its final report, expressing the desire that the PDNA supply them with sufficient themed information to be able to coordinate in such a way as to guarantee that the needs in Haiti are fully covered.

In particular, the government of Haiti, the World Bank, the Inter-American Development Bank, the European Union and the United Nations wish to thank in the governments of Sweden, Switzerland and Luxembourg and the European Commission for their financial support for the PDNA and their contribution to the Global Facility for Disaster Reduction and Recovery (GFDRR).

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The Appendices mentioned in the report will be available online only.

# Haiti – Summary of the PDNA

## Damage, losses, and needs assessment by sector

### The January 12 2010 earthquake and its impacts

(Working document)

Prepared by the Government of the Republic of Haiti  
with support from the International Community

On January 12 2010, just before 17:00, an earthquake of magnitude 7.3 on the Richter scale shook Haiti for 35 seconds. It was the most powerful earthquake to hit the country in 200 years. The hypocentre of the earthquake was close to the surface (at a depth of 10 km) and its epicentre was close to the town of Léogâne, around 17 km south-west of the capital Port-au-Prince in the Department of Ouest. The effects were felt in the Departments of Ouest, Sud-est, and Nippes. The Port-au-Prince metropolitan area (including the communes of Port-au-Prince, Carrefour, Pétionville, Delmas, Tabarre, Cité Soleil, and Kenscoff) suffered extremely severe damage. Eighty percent of the town of Léogâne was destroyed.

The earthquake has created an unprecedented situation, affecting the country's most populous area as well as its economic and administrative centre. The situation is all the more tragic because for three years the country had been experiencing a tendency towards stabilization of the socio-political situation, of security, of economic growth, and the beginnings of an improvement in people's living conditions.

#### Human Impact

The human impact is immense in a country marked by a high incidence of poverty (prior to the earthquake, around 67% were living on less than US\$ 2 a day). Around 1.5 million people, representing 15% of the population, have been directly affected. Over 220,000 people lost their lives and over 300,000 were injured. Thousands of people are in need of psychological support or psychosocial supervision. Around 1.3 million people are living in temporary shelters in the Port-au-Prince metropolitan area and over 500,000 people have left the disaster areas to seek refuge in the rest of the country. The result is an exacerbation of the difficulties that already existed in gaining access to food and basic services. By striking at the very heart of the Haitian economy and administration, the earthquake had an acute effect on the human and institutional capacity of both the public and the private sectors, and of international technical and financial partners and certain non-governmental organisations (NGOs).

#### Impact on infrastructure

There has been massive infrastructure destruction. Some 105,000 homes have been completely destroyed and more than 208,000 damaged. Over 1,300 educational establishments, and over 50 hospitals and health centres, have collapsed or are unusable. Part of the country's main port is not operational. The President's Palace, Parliament, the Law Courts, and most of the Ministry and public administration buildings have been destroyed.

#### Environmental impact

At a time when environmental indicators were already in the 'red' zone, the earthquake added to considerably to the pollution, nuisances, and risks that were already afflicting the people in the disaster zones, and increased the pressure on the environment, natural resources, and the country's protected areas, thereby placing the people of Haiti in conditions of extreme vulnerability.

## Damage, Losses, and Needs

In order to prepare estimates of damage, losses, and needs, around 200 national and international experts worked in teams covering eight themes: governance, environment and risk and disaster management, social sectors, infrastructures, production, cross-cutting themes, regional development, and macro-economic analysis.

### Estimating damage, losses, and needs

Damage, losses, economic impact, and needs were estimated in the following manner:

- **Damage** is estimated at the replacement value of physical assets wholly or partly destroyed, built to the same standards as prevailed prior to the disaster;
- **Losses** are estimated from the economic flows resulting from the temporary absence of the damaged assets;
- **From the damage and losses, the disaster's impact on** economic performance, employment, and poverty **can be assessed;**
- **Needs** take into account the activities of recovery, reconstruction, and setting up the Haitian State again.

The total value of the damage and losses caused by the January 12 2010 earthquake is estimated at US\$ 7.804 billion<sup>1</sup>, equivalent to slightly more than the country's GDP in 2009. In fact, in the 35 years that the DALA method for estimating damage and losses has been employed, this is the first time the cost of a disaster is so high compared to the size of a country's economy.

Most of the damage and losses have been suffered by the private sector: US\$ 5.722 billion, i.e. 70% of the total, while the public sector share amounts to US\$ 2.081 billion, i.e. 30%.

The value of physical assets destroyed – including amongst others housing units, schools, hospitals, buildings, roads and bridges, ports and airports – has been estimated at US\$ 4,302 billion, i.e. 55% of the total effects of the disaster. The variation in economic flows (losses of production, reduction in revenue, loss of jobs and wages, increases in production costs, etc.) amounts to US\$ 3.561 billion, i.e. 45% of the total).

Housing is undoubtedly the sector most affected by the earthquake, given that the total damage amounts to US\$ 2.300 billion. The housing sector thus represents approximately 40% of the effects of the earthquake. This figure includes the value of different types and standards of housing which were destroyed, the value of houses which were partly destroyed, and household goods. It should be further stated that losses for housing are estimated at US\$ 739 million, and involve the costs of providing temporary shelters, the cost of demolition, and the value of rental losses. The other sectors, in descending order of importance of the effects suffered, are commerce (damage and losses of US\$ 639 million, i.e. 8% of the total), transport and public administration buildings (US\$ 595 million each) and education and health (with an average of 6% of the total).

The total value of needs above and beyond reconstruction amounts to US\$ 11.5 billion over three years and breaks down as follows: 52% for the social sectors; 15% for infrastructure (including housing); 11% for the environment and risk and disaster management; and the rest between the production sectors, governance, and the cross-cutting aspects. (These results are only the preparatory stage for the New York fund-raising conference planned for March 31 2010).

<sup>1</sup> The sum given as the total value of damage and losses differs from the arithmetic sum of the assessments per sector, as duplicated accounting has been eliminated. A standard exchange rate of 42 Gourdes = US\$ 1 has been used.

Table 2: Summary of damage and losses

Theme/Sub-theme:	Damage			Losses		
	Public	Private	Total	Public	Private	Total
<b>Environment &amp; disaster risk management</b>	<b>3.00</b>	<b>0.00</b>	<b>3.00</b>	<b>321.40</b>	<b>1750.00</b>	<b>496.40</b>
<b>Social sectors</b>	<b>153.80</b>	<b>805.40</b>	<b>959.40</b>	<b>197.80</b>	<b>355.60</b>	<b>553.30</b>
Water and sanitation	20.90	13.10	34.00	8.40	193.00	201.40
Health	94.70	101.70	196.40	187.70	86.10	273.70
Education	38.20	395.60	434.00	1.70	41.50	43.20
Food safety and nutrition	0.00	295.00	295.00	0.00	35.00	35.00
<b>Infrastructure</b>	<b>628.1</b>	<b>2 538.60</b>	<b>3 166.7</b>	<b>774.2</b>	<b>520.60</b>	<b>1294.8</b>
Housing	0.00	2333.2	2333.20	459.40	279.30	738.70
Transport	188.50	118.6	307.10	91.60	197.50	289.10
Telecommunications	66.00	28.00	94.00	24.00	22.00	46.00
Energy	20.80	0.00	20.80	37.23	0.00	37.23
Urban and community infrastructure	352.80	58.80	411.60	162.00	21.80	183.80
<b>Production sectors</b>	<b>3.10</b>	<b>394.00</b>	<b>397.10</b>	<b>0.00</b>	<b>933.30</b>	<b>933.30</b>
Agriculture	3.10	49.90	53.00	0.00	96.00	96.00
Industry	0.00	74.60	74.6	0.00	267.70	267.70
Retail	0.00	148.70	148.7	0.00	490.60	490.60
Finance and banking	0000	98.20	98.2	0.00	0.00	0.00
Tourism	0.00	22.60	22.6	0.00	79.00	79.00
<b>Total</b>	<b>781.80</b>	<b>3,738.00</b>	<b>4,526.2</b>	<b>1,293.4</b>	<b>1,984.50</b>	<b>3,277.8</b>

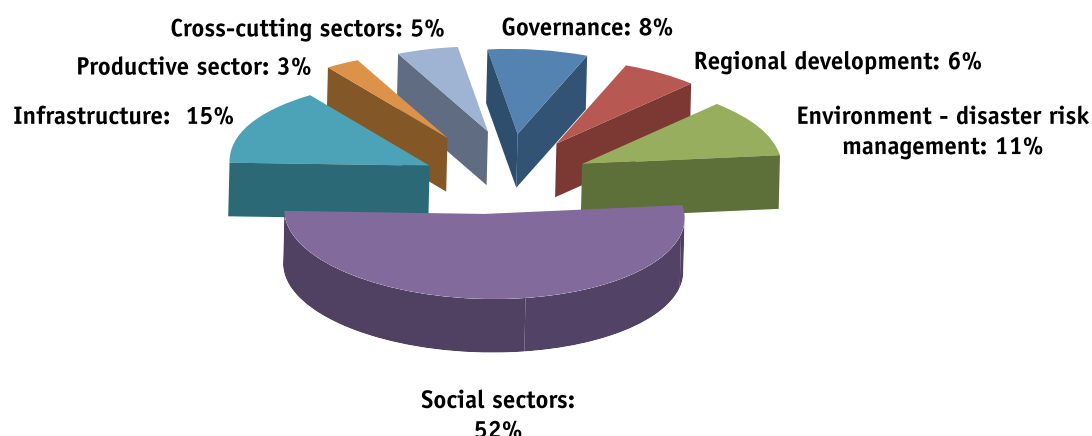
Note: These estimates have not yet been arbitrated, prioritized or validated by the government.

**Besoins financiers de relèvement et de reconstruction sur la base des groupes de travail sectoriels du PDNA – estimation provisoire (cf. tableau 3).**

Table 3: Summary of Needs (US\$ million)

	(6 MOIS sept 2010)	(18 MOIS sept 2011)	3 ans	Total
<b>Total</b>	<b>1,477.5</b>	<b>3,086.1</b>	<b>7,627.2</b>	<b>12,190.9</b>
<b>Governance</b>	<b>329.3</b>	<b>374.3</b>	<b>215.0</b>	<b>918.6</b>
Rule of law, Justice, Security	40.0	215.5	200.0	455.5
Democratic process	40.3	35.2	0.0	75.5
Administrative governance and public services	249.0	123.6	15.0	387.6
<b>Regional development</b>	<b>0.0</b>	<b>192.0</b>	<b>533.0</b>	<b>725.0</b>
Regional development	0.0	46.0	118.0	164.0
Land tenure management	0.0	54.0	100.0	154.0
Decentralisation and deconcentration	0.0	92.0	315.0	407.0
<b>Environment - Disaster risk management</b>	<b>60.1</b>	<b>345.4</b>	<b>992.7</b>	<b>1,398.2</b>
Environmental governance	3.0	15.0	12.5	30.5
Land and resource management	10.0	58.5	380.8	449.3
Pollution and nuisance	43.1	221.9	472.9	737.9
Disaster Risk Management	4.0	50.0	126.5	180.5
<b>Social sectors</b>	<b>900.4</b>	<b>1,547.0</b>	<b>3,928.9</b>	<b>6,376.3</b>
Health	283.0	500.0	708.0	1,491.0
Education	449.3	465.4	1,685.1	2,599.8
Food safety and nutrition	21.0	299.1	399.5	719.6
Water and sanitation	95.4	199.2	776.9	1,071.5
Sport and leisure	11.4	22.8	258.5	292.7
Culture	40.3	60.5	100.9	201.7
<b>Infrastructure</b>	<b>124.9</b>	<b>417.4</b>	<b>1,295.1</b>	<b>1,837.5</b>
Housing	5.2	149.8	505.0	660.0
Urban and community infrastructures	0.7	68.0	96.6	165.3
Transport	29.7	118.8	448.0	596.5
Energy	83.3	71.8	192.2	347.3
Telecoms	6.0	9.0	53.3	68.3
<b>Production sectors</b>	<b>29.6</b>	<b>108.3</b>	<b>204.5</b>	<b>342.4</b>
Agriculture and fishing	6.9	13.7	20.5	41.1
Tourism	1.7	16.2	25.7	43.6
Trade and Industry	6.1	75.8	151.7	233.6
Employment	14.9	2.6	6.6	24.1
<b>Transversal</b>	<b>48.1</b>	<b>101.7</b>	<b>458.0</b>	<b>607.8</b>
Youth	45.0	93.0	440.5	578.5
Gender	2.8	8.4	16.9	28.1
Vulnerable persons and social welfare	0.2	0.3	0.6	1.1
Information management	0.1	0.0	0.0	0.1

### Proposed needs by sector (up to 3 years)



## Seven principal messages

- **Prepare for the 2010 rainy / cyclone season** ensuring participation by women and young people (identifying risk areas, making victims secure, strengthening the alert and evacuation system, strengthening the operational capacities of the sectors and of the SNGRD's [National System for Risk and Disaster Management] territorial network).
- Provide for the **well-being, nutrition, and care** of Haiti's children, and **early access to schooling**, and regard **access to basic services** as a pillar of the humanitarian and reconstruction efforts for the future of the Republic of Haiti and for recovery and economic growth in Haiti.
- Immediately and systematically **incorporate environmental aspects** in all decisions connected with the recovery and development process.
- **Build risk and disaster management measures into the (re)construction process** for all sectors (i.e. building code, insurance, consolidation and maintenance budget, contingency and operational continuity plans).
- Put in place an **active employment policy** based on micro-businesses, strengthening vocational training, particularly for young people, incorporating and implementing the principles of the 'highly labour intensive' (HLI / HIMO) approach<sup>2</sup>, and bringing together Haitian entrepreneurs, the local workforce, and the communities.
- **Reconstruct the State and the economy** so they are able to serve all the people of Haiti, and include this within a perspective of founding a new Haiti.
- **Relieve congestion in the Port-au-Prince metropolitan area** by putting in place incentives for settling the population around growth hubs.

## Major areas of involvement for each sector – PDNA proposal

### Governance

Despite a tangible improvement in conditions of socio-political stability and security, Haiti is still experiencing major difficulties in terms of the functioning of state services. The impact of the earthquake is reflected in a deterioration in security, particularly for people living in the camps. The situation is even more precarious for women and children. Governance in Haiti must be revisited in such a way as to win back the trust of the citizens and to ensure that the collective good wins out over individual interests.

<sup>2</sup> Also referred to as "Cash For Work"

Faced with these challenges, the PDNA proposes the following major areas for action:

***State of law, justice, and public security***

- Overhaul and improve the functioning of the infrastructure and re-establish as a matter of urgency the minimum service for justice and security.
- Adopt special measures to facilitate legal requirements directly linked to the consequences of the earthquake (registering deaths, etc.).
- Provide protection from and prevention of violence for the most vulnerable groups, through strengthening of the police force and preventive measures and community initiatives.
- Address dysfunctionality in the penal system, increase the system's productivity, and combat corruption; place a high value on services that respect ethics and human rights.
- Re-launch the process of structural reforms to the justice system with a view to guaranteeing respect of international instruments, overhaul of the civil registry, law reform, legislation for child protection, and implementation of the law on the CSPJ (Superior Council of the Judiciary).
- Relieve prison overcrowding, through new building inland respecting international standards, and implementing alternatives to pre-sentence imprisonment.
- Continue implementing the plans for developing the PNH (Haiti National Police Force) and the DAP (Direction of Penitentiary Administration), strengthen their operational capacities, and deploy the PNH over the whole of the territory (including a border presence), taking the geographical distribution of crime into account and paying particular attention to exposed social groups.
- In the long term, implement legal, institutional, and management reforms across the whole of the justice, police, and prisons system.
- Put in place a special mechanism within the PNH aimed at promoting the protection of women against sexual violence and strengthening the synergies with the other partners involved in taking care of victims of violence.
- Ensure equal representation of women in the judicial chain and the Haiti National Police Force.

***Democratic process***

- Seek a participatory political consensus during the period of (re)construction.
- Adopt a consensual method for managing constitutional deadlines and guarantee participation and representation of women in decision-making areas and their participation in politics (in accordance with the minimum quota of 30% as quoted in the Constitution amendment proposal statement, September 2009).
- Strengthen the democratic process through support to Parliament and the political parties.
- Support civil society and young people's associations with a view to promoting dialogue on public policies.
- Extend the scope of activities of the Provisional Electoral Commission (CEP).
- Support the institutional strengthening of the National Identification Office (ONI).

***Public administration and public service***

- Set up administrative centres on a local scale, to be equipped with sufficient human and physical resources to co-ordinate service provision.
- Grant more power to local authorities to start the process of decentralization.
- Strengthen human resources so that they are capable of carrying out the main thrusts of this reform.
- In the very short term, build or repair the physical framework of the public administration at central and local levels.

### **Regional development**

65% of Haiti's economic activity is located in the Port-au-Prince area, while the economic possibilities of the other departments are poorly exploited. Following the earthquake, over 500,000 people moved away to the secondary cities and towns. This new distribution of the population across the country is an opportunity for developing other growth hubs.

Faced with these challenges, the PDNA proposes the following major areas for action:

- Use rebuilding grants to encourage the displaced populations to settle around new growth hubs.
- Develop the infrastructures and services necessary for rapid expansion of economic activities outside the Port-au-Prince area.
- Speed up the process of deconcentration and decentralization.
- Draw up a regional development plan (planning, sectorals, building and zoning standards) and strengthen the capacities of the local authorities in terms of land use and development.
- Identify building land in order to support humanitarian aid (inventory, surveying, planning) and protect the property rights of vulnerable groups.

### **Environment**

The situation in Haiti before the earthquake was characterized by an extremely damaged environment, with forests now representing less than 2% of the territory, and the concentration of population in the few large catchment basins, which are prone to flooding. The population faces acute poverty and a geographical, geological, geomorpho-logical, and climatic setting that exposes the country to a broad range of threatening natural phenomena. This in turn leads to disruption and constant deterioration of the productive space, along with increasing vulnerability of the people over the country as a whole. The earthquake has aggravated and amplified these problems — for example, by creating 40 million m<sup>3</sup> of debris.

The country's environmental fragility and the population's dependence on natural resources combine to make the process of reconstruction a threat for the country's independence with respect to international aid. Hence it is essential to provide a humanitarian, reconstruction, and development model that protects, respects, and regenerates Haiti's environmental bases. Faced with these challenges, the PDNA proposes the following major areas for action:

- Empower the Ministry for the Environment with an organic law clarifying its remit, and set up environmental technical units in each sector to make it easier for the various sectors to take responsibility for managing the environment and natural resources.
- Carry out improvements to rivers and ravines in all the catchment basins by physical structures and reforestation in order to stabilize the ground and control the circulation of water.
- Launch a policy, based on subsidies and cross-taxation, to substitute gas for wood as a source of power in order to reduce the consumption of wood.
- Set up a training centre for environmental and natural resource management.
- Put environmental protection measures in place during the rebuilding process.
- Take into account the adaptation and resilience of ecosystems in the face of climate changes.
- Take emergency measures to reduce pollution and nuisances caused by the earthquake including the management of debris by way of emergency storage activities.
- Put in place an integrated system for managing solid waste and waste water.

Faced with these challenges, the PDNA proposes the following major areas for action:

- Reinforcement of environmental governance: it is imperative that the Ministry for the Environment's (MDE) political/policy base and its multi-sector power to set standards should be confirmed through an organic law and by the strengthening of its capacities. This will allow the MDE (i) to carry out its monitoring, control, assistance, and consultation functions, and (ii) to participate actively in the roundtables for coordinating and planning the recovery and rebuilding process.
- Rehabilitation of the ecosystems affected by the earthquake: in the short term, highly labour-intensive works for stabilizing the catchment basins, clearing the coastal areas, and rehabilitating the ecosystems must be undertaken in order to counter the heightened threats to the environment and natural resources arising out of the earthquake.
- Sustainable management of natural resources: sustainable reversal of the degradation of resources must be ensured by consolidating institutional and individual capacities in human, technical, physical, and financial terms in order to ensure effective, integrated management of the catchment basins, the protected areas, and the coastal and marine zones.
- Adaptation to climate change and resilience to catastrophes by protection of the ecosystems: reducing vulnerability to environmental risks and natural disasters must include investment in ecosystem protection in order to optimize their role in reducing risks and adaptation for the population. As an example, soil stabilization by reforestation of damaged areas considerably reduces the highest risks of erosion and flooding.
- Emergency pollution management: guidelines for and implementation of emergency measures at institutional and operational levels must be put in place in order to reduce pollution and nuisances directly caused by the earthquake in the form of solid, dangerous, and liquid waste and debris. These measures will be undertaken on the basis of special feasibility and environmental impact studies.
- Consolidation of integrated systems for controlling and managing pollution: systemic, technical, and human measures must be put in place to accompany the reconstruction process by reducing the ecological footprint as much as possible and aiming for sustainable development. To this end, the activities undertaken will be accompanied by systematic monitoring/environmental assessment processes and appropriate technical support.

## Risk and disaster management

Haiti has the highest cyclone risk index of all the small, developing island states. In addition to the known exogenic phenomena (hydro-meteorological, geologic-hydrometeorological, geological, etc.), Haiti has recently been identified as one of the countries most vulnerable to climate changes. Each occurrence makes the country's resources more fragile, and the increasing vulnerability in turn worsens the impact of the next crisis.

Faced with these challenges, the PDNA proposes the following areas for action:

- Concerning the disaster victims: (i) adapt (local and central) contingency plans with respect to the displaced people and homeless, (ii) evacuate the camps in at-risk areas, orientate rebuilding efforts according to earthquake- and cyclone-resistance standards.
- Concerning roles and responsibilities: (i) adapt the ministries' legal framework, (ii) make the civil society and the private sector more responsible for prevention (building code, insurance) and reaction capacity (operational continuity plans, first-aid training, etc.).
- Concerning operational preparation and response capability: (i) train the managers in the sector ministries and provide them with resources, (ii) recruit, train, and equip the fire-and-rescue service corps, (iii) strengthen the country-wide network of RDM [Risk & Disaster Management] committees (equipment, training, including among other things the special protection measures for women and girls in a post-disaster situation developed in 2008 by the MCFDF [Ministry for the Female Condition and Women's Rights], alert and evacuation system, etc.).

- Concerning prevention and risk management capability: (i) establish capabilities in each sector for surveillance and risk analysis, (ii) plan, budget, and implement sector-based measures for the protection of investments of physical capital and reconstruction, (iii) establish a mechanism for mobilizing young people and youth organizations in prevention.

## Social sectors

Mother and infant mortality rates were significantly higher in Haiti than in the other countries in the region. Over half the population had no access to either formal health service or drinking water. Even before the earthquake, 30% of children were already suffering from chronic malnutrition and it is estimated that 40% of households were living in food insecurity. Over 500,000 children between the ages of 6 and 12 were not receiving schooling, 70% of those who were going to school showed an educational deficit of over 2 years, and 38% of the population over the age of 15 were illiterate. Improvements in immediate and future living conditions, the state of health and productivity of the people directly and indirectly affected by the earthquake, along with the rest of the population of Haiti, are going to depend on the speed and effectiveness with which the social sector is able to respond to the immediate needs, whilst at the same time incorporating a medium- and long-term transformation of the State's role in these sectors. Detailed, prioritized development plans will facilitate investment decisions and will make it possible for the people of Haiti to benefit from their fundamental right to social services in the immediate future and in the longer term.

The January 12 earthquake has aggravated the situation by affecting social services staffing, by destroying much of social service infrastructure, and by reducing the ability of households to pay to obtain these services. Vulnerable populations, including disaster victims, are still further disadvantaged in accessing social services.

Faced with these challenges, the PDNA proposes the major areas for action that will make it possible to rebuild the country and lay down the bases for a new Haiti:

### Health

- Ensure universal access to health services, especially for vulnerable groups and disaster victims.
- Develop services in maternal and reproductive health and to combat the spread of HIV/AIDS.
- Integrate the protocols and inputs required for providing medical care for women and girls who are victims of violence.
- Strengthen the leadership, coordination, and regulatory role of the Ministry of Public Health, together with its role as facilitator in decentralized health sector management.
- Re-establish and strengthen human resources in the sector.
- Strengthen governance at central and decentralized level and put in place a system of results-based joint funding.
- Ensure effective, efficient management of essential drugs and inputs and put in place mechanisms to ensure they are free.
- Respond to women's special health needs and provide appropriate local services.

### Education

- Encourage a return to school by covering certain costs of schooling, including wage compensation to education staff in the private sector for a period of 6 months, and support for the building of secure temporary accommodation.
- Aim for free basic education by 2020.
- Reorganize the educational system, in particular by instituting an information system, setting up an accreditation system, reviewing and then implementing effectively

the partnership framework with the non-public sector, and drawing up a map of establishments.

- Put in place the means to guarantee the quality of education, particularly curriculum reform and a policy for assessing the educational function.
- Ensure respect of girls' and boys' differing needs and rights, and re-adapt programmes in order to lessen discrimination and the perpetuation of gender-based stereotypes.
- Put in place mechanisms for getting children into school and keeping them there, especially targeting women and girls.
- Develop literacy programmes aimed at women and girls.

### ***Nutrition and food security***

- Improve the way acute malnutrition in children (6–59 months) is handled through the distribution of lipid-based supplements.
- Put in place a national system of multi-skilled agents at community level in order to implement a programme of malnutrition prevention.
- Ensure households have regular, adequate (in quantity and quality) access to food.
- Establish a system for early warning of and response to risks and disasters.
- Reinforce national capabilities for managing and implementing policies and programmes for nutrition and food security.
- Disseminate information broken down by gender in order to make decision-makers more aware of the relevance of problems of gender equality in food security programmes and strategies.

### ***Drinking water, sanitation, and hygiene***

- Improve management of solid waste over a period of 18 months by ensuring collection and disposal of solid waste from AMPAP (Port-au-Prince Metropolitan Area) and the ten largest other urban areas. Priority will be given to setting up 13 waste disposal sites between now and 2013.
- Awareness-raising and training for 10,000 healthcare staff in 18 months and 5,000 more by 2013 in managing medical waste, mobilization of the communities in the face of the risks entailed, and provision of facilities and equipment for 150 healthcare centres.
- Build infrastructures and a drinking water supply and sanitation system in the country, favouring inexpensive, socially-appropriate technologies and phasing out gradually over the next 18 months the provision of temporary basic SDW (sanitation and drinking water) and hygiene services through international aid.
- Make sure sanitary installations are safe for women and girls and ensuring that they have access to sanitary facilities for feminine hygiene.
- Engage the communities' participation in identifying needs and selecting and managing water, hygiene, and sanitation systems.

### ***Sports and leisure***

- Encourage access to physical, sporting, and cultural activities, which are considered factors in the social and economic integration of young people.

### ***Culture***

- Mobilize and pay students to recover documentary assets (manuscripts, documents, and publications) and rescue cultural property; store these and keep them safe.
- Create a blacklist to combat potential illegal trafficking in Haiti's cultural heritage. This urgent action will need to be followed up in the medium term by restoration actions, including training students.

### ***Infrastructure***

Before the earthquake, the construction sector was suffering from rapid, unregulated development. Moreover, neither construction techniques nor the location of dwellings made due allowance for the various risks like floods, landslides, or earthquakes.

With 3,400 km of roads, 800 km of them paved, the road network was very limited. The port and air infrastructures were in no position to act as a platform for economic growth.

The earthquake has caused massive destruction to residential and public buildings. As for the road transport network, around 70 km of main roads have been damaged, including certain heavily-used routes. The port of Port-au-Prince is severely affected (north wharf destroyed, south wharf severely damaged), as is the airport (control tower destroyed, runway damaged, etc.) However, the telecommunications sector has suffered only limited damage.

Faced with these challenges, the PDNA proposes the following areas for action:

#### ***Urban and commune infrastructure***

- Set up a fund for rebuilding urban and community infrastructures.
- Support the national authorities and strengthen the institutional framework of the local authorities for rebuilding and maintaining structures.
- Strengthen the role and capability of local community organizations and civil society for reconstructing the community infrastructures.
- Strengthen the capacities of public and private construction companies and recapitalize them for reconstruction, with a view to adapting to new techniques and building regulations.

#### ***Housing***

- Set up a fund for rebuilding housing.
- Set up a fund for improving safety in order to take account of the risks associated with the locations of vulnerable districts.
- Regulate the land use situation.
- Provide training in construction techniques which take the various risks into account.

#### ***Transport***

- Assess the sector's needs in human and physical resources and strengthen the capacities of the Ministry and its decentralized services and Supervised Autonomous Bodies (OAST), and the capacity of the private sector.
- Re-establish optimal operating capacity for the Port-au-Prince port and airport.
- Re-establish the highway and urban road network to a state equivalent to that prior to the earthquake.
- Take the risks into account in designing and maintaining the transport system.
- Settle the populations in the areas other than Port-au-Prince through basic investments and highly labour-intensive works.

#### ***Power***

- Complete short-term repair work in order to ensure a minimum of service to the population.
- Increase the degree of coverage of the population and respond to the needs of the development hubs, taking migration and risks into account, while improving the management of Electricité d'Haiti [Haiti electricity utility] in order for it to achieve financial balance.
- Update the legal and regulatory framework.

### **Telecommunications**

- Complete the recovery of the public telecommunications infrastructure.
- Re-establish international access to the undersea cable and create a new landing station.
- Conclude the process of adapting the legal and regulatory framework.
- Carry out studies and deploy the national backbone network and the government network.
- Train managers and set up ICT facilities for children, young people, and the public administration.

### **Production sectors**

There are multiple obstacles to effectively achieving Haiti's potential in the production sectors. In particular, these include a non-competitive regulatory framework and an infrastructure network concentrated on Port-au-Prince.

Faced with these challenges, the PDNA proposes the following major areas for action:

- Set up a recapitalization fund to ensure continuity of operation for the financial sector to deal with the problems resulting from the damage in the small- and medium-sized business sector.
- Update the legal and regulatory framework for the private sector.
- Within the context of the reconstruction, strengthen the capacities of the private sector to enable it to compete with international companies.
- Support development in the agriculture and tourism sectors, along with the textile sector, in accordance with the principles of growth hubs.
- In the agricultural sector, increase support for production by family farms.
- Reinforce the capacities of women and ensure they are integrated into all production and revenue-generating activities.

### **Employment**

- Ensure that economic growth generates decent jobs, during and beyond the period of reconstruction, by adapting Haiti's employment laws and standards on the basis of international standards and norms, particularly in terms of salary and decent working conditions, and health and safety at work.
- Put in place a technical and institutional framework that makes it possible to use HLI techniques, including through agreements with the ministries involved in the reconstruction, and to involve the private sector in using the labour.
- Develop micro-credit systems suitable for the needs of the poorest people, especially women.
- Progressively raise work standards.
- Launch a short- and long-term national vocational training campaign; a campaign to raise young people's awareness of topics of employment, entrepreneurship, and apprenticeship; and revise training curricula so they correspond to the needs of the job market.
- Ensure equal opportunities and treatment in terms of employment between men and women, particularly in the rebuilding activities.

### **Cross-cutting themes**

Before the earthquake, unemployment was estimated at around 30% for the country as a whole (45% in the metropolitan area), 32% for women, and 62% for 15–19-year-olds. The total absence of a formal system of social protection exposes the vulnerable populations, particularly children, to pronounced risks. Girls and women are the ones most threatened by certain forms of violence.

On the basis of the fall in the GDP resulting from the earthquake, it is estimated that there will be a loss of 8.5% in the number of jobs, particularly in the fields of commerce, tourism, transport, and communications.

Faced with these challenges, the PDNA proposes the following areas for action:

### ***Gender***

- Ensure the security of women and young girls in the camps and undertake measures to reduce violence against women.
- Ensure better participation of women in the job market, particularly in rebuilding activities.
- Build decent homes to house young girls, particularly orphans and young people with no resources.
- Ensure that the rebuilding process involves mechanisms for participation, appropriation, accountability, and results-oriented management in accordance with gender budgeting.
- Ensure equal, effective participation of women in all sectors and stages of the rebuilding process, including in the mechanisms of governance and in the allocation of resources.

### ***Young people***

- Invest in young people by putting children back to school and getting youth to participate in rebuilding the country.

### ***Vulnerable populations***

- Open transit centres in each of the towns affected by the earthquake to receive children and adolescents who are unaccompanied or separated from their families, and offer a package of basic social services and financial support to poor families to ensure families can be kept together.
- Issue earthquake amputees with suitable prostheses, psychological support, and the rehabilitation they need.
- Put in place measures for combating trafficking and dealing in Haitian children.
- Build decent homes for senior citizens who are still homeless.
- Put in place measures so that vulnerable persons can be identified and benefit from social protection measures, psychosocial support, and medical care.
- Extend the deadlines for the submission of applications to the OFATMA [Work accident, sickness and maternity insurance office] or other public and private bodies to allow the legal heirs of earthquake victims to take advantage of their entitlements.
- Build a new basic welfare protection system that is inclusive, non-discriminatory, and in a position to gradually cover the whole population, including workers in all economic sectors.
- Implement a system for work risk prevention, checking working conditions, and worker protection during post-earthquake reconstruction.
- Put in place measures and mechanisms for prevention, care/support, and punishment of violence against women by the state authorities, with the support of the international community and the participation of organized civil society.

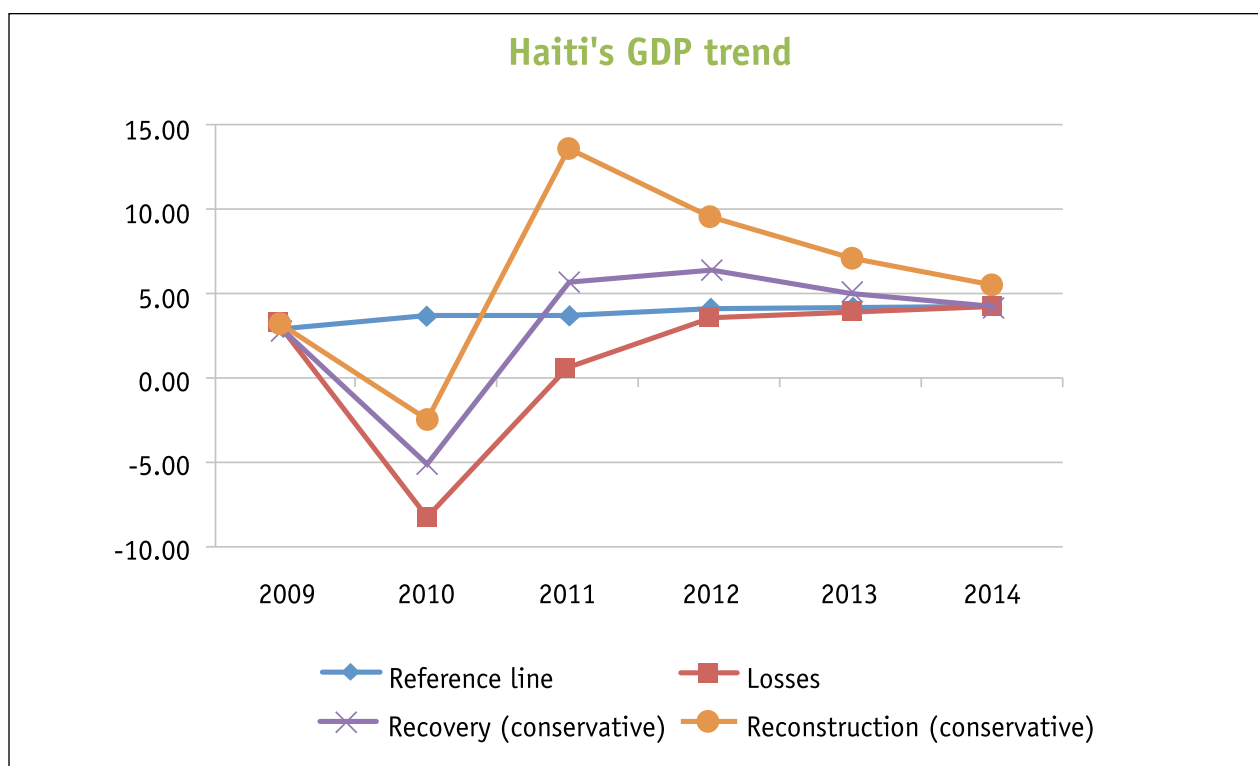
## Socio-economic impact

### Macro-economic impact

The impact of the earthquake on the economy is reflected in estimates for a decrease of over 8% in growth in 2010, which is expected to be between 2.5% and 3.5%, depending on the rebuilding scenarios<sup>3</sup>. The worst-affected sectors are commerce, transport, telecommunications, and industry. Although inflation in 2009 was -4.7%, it is estimated to be 11% for 2010. This inflation is explained by, among other things, the reduction in goods available, the increase in the cost of transport, and the influx of external aid.

The central government's overall deficit is likely to rise from 4.4% of GDP for the 2008–09 financial year to 7.1% of GDP during the financial year 2009–10, despite a marked increase in overall income (likely to rise from 17.9% to 18.7% of GDP) — an increase that will be fuelled by external aid. The borrowing requirement is likely to amount to \$ 350 million.

The current account balance deficit is set to get worse, rising from 3.2% to around 6% of GDP. Despite a surplus on the capital and financial account, the final balance of payments is likely to be negative: hence it is likely to be necessary to find additional funding.



### Impact on employment

Employment is affected in markedly different ways, depending on the reconstruction scenarios. It is estimated that the earthquake will entail a loss of 8.5% of existing jobs in the immediate future, with the greatest losses in commerce, tourism, transport, and communications. The more ambitious the reconstruction and recovery programme is, the more it will be possible to lessen the impact: for example, it is estimated that the expenditure of one-third of the resources for recovery and reconstruction in 2010 would limit total job losses to 0.6%.

Given the large concentration of men in sectors like construction and extractive industries, it is possible that men will benefit more than women from the reconstruction activities.

<sup>3</sup> The first being a "cautious" scenario where one-third of the recovery and reconstruction expenditure is in 2010

## Impact on poverty

The latest World Report on Human Development, issued in 2009 with data from 2007, illustrates the pre-earthquake situation in Haiti: (i) a human development index (HDI) of 0.532 (where 1 is the maximum, 0 the minimum), putting Haiti in 149th place out of 182 countries in the ranking. This index had improved slightly since 2005, but remains the lowest in the Caribbean–Central America zone; and (ii) a human poverty index (HPI) of 31.5% (estimate of human poverty), placing Haiti 97th out of 135 countries ranked in 2007.

In 2001, 76% of the population of Haiti was living below the poverty line, with less than 2 dollars per day, and 56% were below the extreme poverty line, with less than 1 dollar per day. It is estimated that over the past 10 years, the percentage of poor and extremely poor people has fallen by more than 8% across the country as a whole, except in the Metropolitan Area which has seen its poverty increase by nearly 13% over the same period. Following the earthquake, it is estimated that poverty has returned to the 2001 level (71% in moderate poverty and 50% in extreme poverty) — not taking into account the promising prospects of the reconstruction activities.

## Methodology

### PDNA conceptual model

In order to assess the overall impact of the disaster on the country's socio-economic development, develop strategies for immediate recovery at community level, and assist the Government in improving its risk and disaster management strategies, the PDNA combines two methodologies. The DALA (Damage Assessment & Loss Assessment) methodology from the United Nations Economic Commission for Latin America and the Caribbean (UN ECLAC) and the HRNA (Human Recovery Needs Assessment) methodology – a United Nations method for assessing recovery needs at community level.

### Damage Assessment & Loss Assessment (DALA)

The DALA methodology was introduced by the United Nations Economic Commission for Latin America and the Caribbean (ECLAC) in the early 1970s<sup>4</sup>.

The DALA methodology is based on the use of a system of national accounts for the affected country as a means of assessing the damage and losses caused by disaster. Hence it makes it possible to estimate the value of property destroyed by the natural events that led to the disaster (damage assessment), together with the changes in the economic flows caused by the temporary absence of this destroyed property and impacts on economic performance (loss assessment). In addition, it also forms a basis for assessing the negative impact on individuals and household incomes and on overall social well-being.

Damage is defined as the monetary value of property wholly or partly destroyed. Losses are defined as being the changes in the flow of goods and services which will not be supplied until the destroyed property has been rebuilt.

Macroeconomic effects arise out of the damage and losses caused by the disaster. Post-disaster macroeconomic analysis also includes examining the impact on gross investment, taking into consideration the investments to be made during the reconstruction, examining the potential inflation arising out of the effects of the disaster, and the negative effects on employment and income at individual, household, and family levels.

Lastly, needs are defined, within the context of the DALA methodology, by estimating the financial needs for reconstructing and rehabilitating sectors of the economy, and the worst-affected regions and populations who will require care during the phases of immediate recovery and reconstruction and rehabilitation. Lastly, needs identification is also used as a quantitative indicator in monitoring and assessing recovery programmes.

<sup>4</sup> Disaster Social, Economic, and Environmental Impact Assessment Manual, ECLAC, revised version, 2003.

## Human Recovery Needs Assessment (HRNA)

The methodology used by the United Nations for Human Recovery Needs Assessment (HRNA) has made it possible to produce a detailed analysis of communities' short-term needs and an action plan to be implemented over a period of 18 months, the results and programmes of which are assessed.

Priorities are defined in the immediate recovery activities in order to best respond to the communities' most pressing needs by consolidating them around the following Government priority themes: governance, regional development, risk reduction, environmental management, the social sectors, the production sector, infrastructure, cross-cutting themes, and the macro-economic framework. Thus the Recovery Action Plan comprises all the priority activities coherently consolidated around these priority themes.

## Recovery Action Plan (RF) objectives:

The objective of the RF is to offer a consensual, coherent, and concrete view of the actions to be undertaken in order to respond to the communities' immediate recovery needs over a period of 18 months. The objectives being pursued are:

- Respond to communities' needs in terms of the economic and social dimensions of human security.
- Support communities' abilities to withstand disasters.
- Take over as quickly as possible from humanitarian aid.
- Lay down the foundations for longer-term recovery, while incorporating measures for preventing, reducing, and managing future risks.

## Space remote sensing: joint UNOSAT / JRC / World Bank damage assessment

The UN Institute for Training and Research (UNITAR), the Operational Satellite Applications Programme (UNOSAT), the European Commission (EC), the Joint Research Centre (JRC), the National Geospatial Information Centre (CNIGS) representing the Haiti Government, and the World Bank (WB), Global Facility for Disaster Reduction and Recovery (GFDRR), supported by its consultant Image CAT, have carried out a detailed, building by building assessment of the damage.

This analysis relied heavily on the use of space remote sensing techniques. Never before has the potential of very high spatial resolution images and aerial photography been so accessible. Multi-source data from various missions like WB-ImageCAT-RIT Remote Sensing Mission (LiDAR optical data, 15 cm and 2 pt/m<sup>2</sup>), Google (optical data, 15 cm), NOAA (optical data, 25 cm), Pictometry, and satellite data from GeoEye and DigitalGlobe have made it possible to visualize the damage via several types of detectors and at different dates.

These multi-dimensional views have been of inestimable value in appreciating the severity and extent of the damage caused by the earthquake.

Furthermore, advances in terms of information technologies, social networking, and 'crowdsourcing' techniques have played a crucial role in both developing the data and assessing the damage. Out of this event, GEO-CAN (Global Earth Observation – Catastrophe Assessment Network) has emerged as an unexpected source for damage assessment.

GEO-CAN has succeeded in identifying around 30,000 severely damaged structures, and this in less than a week, using very high spatial resolution aerial photos. Over 600 engineers and scientists representing more than 60 universities from 23 different countries, 18 governmental and non-governmental organizations, and over 50 private companies have participated in this initiative.

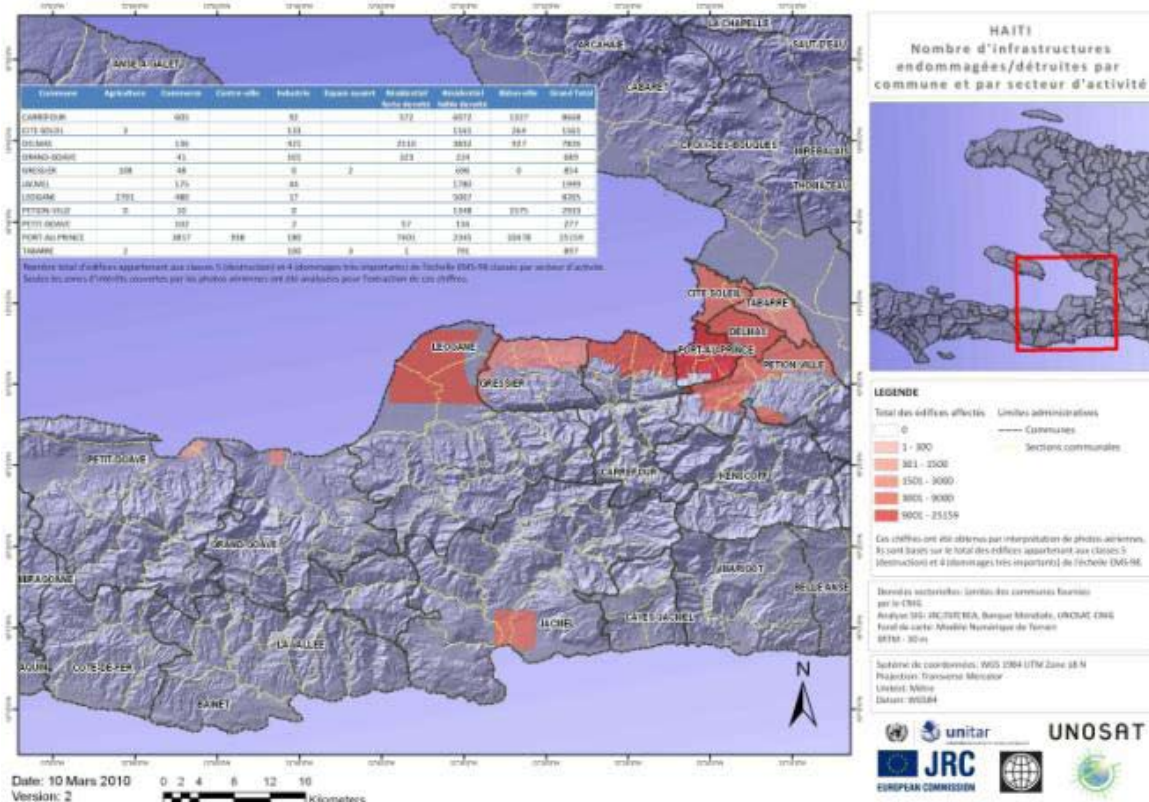
The detailed assessment of the damage has been based on analysing aerial photography by comparing pre-earthquake satellite images with post-earthquake aerial photos. Thanks to the complementary nature of the approaches, the data produced by the WB/GEO-CAN and UNOSAT/JRC teams have been used to 1) estimate the total number of collapsed or severely damaged buildings in Port-au-Prince and its environs, and 2) establish the degree of overall reliability of the results obtained by analysing aerial photos.

In all, damage assessment has been provided for 13 administrative units in Haiti.

In order to validate these results, as well as to extrapolate this information to lesser degrees of damage (difficult to identify from aerial photos), the UNOSAT-JRC-World Bank/ImageCat team has carried out strategic, targeted field campaigns. In parallel with these, a team of engineers has conducted a more detailed analysis of the damage from oblique aerial photos provided by Pictometry. This type of data has proved essential for determining if significant structural damage has occurred without causing total collapse of the analysed structure.

Combining this information with on-site data has made it possible to validate the estimates obtained from aerial photos. The latter have proved to be reliable for identifying the total number of collapsed structures. Furthermore, these results can serve as clues for estimating less severe damage (e.g. major structural damage and moderate structural damage).

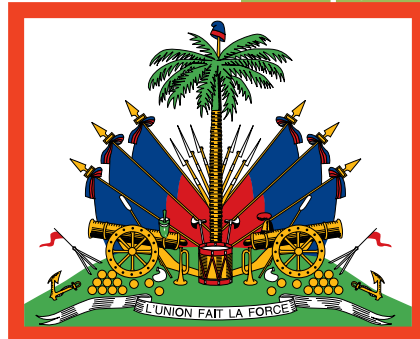
### Figure 1 : Number of damaged or destroyed infrastructure



## Damage estimation

The results of the joint UNOSAT-JRC-World Bank/ImageCat analysis show that just over 90,000 buildings have either been completely destroyed, or have suffered considerable-to-severe damage (damage classes 3 – 5).

This represents just under one third of the building stock in the affected areas. The majority of the damage was in the Port-au-Prince area. However, numerous buildings have also been destroyed in Carrefour, Delmas, Léogâne, and Pétionville (Figure 1). By using estimates of average floor area for different ground occupation level categories, this damage translates approximately into over 26 million m<sup>2</sup> of building area affected, of which around a third will have to be repaired or even replaced completely. The total cost of repairs has been estimated at around US\$ 6 billion, according to the UNOSAT-JRC-World Bank/ImageCat report.



## CHAPTER I: THE DISASTER



## 1.1. Description and extent of the earthquake

### The disaster

On January 12th 2010, shortly before 5pm, an earthquake with a magnitude of 7.3 on the Richter scale shook Haiti for 35 seconds. It was the most powerful earthquake to hit the country for 200 years. The earthquake's hypocentre was close to the Earth's surface (10 km below) and its epicentre was close to the town of Léogâne, approximately 17 km south-west of Port-au-Prince, the capital, in the Ouest department. The Sud-Est and Nippes departments were also affected. The Port-au-Prince metropolitan area (including the communes of Port-au-Prince, Carrefour, Pétionville, Delmas, Tabarre, Cité Soleil, and Kenscoff) suffered enormous damage. Eighty percent of the town of Léogâne was destroyed.

The earthquake created an unprecedented situation, amplified by the fact that it affected the most densely populated area of the country and also its economic and administrative centre. The situation is all the more tragic because in the last three years the country has experienced a move towards stabilisation in terms of the socio-political situation, safety, economic growth and initial improvement in the population's living conditions.

### Impact

#### Human impact

The human impact is immense. Some 1.5 million people, representing 15% of the nation's population, were directly affected. More than 220,000 lost their lives and more than 300,000 were injured. Some 1.3 million are living in temporary shelters in the Port-au-Prince metropolitan area. Over 500,000 have left the disaster zone to seek refuge elsewhere in the country. As a result, problems which already existed in terms of access to food and basic services have thereby been exacerbated. By striking at the very heart of the Haitian economy and administration, the earthquake had an acute effect on the human and institutional capacity both of the public and the private sectors, and of international technical and financial partners and certain non-governmental organisations (NGOs).

#### Impact on infrastructure

There has been massive infrastructure destruction. Some 105,000 homes have been completely destroyed and more than 208,000 damaged. Over 1,300 educational establishments, and over 50 hospitals and health centres have collapsed or are unusable. Part of the country's main port is not operational. The President's Palace, Parliament, the Law Courts, and most of the Ministry and public administration buildings have been destroyed.

#### Environmental impact

The earthquake has increased the pressure on the environment and natural resources at a time when environmental indicators were already critical.

### Haiti's vulnerability to natural disasters

The disproportionate impact of the earthquake shows the country's extreme vulnerability to exogenous shocks. Haiti has the highest index of vulnerability to cyclones of all the developing small island states. Located in the middle of the Caribbean Basin, 96% of the population of Haiti lives in constant danger of

**Table 2: Summary of the last four disasters in Haiti**

Event	Effect on GDP	Individuals affected	Dead
2004 Hurricane Jeanne	7% du PIB	300 000	5 000
2007 Hurricanes Dean and Noel	2% du PIB	194 000	330
2008 Hurricanes Fay, Gustav, Hanna, and Ike	15% du PIB	1 000 000	800
2010 Earthquake	100% du PIB	2 000 000	222 500
<b>TOTAL</b>		<b>3 494 000</b>	<b>228 600</b>

2 or more risks. Furthermore, Haiti has recently been identified as one of the countries most vulnerable to climate change. These observations have been confirmed by the alarming trend in successive disasters: 56 internationally recognised disasters, including 20 major disasters in the 20th century and 4 major disasters in the last decade alone:

### ***The Risks***

From May to November, Haiti is exposed to cyclones which, due to the high winds, flooding, landslides and mud-flows they cause, entail considerable damage. (Cyclone trajectories over the last 150 years (see figure 2).

In addition to the hydrometeorological threats, Haiti is in a **seismically active zone**. Thus, four fault lines capable of producing high magnitude shocks cross its territory. **The recurrence interval is estimated at 150-200 years, with the country's two biggest towns, Port-au-Prince and Cap-Haïtien situated directly on the fault lines.** Other provincial towns like Les Cayes, Jacmel, Léogâne, Fort-Liberté and Ouanaminthe **are also very close to the fault lines.**

### ***Vulnerability factors***

These adverse natural events cannot explain the disasters which have taken place. The country's extreme vulnerability multiplies the extent of each event's impact. One of the main factors is the weakness which flows from rural development and town planning, with 39% of the population and 66% of the GDP concentrated in the Ouest department alone. The metropolitan area flood zone map demonstrates this clearly.

Deforestation and the presence of communities living at the foot of the drainage basin on plains which are liable to flooding, are contributory factors increasing the country's vulnerability still further. Haiti's high urban population density, coupled with the proliferation of flimsily-constructed buildings and the overall fragility of the infrastructure, increases the vulnerability to earthquakes.

In addition to this environmental vulnerability, certain social factors like poverty, political instability, rapid urbanisation and the fragile nature of the Haitian state exacerbate the damaging effects of natural events

## **1.2. Haiti's social and economic context**

### **Political and social context**

Since 2006, when constitutionality was reinstated, the country has made considerable progress in consolidating democratic values, as the Senate, Parliamentary and commune elections which have taken place over the last four years demonstrate. In addition, the last Government re-shuffle took place without the political instability which had been a recurrent feature in the past. Although safety remains fragile, areas like Cité Soleil, where violence ruled, are now under state control, and kidnappings have been significantly reduced.

### **Population and poverty**

Today, Haiti's population is estimated at more than 10 million inhabitants<sup>4</sup>, with a high population concentration on the coastal plains and valleys, as in Port-au-Prince. A provisional employment survey carried out by the Haitian Institute of Statistics and Informatics (IHSI) in 2007 shows a significant increase in poverty in the metropolitan area, in comparison to the figures in the last household survey, and this contrasts with the overall fall in the poverty rate. However, the greatest poverty is still in rural areas.

<sup>4</sup> This represents more than a doubling of the population since 1975. Trends and Perspectives in Haiti's Population at Department and Commune Level – MEF – IHSI – Demographic & Social Statistics Directorate (DSDS), February 2009.

Most Haitians have no retirement provision, no social security and no savings. Income distribution is particularly unequal in Haiti: almost half the national income goes to the upper decile of the population, whereas the last two deciles receive less than 2% of national income. Haiti's Human Development Index (IDH) score has reached 0.532, which places the country 149th out of 189 countries according to the 2009 World Report on Human Development. The Human Development Index takes into account life expectancy at birth, the literacy rate, adult life expectancy, the infant mortality rate and the infant malnutrition rate.

### Economic framework

In spite of the economic shocks and the cyclones which struck Haiti in 2008, the economy bounced back in 2009, as the macroeconomic indicators show. These improvements have taken place within a context of significant progress in macroeconomic management, particularly (i) the adoption and implementation of the National Strategy for Growth and Poverty Reduction Paper (DSNCRP), (ii) a series of satisfactory reviews by the IMF's Poverty Reduction and Growth Facility (FRPC), (iii) attainment of completion point in the Heavily Indebted Poor Countries Debt Initiative (PPTE), which, with the ADM initiative, allowed Haiti's US\$ 1.2 billion external debt to be wiped out, and (iv) membership of the European Union partnership agreement. Lastly, these reforms were supported by structural reforms in the fight against corruption and in the field of public finances and tenders for public contracts.

In 2007, the Haitian economy's gross domestic product (GDP) increased by 3.2%, while the fiscal deficit represented 1.6% of the GDP. Inflation (7.9% over twelve months from September to September) and the current account deficit (1.3% of GDP) seemed to reflect a relatively stable economic performance by the country's economy. Furthermore, preliminary estimates for the 2008 fiscal year showed income progression in real terms (5.5%), with stimulation (64%) and weighting (11% as against 7% in 2007) noticeably higher than aid.

The agricultural sector's (including animal husbandry, silviculture and fishing) contribution to real GDP has fallen from in excess of 30% at the beginning of the 1990s to 25.2% in 2007. Industry's contribution to GDP (including construction) is about 25%, and commerce (including hotels and restaurants) contributes 27% of GDP. The primary sector is first in employment terms, with almost 50% of the working population. Industry supplies 10.4% of jobs and commerce, tourism and transport employ 28% of the population. Estimates show that 90% of all those working in industry and commerce are in the informal sector.

### Links between poverty, environment, and vulnerability to disasters

The environmental crisis in Haiti is underpinned by poverty, which has had a profoundly negative impact on the environment and the life of the people. Haiti's vulnerability to disaster risks will grow unless the problems associated with the means of basic subsistence are dealt with. Deforestation has combined with vulnerability to cyclones to exacerbate environmental deterioration, which has affected agricultural productivity, increased rural poverty and driven population migration. This goes some way to explain the increase in urban poverty and the environmental deterioration. There is a danger that climate change could exacerbate this vicious circle. The Government has already begun a vast programme designed to improve the management of natural resources and drainage basins. The long-term solution is economic development which will benefit the poor by protecting basic natural resources, or natural capital.

Before the disaster on January 12th, few measures had been taken to reduce exposure to seismic risks, but nonetheless, in an effort to achieve better governance in crisis management and disaster prevention, Haiti has started key work towards more effective preparedness.

### 1.3 The response from the government and the international community

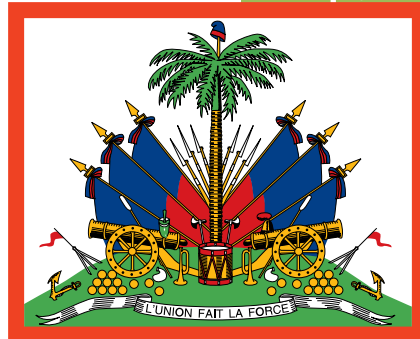
The government reacted to the earthquake by implementing a coordinating mechanism for the international community, without delay. The Council of Ministers met the international community daily, then twice a week, to coordinate support. In operational terms, on January 15th the government formed 6 working groups with mixed membership from civil society and government, to coordinate efforts in the health, food aid, water distribution, fuel and energy sectors, and for temporary shelters, reconstruction and safety. Each group is under the direction of a Minister or a senior civil servant. Moreover, in geographical terms, a minister has been assigned to every commune or group of communes to coordinate action and support the town halls and teams working on the ground.

The thrust of the main concrete efforts which the Government has undertaken, with the support of the international community, has been to supply the urban population with drinking water; to organise massive distribution of food aid to deprived persons (targeting one million beneficiaries); to offer free transport to provincial towns for anyone wishing to return to their home area; to arrange a vaccination campaign against tetanus, measles, diphtheria and German measles in the ad hoc camps; and to organise the construction of 4 sites within the metropolitan region, for those who lost their homes and who are currently living on the street. At the time of writing there has been no epidemic, the entire urban population has access to drinking water, and food aid is being distributed in relative calm, and without any major incidents.

There has been a rapid humanitarian response from the international community, and this is targeting basic survival requirements for those parts of the population which have been adversely affected by the disaster.







## Chapter II: Overall Socio-economic Impacts & Needs



## 2.1 Summary of the damage, losses and needs assessment

The total value of damage and loss caused by the earthquake on January 12th 2010 is estimated at US\$ 7.804 billion, which is equivalent to about 100% of the country's GDP in 2009. Indeed, this is the first time in 35 years of applying the DALA methodology for estimating damage and losses that the cost of a disaster is so high in economic terms in relation to a country's GDP.

Most of the damage and losses were in the private sector (US\$ 5.722 billion, 70% of the total), whereas the public sector's share totalled US\$ 2.081 billion, or 30%.

The value of material assets destroyed, including housing, schools, hospitals, roads and bridges, ports and airports – has been estimated at US\$ 4.302 billion (55% of the total effects of the disaster). The variation in economic flows (lost production, fall in turnover, job and salary losses, increased production costs, etc.) has reached US\$ 3.561 billion (equivalent to 45% of the total).

Housing is the sector which has been most affected by the earthquake, given that the total figure for the damage is US\$ 2.3 billion. This figure includes the value of different types and standards of housing which were destroyed, the value of houses which were partly destroyed, and household goods. Moreover, it is important to note that housing losses are estimated at US\$ 739 million and involve the cost of providing temporary shelters, demolition costs and the value of lost tenancies. Thus the housing sector represents approximately 40% of the effects of the earthquake. The other sectors, in descending order in relation to effects sustained, are commerce (damage and losses amounting to US\$ 639 million, or 8% of the total), transport (US\$ 596 million) and public administration buildings / community and urban infrastructure (US\$ 595 million) and education and health (with an average of 6% of the total).

The total needs value amounts to an estimated us\$ 11.5 billion and breaks down as follows: 52% for the social sectors, 15% for infrastructures, including housing, and 11% for the environment and risk and disaster management. The needs estimate was completed as described above, on the basis of the eight themed teams' work. (These estimates have not yet been arbitrated, prioritised or validated by the government. This is only the first stage of a more extensive study for the New York fund-raising conference on 31 March 2010.)

### Recovery and reconstruction needs on the basis of DALA methodology

These needs are exclusively the result of the earthquake and include: i) financial needs to ensure that the level of economic activity can be restored - in sector terms, macroeconomically speaking, or in terms of staff or households – to the level of well-being and living conditions which existed before the disaster, ii) financial needs for reconstruction and repairing material assets in the affected area, where such assets have been entirely or partly destroyed, by making use of a better building strategy which will take into account disaster-resistant standards for 'better rebuilding'.

The recovery and reconstruction needs have been taken from a detailed quantitative analysis of estimated damage and losses, which appears in an earlier chapter. The recovery needs are identified as on the one hand the amount of resources required to bring the economy back to normal performance levels, as indicated above, and they usually require sums which are equivalent to a fraction of the estimated production losses in each sector of economic activity; and on the other hand, the resources needed to respond to the temporary requirements of expenditure which is higher than usual, and which are essential in the absence of assets which have been destroyed. As regards the latter expenditure, the very high cost of providing displaced persons with temporary shelters, water and sanitation as well as other basic services have been included, and will last for a minimum period of four years. This is necessary to rebuild the housing sector, although it will reduce as time goes on.<sup>5</sup>

<sup>5</sup> In other types of disaster, the provision of temporary shelters and essential services to homeless displaced persons usually takes a relatively short period of time. However, in Haiti's case, the extent of the rebuilding work is so great, and existing local capacity is relatively limited, so that the cost of this work is very high.

Theme/Sub-theme:	Damage			Losses		
	Public	Private	Total	Public	Private	Total
<b>Environment &amp; disaster risk management</b>	<b>3.00</b>	<b>0.00</b>	<b>3.00</b>	<b>321.40</b>	<b>1750.00</b>	<b>496.40</b>
<b>Social sectors</b>	<b>153.80</b>	<b>805.40</b>	<b>959.40</b>	<b>197.80</b>	<b>355.60</b>	<b>553.30</b>
Water and sanitation	20.90	13.10	34.00	8.40	193.00	201.40
Health	94.70	101.70	196.40	187.70	86.10	273.70
Education	38.20	395.60	434.00	1.70	41.50	43.20
Food safety and nutrition	0.00	295.00	295.00	0.00	35.00	35.00
<b>Infrastructure</b>	<b>628.1</b>	<b>2 538.60</b>	<b>3 166.7</b>	<b>774.2</b>	<b>520.60</b>	<b>1294.8</b>
Housing	0.00	2333.2	2333.20	459.40	279.30	738.70
Transport	188.50	118.6	307.10	91.60	197.50	289.10
Telecommunications	66.00	28.00	94.00	24.00	22.00	46.00
Energy	20.80	0.00	20.80	37.23	0.00	37.23
Urban and community infrastructure	352.80	58.80	411.60	162.00	21.80	183.80
<b>Production sectors</b>	<b>3.10</b>	<b>394.00</b>	<b>397.10</b>	<b>0.00</b>	<b>933.30</b>	<b>933.30</b>
Agriculture	3.10	49.90	53.00	0.00	96.00	96.00
Industry	0.00	74.60	74.6	0.00	267.70	267.70
Retail	0.00	148.70	148.7	0.00	490.60	490.60
Finance and banking	0000	98.20	98.2	0.00	0.00	0.00
Tourism	0.00	22.60	22.6	0.00	79.00	79.00
<b>Total</b>	<b>781.80</b>	<b>3,738.00</b>	<b>4,526.2</b>	<b>1,293.4</b>	<b>1,984.50</b>	<b>3,277.8</b>

Reconstruction needs represent the amount of resources required to build, renovate or repair material assets which were destroyed by the earthquake. In keeping with the “build back better” reconstruction strategy, the estimated amount of damage has been increased in order to take into account quality improvements, adoption of design and construction standards for disaster resilience, and in some cases relocation of activity to a safe area. Further, since it will take at least four years to complete reconstruction, inflation rates have been included in the needs.

The estimated needs cover the whole of Haiti’s society and economy which was affected by the earthquake, including both the public and the private sectors. In the case of the public sector, central and local government’s needs have been identified. Support and direction will be required for the public sector to ensure that the needs of the private sector are taken into account and are dealt with effectively.

Above tables summarise the estimated recovery and reconstruction needs by sector of economic activity, apportioned between the public and private sectors. From 2010 to 2013 a total of US\$ 2.942 billion is required to meet recovery needs. A total of US\$ 6.028 billion is needed for the reconstruction work. There are two questions which need to be emphasised here: firstly, that (i) the human recovery needs, and communities’ recovery needs as defined by the UNO cells and included in the emergency appeal published by the United Nations, have been included in the total amount of needs. Secondly, that; (ii) recovery and reconstruction work must be begun simultaneously.

There are essentially two ways in which action can be taken: i) by governments, using either central or local government agencies; and ii) by the private sector, relying on lines of credit and subsidies which were exclusively opened up to finance recovery and reconstruction after the disaster. Although the central government has no direct role in implementing private recovery and reconstruction initiatives, it is of central importance in arranging for special lines of credit to be issued through the Central Bank and the private banking system, and in arranging cash subsidies from development partners which will be directed into the private sector to help micro-businesses which have insufficient money. Together with the Technical and Financial Partners (PTF), their aim in particular will be to support micro-businesses which are experiencing problems after the earthquake.

The total recovery and reconstruction needs amount to US\$ 11.5 billion for the period from 2010 to 2013, apportioned annually as follows:

The above estimate does not include an analysis of Haiti’s ability to implement it, both in terms of management and disbursing funds, and in terms of the volume of reconstruction work. On this last point, a very summary analysis shows that the construction sector’s capacity is such that it can supply an annual amount of around US\$ 400 million, which indicates that additional construction capacity will have to be imported from other countries for the recovery and reconstruction programme.

Table 4: Estimated total for recovery needs following the disaster (based on DALA methodology)

Sector	Recovery activity	US\$ Million				
		Total	2010	2011	2012	2013
<b>Housing</b>	<b>Housing Total</b>	<b>771.3</b>	<b>285.0</b>	<b>255.0</b>	<b>160.0</b>	<b>75.0</b>
	Cost of shelters	551.3	160.0	160.0	160.0	75.0
	Demolition	220.0	125.0	95.0		
<b>Education</b>	<b>Education total</b>	<b>4.1</b>	<b>4.1</b>			
	Demolition	1.8	1.8			
	Cost of extra hours for teachers	2.3	2.3			
<b>Health</b>	<b>Health total</b>	<b>306.6</b>	<b>162.0</b>	<b>118.0</b>	<b>27.0</b>	
	Temporary hospitals	50.5	20.0	20.0	11.0	
	Additional staff costs	25.3	10.0	10.0	5.0	
	Medical supplies	19.4	12.0	8.0		
	Finance	51.2	20.0	20.0	11.0	
	Higher health costs (vaccinations, vector control, etc.)	160.3	100.0	60.0		
<b>Transport</b>	<b>Transport total</b>	<b>231.7</b>	<b>194.9</b>	<b>38.0</b>		
	Temporary renovation	63.4	50.0	14.0		
	Road restoration, 1 year	3.2	3.2			
	Higher costs for transport, 3 years	61.1	61.1			
	Ports: urgent repairs, 1 year	1.1	1.1			
	Boat rental, 2 years	7.4	7.4			
	Higher operating costs, 2 years	64.0	40.0	24.0		
	Installation of temporary airport, 1 year	29.5	30			
	Demolition costs, 1 year	2.1	2.1			
<b>Water and sanitation</b>	<b>Budgetary support</b>	<b>231.6</b>	<b>80.0</b>	<b>80.0</b>	<b>72.0</b>	
	Water distribution	231.6	80.0	80.0	72.0	
<b>Governance</b>	<b>Budgetary support</b>	<b>210.9</b>	<b>75.0</b>	<b>70.0</b>	<b>65.9</b>	
	Operating costs	210.9	75.0	70.0	65.9	
<b>Environment</b>	<b>Budgetary support</b>	<b>544.5</b>	<b>250.0</b>	<b>272.0</b>	<b>73.0</b>	
	Removal and disposal of rubble	352.0	250.0	152.0	0.0	
	Waste management	192.5	0.0	120.0	73.0	
<b>Agriculture</b>	<b>Budgetary support</b>	<b>36.5</b>	<b>36.5</b>			
	Provision of seeds for the next season	12.5	12.5			
	Agricultural tools	24.0	24.0			
<b>Industry</b>	<b>Reduced-rate subsidies and loans for capitalisation</b>	<b>80.3</b>	<b>75.0</b>	<b>5.0</b>		
<b>Trade</b>	<b>Loans for recapitalisation, temporary tax reductions</b>	<b>122.7</b>	<b>100.0</b>	<b>25.0</b>		
<b>Tourism</b>	<b>Loans for recapitalisation, temporary tax reductions</b>	<b>19.8</b>	<b>20.0</b>			
<b>Food aid</b>	<b>Budgetary support</b>	<b>276.0</b>	<b>276.0</b>			
	Urban areas	180.0	180.0			
	Rural areas	96.0	96.0			
<b>Funds for work programmes</b>		<b>47.2</b>				
<b>TOTAL</b>		<b>2,942</b>	<b>1,606</b>	<b>863</b>	<b>398</b>	<b>75</b>

Table 5: Estimated total for reconstruction needs following the disaster (based on DALA methodology)

Sector	Reconstruction activity	US\$ Million				
		Total	2010	2011	2012	2013
<b>Housing</b>	<b>Total</b>	<b>3,247.0</b>	<b>1,250.0</b>	<b>1,054.0</b>	<b>500.0</b>	<b>444.0</b>
	Rebuilding housing	1,943.3	500.0	500.0	500.0	444.0
	Repairing housing	719.1	400.0	319.0		
	Repositioning household goods	584.6	350.0	235.0		
<b>Education</b>	<b>Education total</b>	<b>600.1</b>	<b>330.0</b>	<b>211.0</b>	<b>60.0</b>	
	Reconstructing schools	329.9	150.0	120.0	60.0	
	Repairing schools	189.2	120.0	70.0		
	Educational materials and supplies	81.0	60.0	21.0		
<b>Health</b>	<b>Health total</b>	<b>294.4</b>	<b>140.0</b>	<b>120.0</b>	<b>35.0</b>	
	Reconstructing buildings	239.7	120.0	100.0	20.0	
	Furniture, equipment	54.6	20.0	20.0	15.0	
<b>Transport</b>	<b>Transport total</b>	<b>324.8</b>	<b>275.0</b>	<b>50.0</b>		
	Repairing urban roads	100.0	75.0	25.0		
	Repositioning vehicles	124.5	100.0	25.0		
	Repairing primary roads	22.8	23.0			
	Repairing secondary roads	0.9	1.0			
	Bridges	13.5	14.0			
	Equipment	0.7	1.0			
	Ports	51.6	50.0			
	Airports	10.7	11.0			
<b>Water and sanitation</b>	Rebuilding water systems	<b>52.4</b>	<b>50.0</b>	<b>3.0</b>		
<b>Governance</b>	Rebuilding buildings	<b>916.7</b>	<b>400.0</b>	<b>400.0</b>	<b>117.0</b>	
<b>Agriculture</b>	Rebuilding irrigation channels	<b>2.8</b>	<b>3.0</b>			
<b>Industry</b>	Loans for reconstruction	<b>106.7</b>	<b>80.0</b>	<b>27.0</b>		
<b>Trade</b>	Loans for reconstruction	<b>212.6</b>	<b>150.0</b>	<b>63.0</b>		
<b>Tourism</b>	Loans for reconstruction	<b>38.5</b>	<b>30.0</b>	<b>8.5</b>		
<b>Telecommunications</b>	Reconstructing the telecoms system	<b>113.5</b>	<b>100.0</b>	<b>14.0</b>		
<b>Power</b>	Reconstructing the electricity system	<b>15.3</b>	<b>15.0</b>			
<b>Banking</b>	Rebuilding banks	<b>103.1</b>	<b>90.0</b>	<b>13.0</b>		
<b>TOTAL</b>		<b>6,028</b>	<b>2,912</b>	<b>1,964</b>	<b>712</b>	<b>444</b>

Table 6: Total of recovery and reconstruction needs

	Estimated needs (millions of dollars US)				
	2010	2011	2012	2013	Total
Recovery	1 606	863	398	75	2 942
<b>Reconstruction</b>	2 912	1 964	712	444	6 032
<b>TOTAL</b>	<b>4 518</b>	<b>2 827</b>	<b>1 110</b>	<b>519</b>	<b>8 973</b>

## 2.2 Impact of the earthquake and needs on re-shaping Haiti

### Financial needs for recovery and reconstruction based on the PDNA working groups

The needs total amounts to US\$ 11.5 billion and is apportioned as follows: 52% for the social sectors, 15% for infrastructure, including housing, and 11% for the environment and risk and disaster management. The needs estimate was completed as described above, on the basis of the eight themed teams' work. (These estimates have not yet been arbitrated, prioritised or validated by the government. This is only the first stage of a more extensive study for the New York fund-raising conference on 31 March 2010.)

#### Proposed needs by sector (up to 3 years)

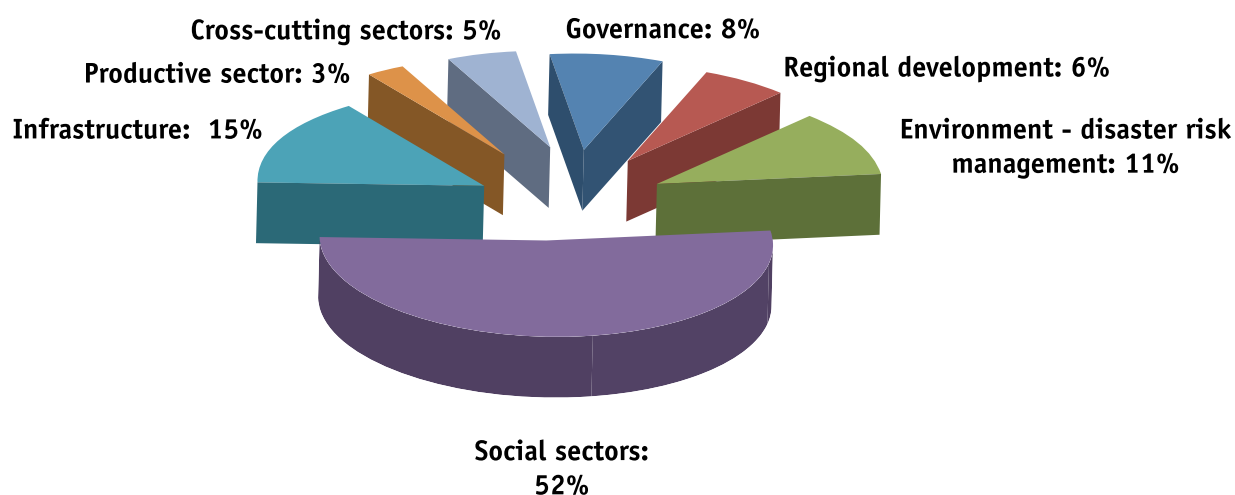


Table 7: Summary of total needs (based on the PDNA working groups), US\$ millions

	6 MONTHS Sep. 2010)	(18 MONTHS Sep. 2011)	3 years	Total 0-3 years
<b>Total</b>	<b>1,477.5</b>	<b>3,086.1</b>	<b>7,627.2</b>	<b>12,190.9</b>
<b>Governance</b>	<b>329.3</b>	<b>374.3</b>	<b>215.0</b>	<b>918.6</b>
Rule of law, Justice, Security	40.0	215.5	200.0	455.5
Democratic process	40.3	35.2	0.0	75.5
Administrative governance and public services	249.0	123.6	15.0	387.6
<b>Regional development</b>	<b>0.0</b>	<b>192.0</b>	<b>533.0</b>	<b>725.0</b>
Regional development	0.0	46.0	118.0	164.0
Land tenure management	0.0	54.0	100.0	154.0
Decentralisation and deconcentration	0.0	92.0	315.0	407.0
<b>Environment - Disaster risk management</b>	<b>60.1</b>	<b>345.4</b>	<b>992.7</b>	<b>1,398.2</b>
Environmental governance	3.0	15.0	12.5	30.5
Land and resource management	10.0	58.5	380.8	449.3
Pollution and nuisance	43.1	221.9	472.9	737.9
Disaster Risk Management	4.0	50.0	126.5	180.5
<b>Social sectors</b>	<b>900.4</b>	<b>1,547.0</b>	<b>3,928.9</b>	<b>6,376.3</b>
Health	283.0	500.0	708.0	1,491.0
Education	449.3	465.4	1,685.1	2,599.8
Food safety and nutrition	21.0	299.1	399.5	719.6
Water and sanitation	95.4	199.2	776.9	1,071.5
Sport and leisure	11.4	22.8	258.5	292.7
Culture	40.3	60.5	100.9	201.7
<b>Infrastructure</b>	<b>124.9</b>	<b>417.4</b>	<b>1,295.1</b>	<b>1,837.5</b>
Housing	5.2	149.8	505.0	660.0
Urban and community infrastructures	0.7	68.0	96.6	165.3
Transport	29.7	118.8	448.0	596.5
Energy	83.3	71.8	192.2	347.3
Telecoms	6.0	9.0	53.3	68.3
<b>Production sectors</b>	<b>29.6</b>	<b>108.3</b>	<b>204.5</b>	<b>342.4</b>
Agriculture and fishing	6.9	13.7	20.5	41.1
Tourism	1.7	16.2	25.7	43.6
Trade and Industry	6.1	75.8	151.7	233.6
Employment	14.9	2.6	6.6	24.1
<b>Transversal</b>	<b>48.1</b>	<b>101.7</b>	<b>458.0</b>	<b>607.8</b>
Youth	45.0	93.0	440.5	578.5
Gender	2.8	8.4	16.9	28.1
Vulnerable persons and social welfare	0.2	0.3	0.6	1.1
Information management	0.1	0.0	0.0	0.1

## 2.3 Cross-cutting themes

### Situation before the earthquake

Prior to the earthquake, the basic human rights of many Haitians were not realised: the right to work, safety and protection from exploitation, non-discrimination, health and education, due process, and gender equality. A survey of Haiti's youth carried out before the earthquake (FAFO, 2009), showed that 35% of 15-24-year-olds were unemployed. Most of them, chiefly girls and young women, devoted themselves to unpaid domestic tasks. A document relating to "Public Policy on Youth, Sport and Civics" was being prepared as required by the International Convention on Children's Rights.

Haiti's social welfare bears no relation to needs. Its coverage excludes workers in the informal sector and the peasantry, and it does not take unemployment or disability into account. The various social welfare institutions are not unified. They provide a low level of service to a low number of beneficiaries. Thus only 58,000 people, chiefly in Port-au-Prince, are insured with the Office for Work, Sickness and Maternity. The National Pensions Office has 400,000 contributors, and pays 1,800 old-age pensions.

As regards gender, work was started two decades ago. Protocols were signed with the Ministries of Justice, Health and Education to ensure that gender was taken into account. Since 2005 the National Dialogue (Concertation Nationale), which involves the state and women's organisations and has the support of the PTF and in particular of UN agencies, has been progressively implementing the National Plan to counter violence against women. However, discriminatory clauses still exist in some laws and rules, and sexist stereotypes persist, as does violence against women. There has been a poor institutional response and the budget for promoting women's rights is very inadequate. No sex-specific data has yet been collected.

Unemployment affected 35% of the working population. In addition, the country has a large number of poor workers. The informal sector is predominant, with more than 80% of workers. 40% of jobs are in agriculture and 25% in commerce. Only 2% of working people are in the public sector.

The World Bank estimates that poverty (the threshold being 2 US\$ per day) affects 68% of the population, and extreme poverty (the threshold being 1 US\$ per day) 47%. Poverty is worse in rural areas, where it probably affects 72% of the population. The 2009 youth survey (FAFO) found that 46% of men and 39% of women had completed primary education. The situation is more serious in rural areas. Income disparities are considerable: the richest 10% take 50% of total revenues.

Equal participation by men and women in the various development activities will help reduce the differences, and will contribute to collective and individual well-being as well as to women's autonomy. If women and men participate in decision-making and in public life this helps to improve society in education, health, demographic regulation, and economic growth. To achieve this, stereotypes which justify or impose ideas have to be deconstructed, and the same applies to behaviour and gender practices.

### Impact of the earthquake

The earthquake caused job losses because places of work, equipment, stock, access to markets and energy sources were destroyed. Employment was indirectly affected by market contraction, loss of finance and the loss of qualified staff, and thus became less competitive. Thus 11 million working days (US\$ 53 million) were probably lost in the four regions affected. The main losses were in the service sector (education, health, transport, tourism). Women were particularly badly affected in the commercial sector (work from home, in the street or on markets): 75% of the 45,000 concerned have been affected. In public administration, 20% of jobs have been lost.

Buildings housing institutions associated with youth were damaged: a multipurpose centre, four MJSAC (Ministry for Youth, Sport and Culture) sports and cultural centres. Voluntary sector partners have also been affected.

Young people stopped attending school, and indeed 75,000 of them died in the earthquake. The situation of young people in the camps is especially fragile.

The Ministry for Women's central office suffered heavy damage. Increased promiscuity has increased problems with sexual violence. The decapitalization of women and men in the informal sector, and the reduced work in both the formal and informal sectors have caused a sharp rise in the unemployment rate. Women who are sole providers for a family, and other special needs groups (street children, orphans, old people, the infirm) are now more vulnerable. Furthermore, the sanitation situation has worsened.

For most young people, relaxation, development and entertainment are empty concepts.

5,250 newly disabled persons have been recorded, including 400 cases of tetraplegia.

In the wake of the earthquake 103,000 cases of children without any family protection have been recorded. They are at increased risk of violence and exploitation and have no access to any basic services, support system or advice.

Last, the number of homeless persons is thought to have risen by 250,000.

Social institutions have suffered considerable damage: civil servants have died and ministry infrastructure has been affected.

Thousands of young people have emigrated abroad or away from the coastal area. Living conditions are getting visibly worse both for men and for women, and there has been an increased number of people with special needs (physically and mentally disabled). There is a poorer quality of support and assistance for people in difficult situations associated with emotional problems resulting from the loss of family and friends

## Young people

The reconstruction strategy aims to:

- Develop and implement sector reform including a global policy for youth, to promote their wellbeing, with particular reference to international instruments relating to children's rights.
- Increase young people's access to a fair, appropriate, coherent, decentralised system of basic services (education, health, information, sport and leisure, and protection).
- Improve the quality of their working lives by emphasising education and job creation (careers advice programmes).

## Gender

The existing strategic plans will be used (National Strategy for Growth and Poverty Reduction Paper, the Ministry for Women's strategic action plan). Essential parts of the programme will be:

- Recapitalisation of women and their full participation in the reconstruction process.
- Women's organisations and women themselves to recover their capacity.
- Safety for women and girls, who must have access to justice.
- Women's participation in areas of decision-making and in political life.
- Strengthening the capacity of state and citizens' institutions which promote women's rights.
- Girls and boys to have equal opportunities in education.
- Promoting health services, especially reproductive health, to take specific account of women's needs.

## Vulnerable people, special needs and social welfare

The poor have been hit the hardest and need an immediate targeted response. In the short term, the number of children who are separated from their families must be reduced; older people's living conditions must be improved, as must those of disabled people who were earthquake victims; services

for people living with HIV/AIDS must be restored and the risk of transmitting HIV must be reduced; a basic social welfare system must be created; and a risk prevention system must be implemented for the workplace, and post-earthquake-period protection for workers.

In general terms, the emphasis will be on teenagers and young people, women and girls. Work will be concentrated in the Ouest and Sud-Est departments. Where there are no schools, activities will be developed in the camps in partnership with the voluntary sector. The problem of the camps in vulnerable areas, during the rainy season, will be addressed.

### Needs

The table shows estimated costs associated with the implementation of the reconstruction strategy for the following cross-cutting themes: youth, vulnerable persons, social welfare, gender. There is a distinction between very short-term, short-term, medium-term and long-term needs.

**Table 8: Cross-cutting themes - summary of very short-term, short-term and medium-term needs**

Cross-cutting themes:	very short term (0 -6 mths)	short term (6 -18 mths)	medium term (18 mths-3 yrs)	Budget (US\$ Million)
Youth	-	87.6	266.1	353.7
Vulnerable persons	156.9	234.3	267.7	658.9
Social welfare	6.07	11.8	184.5	202.37
Employment	14.9	2.6	6.6	24.1
Gender	5.6	22.5	-	28.1
<b>TOTAL</b>	<b>183.47</b>	<b>358.8</b>	<b>724.9</b>	<b>1,267.17</b>

## 2.4 Consequences and needs by sector

### Governance

#### Rule of law, justice and security

##### Situation before the earthquake

Prior to the earthquake, the rule of law, justice and security were in a difficult situation. The reforms implemented, particularly the laws of 2007, had had little impact: access to the public justice service remained very difficult. The system was not very effective and the independence of the judiciary remained problematic. In terms of security, although the 2006 reform improved the situation, human and material resources remained highly insufficient. The prison administration was characterised by insufficient accommodation infrastructures, with 80% of prisoners in crowded remand facilities. Staff were under-trained and insufficient in number. The 17 prisons fell far short of international standards. The national police unit in charge of the protection of minors (BPM) had insufficient resources, preventing it from fulfilling its protective role.

##### Impact of the earthquake

Eighty percent of the justice sector in Port-au-Prince was affected by the earthquake. 49 justice-related buildings were damaged and the archives were largely destroyed. Judicial activity has been considerably reduced. The earthquake is going to lead to many civil law disputes, which will be made more difficult by the absence of land registry records and problems with birth, marriage and death registrations. The situation in terms of security in the camps seems to be getting worse, in particular with an increase in crimes against property<sup>6</sup> and gender violence. The work of the police (PNH) has been hampered by human

<sup>6</sup> According to a survey carried out by Small Arms Survey and the University of Michigan with the support of the UNDP and the government of Canada (START), 47% of the population have declared themselves to have been victims of an offence against property subsequent to the earthquake. In addition, 25% of camp residents have declared that they have been victims of threats against their life or physical integrity, compared to 2% prior to the earthquake.

and material losses. There is insufficient police presence in the refugee camps. There are risks of a loss of motivation within the police, since the implementation of the reform plan has inevitably been delayed. In terms of prisons, the security situation will worsen, with reduced space and resources.

### **Reconstruction strategy**

The reconstruction strategy in these sectors is based on getting services for the prevention of violence and attention to the needs of the population back into working order, and beginning a thorough reform.

In the justice sector, the emphasis must be on the following priorities:

- Rapid restoration of minimum public services for justice and public safety, within the framework of an emergency response. Special measures should be considered to facilitate legal requirements directly linked to the earthquake (in particular, registering deaths).
- Protecting affected populations and preventing violence, paying particular attention to vulnerable groups (sexual violence, unaccompanied children and restaveks). This will involve measures targeting, in particular, legal assistance, operational strengthening of the police, strengthening the penal system, family reunification (IBESR/BPM) and support for community safety and security.
- Solving abnormalities in the penal system and civil justice through decentralised support for the courts, notably with the aim of preventing saturation in prisons, and combating corruption.
- Starting a process of structural reform of the Haitian justice system (including the measures required for compliance with international instruments ratified by Haiti, repairing and restoring registers and the register of births, marriages and deaths, strengthening adoption laws, law reform and in particular adopting a children's law within the framework of renewing the justice system relating to minors}, with the emphasis on developing capacity and training in relation to new legal issues.

For the police, emphasis must be on the following priorities:

- In the immediate term, taking into account staff working and living conditions, maintaining public order by increasing staff numbers, training and equipment, acquiring items and materials, speeding up executive training, and a temporary emergency building for the School and the Academy.
- Next, the PNH's operational capacity must be developed and it must be deployed in relation to the geographical incidence of offenses, special attention being paid to exposed social groups in the context of the natural disaster: displaced persons, children, old people and women who have been subject to violence or who are disabled or alone.
- Lastly, the organisation must be modernized (revision of the PNH 2006-2011 reform plan, planning and monitoring of projects); this requires the rules governing the PNH and careers in the PNH to be taken into account, as well as increased funding with a view to improving the service to the population, while complying with professional ethics and human rights.

For the prisons, the priorities are as follows:

- First, existing infrastructure must be restored to operational levels by remobilizing and strengthening operational capacity to ensure that prisons are safe, and by guaranteeing minimum conditions which meet international standards .
- Next, efforts are required to alleviate overcrowding in prisons, by building new infrastructure throughout the country which complies with international rules on detention conditions (especially in relation to separation, distance from home, training and returning-to-society programmes).
- Lastly, it is essential to develop a modernisation plan for the prison system, one which is adapted to the reform process for the justice and juvenile justice system, as well as a professionalization programme for prison staff, and to create a digitized database networked with the system of judicial information.

Table below presents an estimation of costs relating to the implementation of the reconstruction strategy for the sector, according to each objective broken down by timescale, from the very short term (6 months), short term (6-18 months), to the medium term (3 years) for a total of US\$ 455.6 million. The objectives are specified in detail in the appendix.

**Table 9: Rule of law, justice and security: summary of recovery and reconstruction needs**

Component	6 months (US\$ Million)	18 months (US\$ Million)	3 years (US\$ Million)	Needs (US\$ Million)
security	40.0	215,5	200.0	455.6

## Public Administration and Public Services

### Situation before the earthquake

Prior to the earthquake, Haiti's public administration was already suffering from serious structural problems. Like the other national institutions, it did not have the trust of the population, who perceived it to be incapable of supplying essential services and affected by endemic corruption. The lack of technical skills and diligence and lack of resources greatly limited the capacity to meet the population's demands for basic services. A major reform of the public administration, in particular the Framework Programme for State Reform aimed at modernising the administration and decentralisation, was under way.

### Impact of the earthquake

Following the earthquake, the public administration has sustained very high human and material losses. The destruction of office equipment, files and computer data has affected several key Ministries which were in the affected buildings, constituting major damage for the sector. The destruction of buildings such as the National Palace, the Prime Minister's Office, the Parliament and the Law Courts constitutes an inestimable symbolic loss for the nation of Haiti.

### Reconstruction strategy

The public administration will fulfil the functions of (i) strategic planning for public policies; (ii) regulation of the public and private sectors; (iii) service provision for the implementation of public policies. The last two points will be the responsibility of the deconcentrated, decentralised administration, in partnership with the private sector and civil society organisations. There will be two levels of architecture in the administration: first strategic management; and second operational management. The organisation will be based on the principles of accountability and transparency of public institutions. Additional salaries may be paid in priority public services to fight against brain drain and reinforce the State's regulatory role. The Ministries and administrations will need restructuring to get rid of duplication; responsibilities need to be delegated by means of deconcentrated administration to equipped regional and local centres; a move towards power-sharing on a local level should form part of the decentralisation process; human capabilities should be reinforced, along with the wide-scale deployment of computerisation in administrations.

### Reconstruction requirements

Table below presents an estimation of costs relating to the implementation of the reconstruction strategy for the sector, according to each objective and broken down by timescale, from the very short term (6 months) to medium term (3 years) for a total of US\$ 387.62 million.

**Table 10: Public administration and public services: summary of recovery and reconstruction needs**

Component	6 months (US\$ Million)	18 months (US\$ Million)	3 years (US\$ Million)	Needs (US\$ Million)
Public Administration and Public Services	249.0	123.6	15.0	387.6

## Democratic process

### Situation before the earthquake

The country was experiencing political stability in a fragile socio-political context. The President did not have a parliamentary majority. There were few legislative achievements. The Assembly and one third of the Senate was due to be renewed on February 28, 2010.

Parties' political bases were weak. The Provisional Electoral Council (CEP) was considered by the majority of MPs and political parties to be aligned with the Executive. Civil society was fragmented and its impact on the political scene weak. The constitutional institutions of 1987 had never been fully implemented.

### Impact of the earthquake

The earthquake has exposed the weaknesses of the political class. Proposals for a "new foundation" of the State have been put forward, aimed in particular at organising a way out of the crisis within a new constitutional framework. Opinions are however divided. The opposition considers itself excluded from the democratic process. The CEP is unable to continue the electoral process. Deaths and population displacements are complicating the electoral process. The huge needs of the affected populations cause them to have a critical view of the State. There is profound political and social unrest, relating to the problem of trust in the government's and public administration's ability to meet the immediate needs of affected populations, particularly those of women and children in the makeshift camps.

### Reconstruction strategy

Four scenarios from the different consultations conducted with the different categories of stakeholder are set out here to provide clarity as to the possible changes in the political situation during the reconstruction process: (i) Stagnation, followed by permanent instability: in this scenario, the President's term of office is not renewed and the constitutional amendment is abandoned. The Government is opened up to the opposition parties. The President is weakened and governs by decree. There is a high level of frustration in the population, but this does not reach social explosion. The Haitians' dominant feeling is one of resignation. The general elections are boycotted by the parties, the government is weak, as is its legitimacy, and the population is predominantly indifferent. (ii) Chaos, followed by the loss of national sovereignty: in this scenario, a consensus cannot be reached on the renewal of the Parliament and President. There are attempts to destabilise the government. Basic services do not work or work poorly and the agricultural production cycle is disturbed. This leads to anger and social explosion, in a context of political fragmentation. The President resigns before the end of his term. The international community restores order. (iii) The Phoenix, followed by authoritarian populism: A strong President governs, supported by large parts of the population. The Parliament is sidelined. The Government governs by decree. There is a move towards non-democratic order. (iv) The compromise and restarting democracy on a fresh basis: A consensual method is adopted for managing constitutional deadlines. This leads to stability. A socio-political pact for the rebuilding of Haiti aims to promote long-term development. Solidarity increases and a new democratic political order emerges.

### Reconstruction requirements

Table below presents an estimation of costs relating to the implementation of the reconstruction strategy for the sector, broken down by timescale, from the very short term (6 months) to short term (18 months) for a total of US\$ 75.5 million.

**Table 11: Democratic process: summary of recovery and reconstruction needs**

Component	6 months (US\$ Million)	18 months (US\$ Million)	3 years (US\$ Million)	Needs (US\$ Million)
Democratic process	40.3	35.2	0	75.5

**Note :**

The governance sector is keen to seize the opportunity factors brought by the context of reconstructions to enable the implementation of modern, responsible and efficient national institutions in the following key sectors: administrative and economic governance, the rule of law, national dialogue and citizen participation, the establishment and reinforcement of democratic institutions, environmental governance and major cross-cutting programmes.

Moreover, it will be crucial to pay particular attention to defining a management, coordination and follow-up/assessment framework for all the forms of support which have been mobilized (internal and external resources) to support the implementation of the PDNA together with the national and international stakeholders.

## National development

### Situation before the earthquake:

With respect to spatial organisation, Haiti had not yet managed to overcome its various environment-related problems, the demographic explosion, the proliferation of shanty towns, and the physical and social imbalance with which it has to contend. One of the possible explanations for this remains the absence of clear political vision regarding the territory. The different sectional divisions, the absence of a national regional development plan, the lack of a zoning plan and town planning, etc. are clear evidence of this. Before the earthquake, the policies and strategies drawn up by the public authorities, whether concerning devolution or decentralisation, had either not been the subject of practical application or had been halted during implementation.

In the meantime the situation was continuing to worsen. It was characterised by:

- imbalances in the urban system. This imbalance was characterised by the predominance of Port-au-Prince. In fact, Haiti is split up into systems, of which each one presents its own specific problem. These existing systems represent economic areas, known as 'hinterlands', each of which has a major urban centre which, because of its natural, social, and economic influence, forms distinct zones of which it is the focal point. In short, the Haitian urban system is actually only a case of rapid and uncontrolled urban growth that does not have many positive economic effects. This results in the principal towns and cities having to sustain urban area-related costs which are overwhelmingly in excess of their economic capabilities.
- a centrality crisis marked by the massive predominance of the cities of Port-au-Prince and Cap-Haïtien, and the sprawl of some of the major and secondary towns along major arteries, spreading over agricultural land, thus resulting in a trend towards 'metropolization' and its negative ramifications;
- an absence of zoning (Haiti is a very open space without many restrictions or directives regarding land use);
- continued deterioration of living conditions: this increases rural poverty and its immediate effects (large-scale emigration towards ill-equipped urban centres).

More specifically, there was a high degree of concentration in the metropolitan district of Port-au-Prince, which had become the centre of all political and administrative decisions, monopolised by public administration (75% of all civil servants and employees) – the sole centre from a financial and economic perspective, home to 80% of all industrial, commercial and banking facilities. The capital also has the highest level of facilities and services, with more than half of the country's hospitals, more than a quarter of its primary, secondary, and technical schools, and more than three-quarters of higher education establishments and universities.

Another issue which is even more crucial for spatial organisation is the absence of order relating to the land tenure system.

- **Legal aspects:** the non-application of the provisions of the law of 29 May 1963 had led to uncontrolled urban growth and sprawl at the expense of agricultural land.
- A mismatch between land legislation and reality (several institutions can have the same powers) is typical.
- Most landowners have no real title deeds as there is no land register.
- **Regional planning:** the proliferation of unauthorised construction due to the absence of zoning in areas that are unsuitable for housing; at the same time, crops are grown on unsuitable land.
- Social and legal aspects: the weakness of the civil registry office and too many sources for the issue of title deeds.

All the above problems, which are mostly structural and functional in nature, are not simply the result of chance but the consequence of the under-institutionalisation of the State and its centralised, concentrated mode of administration. The result observed is that over 70% of the population has not had access to administrative services. The further one moves away from the capital, Port-au-Prince, the more government services decrease.

The political instability which followed the adoption of the Constitution considerably slowed down the institutionalisation underway and also affected it more broadly. In practice, those laws which have been adopted are applied to a very small extent or not at all. The devolution framework promulgated in the decree on delegation and the decree of 17 May 2005 on the State's central administration reveals important weaknesses both with regard to the nature of the decision-making powers recognised as belonging to the devolved State services and to the human and material resources necessary for the functioning of these services.

It must be noted that only municipalities currently exercise competency, with their own public services and resources, even though these are clearly inadequate. It is also important to emphasise the antagonism (in terms of the delimitation of competencies) which exists between the 'commune' and the 'section communale', which both consider themselves to be full local authorities in their own right.

## 2 The impact of the earthquake

The impact of the earthquake of January 12, 2010 is fraught with consequences for the country's development, and especially for regional planning and land management. In the case of regional planning, there is cause for anxiety resulting from two types of effects:

**Direct recorded effects:** Around 600,000 people were displaced after the earthquake, and moved into different departments, especially Artibonite and Plateau Central. These population movements put pressure on all Haiti's departments, most of which are considered to be flood risk areas, and this increases the vulnerability of the displaced persons. Pressure on local authorities has also increased (20 municipalities in the Ouest department have been affected, especially the capital, Port-au-Prince, and the municipalities of Jacmel, Léogâne, Petit-Goâve, Gressier, Grand-Goâve, Carrefour, Delmas Cabaret, Cité-Soleil, Croix-des-Bouquets, and Tabarre). Infrastructure (damage to health, drinking water, housing, and transport infrastructures), facilities, and buildings of accommodation institutions are deteriorating. Furthermore, great pressure on resources and food security can be noted. Already the CNSA (National Coordination of Food Security) is reporting that the pressure will be particularly severe in the departments of Artibonite and Nord-Ouest, which have already suffered chronic food insecurity. An expansion of the informal economy in refuge areas and the drastic reduction of private-sector investment, particularly in Port-au-Prince, are to be feared.

As for local authorities, tax revenues, which account for only a small percentage of local authority budgets, are becoming increasingly meagre, especially in the capital's district councils and the metropolitan areas. In addition, some funding agencies have reallocated money intended for official programmes to the emergency created by the earthquake. Some structuring projects which were being carried out for local authorities have had to be suspended. These decisions taken by financial backers might well jeopardise the efforts of the government to implement coherent and coordinated action.

Side effects and long-term impact. Overpopulated towns could result in the deterioration of health infrastructure, thereby bringing about the risk of epidemics, tropical diseases, and malnutrition, as well as creating decreased access to drinking water and housing. The country's physical environment could be altered (habitat, and the growth of towns).

- (i) property-related: destroyed or damaged houses whose owners died beneath the rubble; destroyed or damaged houses whose owners are abroad; destroyed or damaged houses whose owners cannot afford to repair or rebuild them; propriétaires n'ont pas les moyens de réparer ou de reconstruire ;
- (ii) au niveau légal : la disparition de nombreux titres de propriété dans les décombres (DGI, maisons privées détruites), 200 000 morts sans sépulture et sans acte de décès ouvrent la porte à tous les abus en matière de succession et de mutations foncières ; les occupations sauvages ou résultant d'un accommodement des propriétaires de terrains privés posent un problème.

On the other hand, this new reality has contributed to the development of local government structures and dialogue between local elected representatives and devolved state structures. Municipal administrations and the Municipal Ward Board (CASEC) have now developed joint strategies to receive and assist displaced persons.

### 3 Strategy

The main avenues include those relating to regional planning, land management, and deconcentration/decentralisation.

#### 3.1. Spatial aspects:

The broad outlines for national planning are based on the speech by the Minister of Planning on the launch of the PDNA 2, backed by that of the President of the Republic in his announcement at Quito. These guidelines rely on regional development for a balanced distribution of the population and activities. This must be put into operation following the polycentric approach which relates to a three-dimensional strategy development model which focuses on hubs, sub-hubs, and Unités Territoriales d'Aménagement et de Développement (UTAD / development corridors), with the "arrondissement" being the framework of spatial intervention at the local level. This approach will enable diversification and deconcentration of activities within the region in order to avoid the risks of metropolization and of intra-regional imbalance. This regional and local development involves the following:

- Real decentralisation, as provided for in the 1987 constitution.
- The establishment of structuring infrastructure which should contribute to the development of productive and commercial activities and facilitate inter-regional exchange.
- Rational management of the environment, risks and disasters.
- The safeguarding and development of Haiti's national heritage.

Spatial guideline scenarios are proposed which recommend the implementation of regional development hubs.

The main scenario is aimed at hiving off the political and economic functions from the capital around four urban hubs, in order to reduce the demographic pressure on Port-au-Prince by approximately one million inhabitants, as well as managing natural risks.

Summary table of costs

Overall cost for territorial development			
	18 months	3 years	Total cost (million USD)
<b>Territorial development</b>	<b>46</b>	<b>118</b>	<b>164</b>
<b>Land tenure management</b>	<b>54</b>	<b>100</b>	<b>154</b>
<b>Decentralization and deconcentration</b>	<b>92</b>	<b>315</b>	<b>407</b>
<b>TOTAL</b>	<b>192</b>	<b>533</b>	<b>725</b>

The first hub would be constituted using the geographical area of the Port-au-Prince metropolitan region, which would be home to the political, financial, and administrative capital. Town planning there would be strictly controlled so as to support the process of deconcentration of the population towards the other two urban hubs.

The second urban hub would be home to the industrial economic activities (subcontracting), to the north-east of the capital (near Mirebalais). It would be designed to accommodate 400,000 inhabitants.

The third hub, between Hinche and Pignon, would provide impetus for development tending towards residential/industrial/ agriculture, based on organic farming. It would accommodate 600,000 inhabitants.

<b>Needs and costs matrix</b>				
<b>Territorial development, regional and local development, town planning</b>				
<b>COMPONENTS</b>	<b>ACTIVITIES</b>	<b>Duration</b>		<b>Total cost (in million US\$)</b>
		<b>18 months</b>	<b>3 years</b>	
<b>Component 1: Strengthen capacity.</b>	<b>Strengthening institutions:</b>	7	10	17
	• Strengthening the MPCE, MICT, CNIGS, ONACA and INARA			
	• Creating a body for implementing the development of the territory, towns and housing.	5	20	25
	• Create a training centre for territorial development: territorial development, regional and local development, town planning	3	7	10
	<b>Subtotal</b>	<b>15</b>	<b>37</b>	<b>52</b>
<b>Component 2: Setting up land planning tools</b>	<b>At national and regional level:</b>	5	15	20
	• Draw up a national development programme / national zoning plan, laws and regulations for development and planning.			
	• Draw up national risk prevention plan and risk assessment charts	2	3	5
	• Draw up regional plans-programmes	3	7	10
	• National housing plan	3	7	10
	• Post earthquake census of the population and of accommodation	3	7	10
	<b>At local level:</b>	5	12	17
	• Devise local programmes for territorial development.			
	• District (commune) development plan			
	• Draw up town plans			
	• District (commune) land register			
	• District (commune) zoning plan			
	<b>Subtotal</b>	<b>21</b>	<b>51</b>	<b>72</b>
<b>Local economic development</b>	<b>Subtotal</b>	<b>10</b>	<b>30</b>	<b>40</b>
<b>Total</b>				<b>164</b>

The development of the other regions would be dealt with at the same time, from a development hub perspective: the Centre region would be mainly devoted to agro-industry; the Northern regions would be directed towards tourism and industry, and the Southern region towards agro-industry and eco-tourism.

The central option could be completed by the development of buffer zones, one to the North and the other to the West, designed to prevent fresh population flows towards the metropolitan region.

### 3.2. Deconcentration and decentralization:

This two-fold process was set out by the 1987 Constitution in order to promote participative democracy. To move in this direction, the following would be desirable:

- In terms of deconcentration, structuring delegation and vice-delegation in order to ensure coordination of public services within departmental administrative divisions. and providing these structures with human resources, equipment and operating resources in order to provide populations with quality, local services.
- In terms of decentralisation, classifying municipalities into categories according to size; improving the capacities of municipalities; structuring municipality administration, by differentiating the services implemented according to the category of the municipality; mobilising resources.

Deconcentration and decentralization				
COMPONENTS	ACTIVITIES	Duration		Total cost (in million US\$)
		18 months	3 years	
<b>Deconcentration</b>	Operationalization of authorities and sub-authorities	8	12	20
	Set up deconcentrated technical services (department authorities and arrondissement services)	39	184	223
<b>Subtotal</b>		<b>47</b>	<b>196</b>	<b>243</b>
<b>Decentralization</b>	Strengthen the capacity of the communal administrations	15	34	49
	Set up functioning procedures for commune administrations	15	35	50
	Set up local funds for territorial development	15	50	65
	<b>Total</b>	<b>45</b>	<b>119</b>	<b>164</b>
<b>TOTAL</b>		<b>92</b>	<b>315</b>	<b>407</b>

### 3.3. Land management:

The main guidelines will be organised as follows:

- The elimination of unorganised land use by freezing all transactions while awaiting the setting-up of services to check title deeds;
- the setting up of a national land registry, giving the National Land Registry Office (ONACA) the task of listing, updating and classifying property belonging to individuals and the State in order to identify them physically, legally, fiscally and economically;
- The determination of competencies of bodies involved in land management with the following breakdown: the Direction Générale des Impôts (tax office) to collect taxes for the State, the ONACA to deal specifically with property inventory, and the Institut National de la Réforme Agraire (National Institute for Agrarian Reform) to deal with solving land-related problems and drafting of agrarian policy.

Land tenure management					
	Aims	Activities	Expected results	Indicators	Budget (US\$)
5.1	Produce urban real estate	<ul style="list-style-type: none"> <li>- real estate inventory</li> <li>- multi-hazard maps</li> <li>- programme for producing urban real estate</li> </ul>	<ul style="list-style-type: none"> <li>- available land identified in selected urban areas;</li> <li>- multi-hazard maps prepared for priority communes</li> <li>- land access negotiated and agreed according to priorities</li> </ul>	<ul style="list-style-type: none"> <li>% of displaced persons without access to land</li> <li># of inventories produced</li> <li># of safe plots allocated</li> </ul>	4, 000, 000 15, 000, 000 9, 000, 000
5.2	Strengthen real estate security	<ul style="list-style-type: none"> <li>- operation "civil status"</li> <li>- check of actual real estate</li> <li>- policies implemented</li> <li>- mechanism for resolving real estate disputes</li> </ul>	<ul style="list-style-type: none"> <li>- civil status confirmed</li> <li>- households tenure status verified</li> <li>- policies developed &amp; implemented</li> <li>- cases received;% of cases resolved</li> </ul>	<ul style="list-style-type: none"> <li>- % of population with confirmed civil status</li> <li>- % of population with confirmed land rights</li> <li>- # of policies developed &amp; implemented</li> <li>- # of cases received;% cases resolved</li> </ul>	10, 000, 000 15, 000, 000 5, 000, 000 15, 000, 000
5.3	Institutional, legal and political reforms	<ul style="list-style-type: none"> <li>- New land tenure policy</li> <li>- Legal framework</li> <li>- Legal reforms</li> <li>- Technical support</li> </ul>	<ul style="list-style-type: none"> <li>- land tenure policy adopted</li> <li>- mandates clarified</li> <li>- reforms adopted into law</li> <li>- staff trained</li> </ul>	<ul style="list-style-type: none"> <li>- land tenure policy adopted</li> <li>- mandates clarified</li> </ul>	5, 000, 000 3, 000, 000 3, 000, 000 5, 000, 000
5.4	Reform of land tenure administration	<ul style="list-style-type: none"> <li>- simplified procedures</li> <li>- decentralised land registry accessible by everyone</li> <li>- strengthening of lawyers', surveyors' and land tenure administrators' powers</li> </ul>	<ul style="list-style-type: none"> <li>- critical procedures simplified</li> <li>- registry implemented in select communes</li> <li>- land professionals trained</li> </ul>	<ul style="list-style-type: none"> <li>- # of procedures or processes simplified</li> <li>- # of parcels recorded;% of total parcels recorded</li> <li>- # of land professionals trained</li> </ul>	15, 000, 000 25, 000, 000 15, 000, 000
5.5	Coordination and information campaign	<ul style="list-style-type: none"> <li>- strengthened means of coordination</li> <li>- Information and communication campaign</li> </ul>	<ul style="list-style-type: none"> <li>- improved coordination within Government and between Government and other actors</li> <li>- improved awareness of land-related issues</li> </ul>	<ul style="list-style-type: none"> <li>- # and quality of partnerships established for land objectives</li> <li>- survey respondents reporting awareness of land-related developments</li> </ul>	6, 000, 000 4, 000, 000
Total					154,000,000

## 4 Needs

### 4.1. In the short term

The need is to meet the urgent relocation needs of people affected by the earthquake. This involves:

- the planned, temporary resettlement of earthquake survivors in areas which, according to the multi-risk maps, are safe, and in a suitable living environment (planned installation, basic social services, and provision of temporary employment);
- production of a map of risks and vulnerability, for the whole country;
- prohibition measures to prevent rebuilding and restoration initiatives relating to houses and blocks of flats without expert help and advice that has been confirmed and authorised by local authorities;
- education and awareness-raising of the population in coastal areas regarding action to be taken in the event of a disaster (establishment of an early warning system and evacuation areas);
- the creation of observatories (deployment of GPS along the two main faults as well as along secondary fault lines throughout the whole country);
- updating and drafting town planning, construction standards, and zoning plans;
- informing and awareness-raising of the population about construction standards;
- the reinforcement of local council capacities by making public service executives available, e.g. planners (including town and agricultural planners), to provide assistance to councils to perform the tasks assigned to them;
- the preparation of a national town planning code (Code d'Urbanisme National - CUN), and urban sector management plans: transport, leisure activities, energy, sanitation, environmental nuisances, housing, drawing up construction standards, and a zoning plan on the basis of a regional planning plan (short term);
- the rapid preparation of a land inventory so as to identify land to support humanitarian aid (shelter, housing, infrastructure, and basic services);
- the reinforcement of capacities to support programmes dealing with the release of land, e.g. planning, and land surveying;
- the reinforcement of policies and legal support for the government and local authorities to guarantee the protection of absent owners, tenants, widows, orphans, and other vulnerable groups;
- the reinforcement of municipal authorities, i.e. town halls and CASEC (Conseil d'Administration de la Section Communale – Municipal Ward Board).
- Coordination and information campaign to provide information about the new land policies, programmes, arrangements and projects.

### 4.2. In the medium term:

A distinction should be drawn between land management and deconcentration-decentralisation.

- Land tenure management
  - Political reforms and revision of the legal and institutional framework
  - Financial security by identifying property, persons and the law
  - Training and information
  - Development and expansion of the land registry system
  - Training for staff involved in land management
- Decentralisation and deconcentration
  - Establishment of operational procedures to make delegations and sub-delegations operational
  - Diagnosis of the situation
  - Vision of deconcentration in comparison with decentralisation
  - Experimentation
  - Creation of a support fund for local authorities
  - Deployment of human resources
  - Support for the worst-hit municipalities
  - Setting-up of administrative villages (arrondissements)

- Setting-up of administrative offices (arrondissements)
- Use of academics for social service
- Allocation of human resources from technical bodies of government ministries for local support;
- A national debate in order to better define implementation of decentralisation procedures.

## Environment

### Situation before the earthquake:

Profound imbalances were present in both the natural and human environments prior to the earthquake. These were due to: (i) acute poverty; (ii) an economy which was largely subsistence-based; (iii) a geological, geological, geomorphological and climatic context exposing the country to a broad spectrum of hazardous natural phenomena; (iv) a chronic inability of governance systems to ensure the effectiveness and viability of resource and land management, disaster risk management and pollution control, whether in natural, rural or built-up environments.

### Environmental governance

The decree relating to environmental management of January 20, 2006 defined national policy in this area and proposed an institutional framework to be established: the National Environmental Management System. Environment management arises from collective, shared responsibility (central and local governments, plus all sectoral ministries, civil society and institutions or organisations in the public and private sectors exercising responsibility in terms of management of resources or land). However there was a delay in the implementation of the NEMS due to a lack of resources. The activities of the Ministry of the Environment (MDE) were limited essentially to the implementation of projects with external funding and the production of basic environmental information (within the National Observatory for the Environment and Vulnerability (ONEV)), whilst the assessment of its normative functions (including carrying out environmental impact studies and the environmental assessment of policies and programmes), intelligence, control and public consultation received very little attention.

### Watershed management

The erosion of watersheds, poor management of solid and liquid waste due to the installation of slums, along with the absence of integrated management of the water resource, had led to a quantitative and qualitative decrease in the water available. For instance, it had been noted that several of the springs supplying the capital were polluted by bacteria.

### Management of coastal and marine zones

Ecosystems including mangrove swamps, sea-grass beds and coral reefs were in an advanced state of decline. This was the result of sedimentation due to the erosion of the watersheds, pollution due to land-based activity and encroachment of human habitation. Fishing catches were reduced, as was aquaculture potential. Harvesting of mangrove products and the destruction of coral reefs had made coastal areas vulnerable to storms and hurricanes.

### Domestic energy and deforestation

National forest cover, corresponding to the residue of natural forest land (mainly pine trees in varying degrees of density), had been estimated at around 2%, whereas in the 1990s, trees covered around 15% of the territory<sup>7</sup>. This low proportion of woodland was the direct result of the high demand for domestic energy, 72% of which was met by wood fuel (firewood and charcoal).

### Protected areas and biodiversity

Of the 35 recognised protected areas, four had been the subject of a certain form of management. The protected aquatic areas were not managed. Similarly, the buffer zones for protected areas had not received any particular attention and in no sense provided first-line protection of these fragile conservation areas. Finally, the surface area of protected areas did not correspond to conservation needs.

<sup>7</sup> MDE/PNUD/CEPALC, Impact socioéconomique de la dégradation des terres en Haïti et interventions pour la réhabilitation du milieu cultivé, United Nations, 2009.

### Solid waste management

The Metropolitan Solid Waste Collection Service (SMCRS), overseen by the Ministry of Public Works, Transport and Communications (MTPTC), collected 392,000 tonnes of solid waste in 2003. The other large towns did not have sufficient budget to manage this waste: the rate of collection in these towns varied from 7 to 40%. The waste was taken to “dépotoirs sauvages” (dumps), (in ravines, along the coastline, etc.). Non-controlled incineration of piles of waste was the rule in practically all municipalities, even close to residential areas. This led to constant air pollution in these areas, particularly in Truitiers, Cité Soleil, Damiens, Bon Repos and part of the municipality of Tabarre, as well as massive exposure to smoke, dioxins and other harmful substances. The implication of the Ministry for the Environment and the Ministry for Public Health in the application of standards was not very effective, or totally lacking, depending on the Municipalities. The SMCRS was characterised by (i) a state of under-equipment in terms of technical capacity and operating and investment funds; (ii) low performance regarding equipment maintenance; (iii) inadequate management with respect to the needs of the population.

### Hazardous (infectious and toxic) waste management

Annually, 2,500-5,000 tonnes of hazardous waste were produced in the Port-au-Prince metropolitan area (according to the Swedish Civil Contingency Agency - March 2010). The management of this waste was totally inadequate as regards collection, transport, treatment and final disposal, etc. Although there is practically no legal framework for healthcare waste management in the country, a strategic document for healthcare waste management, covering the period 2009-2014, exists.

### Wastewater management

In 2003, 40% of the population of Haiti lived in towns or cities. Most of the water used in built-up areas is transformed into wastewater and in one way or another returns to the natural environment without

**Table 12: Environment: damage and loss assessment summary**

Sector/ Sub-Sector	Damage US\$ million	Losses US\$ million
<b>Environmental Governance</b>		
MDE buildings and equipment; Archives and institutional memory; Demolition/cleaning work, Provisional operations and buildings	6.620	5.320
<b>Resource and Land Management</b>		
Watersheds; Domestic energy and Deforestation; Coastal and Marine Zones; Protected Areas and Biodiversity	10.520	9.420
<b>Pollution and nuisance</b>		
Solid waste; Sanitation; Construction debris; Hospital waste; Body disposal; hazardous toxic waste;	1.510	496.410
<b>TOTAL</b>	<b>18.650</b>	<b>511.150</b>

**Table 12b: Environment: summary of recovery and reconstruction needs**

Composante	18 months US\$ million	3 years US\$ million	Needs US\$ million
Environmental Governance	18.0	12.5	30.5
Resource and Land Management	68.5	380.8	449.3
Pollution and nuisances	265.0	473.0	738.0
Risk management	54.0	126.5	180.5
<b>TOTAL</b>	<b>405.5</b>	<b>992.8</b>	<b>1398.3</b>

any treatment. Haiti does not have any form of modern sewer network or wastewater treatment systems. Human waste ends up in toilets connected to septic tanks, pit latrines, latrines connect to rainwater drainpipes or simply on the ground. Septic tanks are usually emptied into waterways or in holes/dumps close to the towns.

### **Debris management**

Uncontrolled demolition, excavation and disposal of debris had long caused significant environmental damage, in particular by seriously compromising the availability of good quality drinking water in many sectors.

## **The impact of the earthquake**

### **Environmental governance**

A brief damage and loss analysis recorded for NEMS partners shows the following: (i) extensive destruction of buildings and equipment belonging to the MDE and several of its partners; (ii) substantial loss of technical capabilities and institutional memory, in some cases up to and including the virtually total disappearance of an institution (e.g. the National Centre for Geo-Spatial Information (CNIGS); (iii) the inability for the SNGE to operate or react in a way commensurate with its central position in the system.

### **Watershed management**

Terrain discontinuities have been observed, particularly in the municipalities of Jacmel, Léogâne, Bainet and Petit Goâve. Small hillside lakes have formed at altitude and new springs have appeared. It should be noted that there is a risk of water pollution from waste and the debris from collapsed houses. The risk of erosion has increased due to the increased instability of soil particles. The vulnerability of the population has increased due to the fact that some of the victims of the earthquake are sheltering on river banks, near ravines or close to the coast.

### **Management of coastal and marine zones**

At Grand-Goâve and Petit-Goâve, coastal landslides have caused seawater to move inland. In other places, opposite phenomena have been observed. Due the raised level of sea beds, coral reefs have emerged and can be seen above the surface of the sea.

### **Domestic energy and deforestation**

Following the earthquake, with the increased price of wood fuel, timber resources are more sought-after than ever and subject to additional pressure. This may lead to illegal land clearance in and around damaged towns and in provincial areas affected by movements of population in order to create farmland and meet additional food needs. It is very likely that pressure on timber resources will be felt in terms of demand for construction timber. There is therefore a real risk of worsening the degradation of land and reducing the quantity and quality of environmental goods and services such as water production, soil productivity, biological diversity and flood and erosion protection.

### **Protected areas and biodiversity**

In the protected areas, particularly in Parc Macaya, farmhouses have been damaged or destroyed. An increase in the population in buffer zones and increased prices for a sack of charcoal have been noted. This places greater pressure on certain productive ecosystems and biodiversity in protected areas. This pressure may take the form of an increase in the number of farmed plots within central areas, the use of trees to build new houses and the fragmentation of a certain number of habitats which could threaten the survival of the animal species living and breeding there.

### **Solid waste management**

The structural problems have been amplified in proportion to the consequences of the earthquake. There are piles of refuse lying in the streets, obstructing vehicular and pedestrian traffic. These block the

drains, making the towns affected highly vulnerable to flooding. As the mobile plant of the SMCRS has been damaged, it has become even more difficult to collect waste. The installation of camps in all empty spaces constitutes uncontrollable sources of pollution which complicate cleaning operations. In the provinces, migration of refugees has also caused an increase in waste production

### **Hazardous (infectious and toxic) waste management**

The rapid increase in healthcare waste was the first negative impact of the earthquake in the weeks immediately following the disaster. Infected wounds have increased and caused the production of a large volume of contaminated bandages and other related waste (syringes, etc.). An estimation by the Swedish Civil Contingency Agency (March 2010), considers 15-20% of healthcare waste to be infectious waste (drugs, chlorinated hydrocarbons and other chemicals and bacteria). These therefore represent huge risks for the environment and public health.

The lack of systems for waste management and the destruction by the earthquake of several hospitals (including ten in Port-au-Prince) responsible for incinerating healthcare waste at source have significantly complicated the situation. Infectious waste has been burned in the open air without being mixed with other types of waste. Amputated limbs have been burned or buried, often on the same sites as operational hospitals. In camps, the production of infectious waste is a source of concern. The mobile hospitals erected in some places to administer first aid to the many victims of the earthquake have produced a considerable volume of medical and hospital waste which has not been appropriately treated.

Elsewhere, cases of leaks and oil spillage from transformers connected to electricity generation and transfer have been observed. The quantity of oil to be emptied and stored has been estimated at 100,000 litres.

### **Waste water management**

The earthquake has significantly worsened sanitary conditions, especially so in the refugee camps where even minimum sanitary installations (such as pit latrines for example) are not available. Emergency humanitarian aid focuses on digging latrines and the supply of chemical toilets. However these solutions are not ideal. In many places, pit latrines are not appropriate due to a lack of space and also because the pits and containers need constant emptying. Furthermore, the effects of the rainy season, which will begin in April, will exacerbate these sanitary and environmental problems.

### **Debris management**

According to the Haiti Earthquake organisation, the earthquake produced some 40 million m<sup>3</sup> of debris. Loose debris is currently being stored at random and without control, creating obstructions in streets and making access to humanitarian aid difficult.

Furthermore, debris represents a threat to the population and the environment in 4 ways:

- (i) Solid waste and disposal practices: the ad hoc location of debris has led to deterioration in disposal practices, leading the population to mix domestic waste with urban debris.
- (ii) Hazardous/polluting materials beneath debris: fuel, ammonia, pesticides, lead, heavy metals, medical waste, asbestos etc. may all be mingled with the debris.
- (iii) Decomposed human remains beneath the debris: ruins also conceal bodies which, in the absence of an appropriate and urgent response, will increase the risks of soil contamination and the deterioration of water sources (both surface and underground water).
- (iv) Disruption of wastewater drainage: blockages caused by debris in the wastewater drainage system are an additional problem which must be addressed as the rainy and hurricane season approaches. Landslides will also exacerbate the problem of blocked drains and endanger vulnerable populations, particularly in camps.

**Damage and losses with respect to the Environment and Disaster Risk Management, and needs relating to recovery and reconstruction.**

### Damage and losses

Many public institutions related to the different aspects of the environment have been damaged or destroyed. These are: the Ministries of Public Works, the Environment and of Public Health; and municipal administrations (Municipalities of Port-au-Prince, Gressier, Léogâne, Grand Goâve, Petit Goâve and Jacmel). Fortunately, damage to technical materials and equipment is fairly limited. The following table presents an assessment of the principal damage and loss in this regard.

### Recovery and reconstruction needs

The needs and challenges have been recognised in order to respond to the emergency as well as to the requirements of restructuring governance systems, pollution and nuisance control, resource and land management and disaster risk management.

In the short term, the issue is one of providing an answer for recognised problems which are threats to the environment and the safety of individuals, as well as supplying the State of Haiti with the resources to apply them. In the medium and long term the issue is one of providing systemic, technical, human and financial support for reconstruction needs and new development strategies. The following table sums up the needs identified for the sub-sectors reviewed:

### Strategy

The recommended strategy is structured around 3 main avenues of intervention in the short, medium and long term.

### Environmental governance

The general objective is to drive a vision, co-ordination, and the will to adequately manage the environment in Haiti by the recognition of the principles that govern the protection of natural resources and environmental management. In particular, this implies effective sharing of collective responsibility under the leadership of the Ministry with this mandate (MDE). In the short and medium/long term, the specific operational objectives are as follows:

- Strengthening MDE infrastructures. In the short term, the objective is to set up a temporary operational infrastructure for the MDE. In the medium/long term the objective is to rehabilitate the MDE infrastructure (including the ONEV).
- Strengthening the human capacity of the MDE. In the short term, the objective is to set up an emergency cell in the MDE to enable the participation of the Ministry in the efforts to identify the circumstances requiring its attention and its involvement in interministerial decision-making bodies. In the medium/long term, the objective is to strengthen the operational capability of the MDE and its key partners.
- Strengthening the NEMS consensual framework. In the short term, the objective is to be actively involved alongside civil society in coordination and planning bodies for the recovery and reconstruction process. In the medium/long term the objective is to pursue, adjust and make permanent the consultation and participation mechanisms set out in the Decree.
- Strengthening the legal framework. In the short term, the objective is to draw up an ad hoc environmental management framework for reconstruction. In the medium/long term, the objective is to strengthen the normative and regulatory framework, in particular as regards the inclusion of variability and climate change in the national development policy and in sectoral policies, as well as drawing up environmental impact studies.

### Resource and land management

The general objective is to contribute to effective and efficient management of the environment and natural resources on a national, regional and local level, with respect to the strategic areas constituted by watersheds, protected areas and coastal and marine zones.

The overall objective relating to this avenue has been detailed with respect to three timescales:

- **In the short term**, the specific objective is to reduce the environmental vulnerability of zones

affected by the earthquake in readiness for the hurricane season.

- **In the medium term**, the specific objective is to ensure effective and efficient management of watersheds, protected areas and coastal and marine zones by the national, regional and local authorities.
- **In the long term**, the specific objective is to supply the population with a living environment in which the environment and natural resources are sustainably regenerated.

### Pollution and nuisance control

The overall objective of this avenue is to ensure pollution and nuisance control in an integrated manner with a view to establishing the basic conditions for a safe, healthy environment in an urban setting and in the countryside. This is set out on three timescales:

- **In the short term**, the specific objective is to provide a framework for and/or implement emergency measures on an institutional and operational level with a view to reducing pollution and nuisances directly caused by the earthquake of January 12, 2010.
- **In the medium term**, the specific objective is to support systemic, technical and human measures in order to assist the process of reconstruction by protecting the population and the environment from all pollution and related nuisances.
- **In the long term**, the specific objective is the optimisation of measures aimed at sustainable development through the consolidation of integrated systems for the control and management of pollution and nuisances.

Details of expected results, activities and indicators for the short term are presented in the environment table.

## Risk and disaster management

Disaster risk management (DRM) is not a separate sector but a cross-cutting theme with 2 objectives: (i) protecting populations and property, (ii) protecting physical capital (infrastructures, equipment, etc.). These objectives are a condition for the continuity and sustainability of the development process. All stakeholders must contribute to them: (i) A unifying and regulating State, which is decentralised and sector-based, serving the interests of the nation, (ii) A responsible civil society, capable of giving itself structure, organising and mobilising itself in order to limit the impact of disasters, (iii) An innovative private sector capable of adapting itself and changing direction in order to take hold of opportunities to protect physical capital. These principles are set out in the National Disaster Risk Management Plan (NDRMP, 2001), but their implementation remains limited. Efforts to date are focused on protecting life (especially with respect to hydro-meteorological hazards), with positive results. Pursuing the work for the protection of life and engaging work for the protection of physical capital constitute institutional, organisational and operational challenges. The guidelines for priority interventions are situated in 4 areas: (i) knowledge of hazards (natural and others), (ii) clarification of the roles and responsibilities of the main public and private participants (legal framework, standardized tools, etc.), (iii) the organizational and operational capabilities for preparation and response of the sector ministries and specialist bodies (e.g. fire service, regional GRD committees), (iv) sectoral capabilities in risk analysis, planning, and monitoring/assessment for the protection of physical capital. All of these actions are aimed at defining and implementing a national culture of prevention which in turn is aimed at the transition from a country living at risk to a country that knows how to live with risk.

### Situation before the earthquake

Disaster risk management (DRM) was dealt with systemically in Haiti in order to ensure the participation and responsible involvement of all stakeholders, as set forth in the NDRMP (validated in 2001). The application of the NDRMP focused primarily on strengthening the capability for protecting populations. Following the hurricane season in 2008, efforts began for the protection of physical capital. The state of the NDRMS prior to the earthquake was characterised by the following strengths and weaknesses:

- a) **Tangible results in terms of preparedness and response:** The efforts to make the public aware, the early warning and evacuation system, training of local capabilities, etc. enabled losses of human life to be considerably reduced in the face of hydro-meteorological hazards. Whilst hurricane Jeanne and a local depression caused 5,000 deaths and 300,000 injuries in 2004, the consecutive arrival of 4 hurricanes in 2008 caused fewer than 800 deaths and 1,000,000 injuries<sup>8</sup>. An increase in operational capabilities would improve these results. One of the priority needs relates to the fire brigade, which is administered by the Ministry of Justice and Public Security and is supervised by a chief of police, within the National Police Department (DGP). There are one hundred and twenty professional fire-fighters (there are no volunteer fire-fighters), one per 70,000 inhabitants; half also perform police duties. Other priorities: (i) strengthening local capabilities in emergency medicine and pre-positioning of vital commodity requirements, (ii) installation of early warning systems in priority watersheds, (iii) business continuity plans for the private sector.
- b) **Limited knowledge of hazards:** The hydro-meteorological monitoring system, consisting of two equipped stations and a network of volunteers, is insufficient for the 13 known micro-climate zones. With regard to the seismic hazard, the network is also under equipped and does not allow a scientific approach to be applied. A similarly alarming situation exists with regard to climate change. This lack of primary data and processed information constitutes a major obstacle for DRM, with consequences both on strategic decision-making (such as regional planning) and the scheduling of operational reinforcement. Lastly, the lack of detailed hazard maps at the level of municipalities represents an obstacle for decisions to be taken at the local level.
- c) **An insufficient legal framework, weak political coordination, and reduced involvement of sectoral ministries:** The Ministry of the Interior and Territorial Communities (MICT) is the only institution with organic law in this respect. It is responsible for the protection of citizens and property via the Civil Protection Department (DPC) but its mandate for coordinating is too limited on a political level. Consequently, all the decision-making, operational and consultative bodies provided for in the NDRMP are weak on an operational level, with decisions taken by the sectoral ministries. This often leads to too much responsibility weighing on the DPC and improvisation of ministerial action in the wake of a disaster. The legislation on the protection of physical capital is very recent and inadequate.
- d) **Few measures regarding the protection of physical capital:** Although the results relating to the reduction of the loss of human life are encouraging, there are more social and economic losses (7% of GDP following hurricane Jeanne in 2004, 15% of GDP following the 4 hurricanes in 2008 and 100% of GDP following the earthquake in 2010). In 2009, following the impact of the hurricane season, the Ministry of Planning and External Cooperation (MPCE) set up a vulnerability reduction unit with the intention of strengthening sectoral capabilities for protecting physical capital. These capabilities will be in charge of analysing the risk and incorporating prevention measures in the current programming, as well as monitoring and assessment.
- e) **A regional network in place, structured around local authorities:** the NDRMS has extensive presence locally: (i) the 10 departments have a committee managed by a delegate, supported by a manager from the Civil Protection Department (DPC), (ii) over 100 of the 135 municipalities have a committee, managed by the mayor, (iii) some 100 of the 565 municipal wards have a committee managed by the local authorities. These regional DRM committees are made up of local public, private and international stakeholders and form a major asset for applying the NDRMP's principle of subsidiarity. However, these committees do not always have a consistent set of systematic practices (protocols, procedures, tools and other operational coordination mechanisms) enabling them to respond adequately to a large-scale catastrophe. As to risk management, which aims to incorporate measures relating

<sup>8</sup> According to the DPC and post-disaster assessments conducted by the CEPALC(2004) and the PDNA (2008).

to risk mitigation and prevention, rehabilitation and early recovery, the tools need to be developed.

### Impact of the earthquake on disaster risk management

The earthquake on January 12, 2010 engendered an unprecedented crisis, with the entire country being affected. The loss of human life and the social and economic impact have been disproportionate compared to the intensity of the event (by comparison, the 2004 tsunami affected seven countries and resulted in almost 220,000 victims.) In addition to the needs already identified in the NDRMS, the earthquake has weakened existing capabilities and created new needs. These arise from the weakening of the functions and visibility of the National Disaster Risk Management System (NDRMS).

The NDRMS has sustained heavy losses in human and material resources. By way of an example, the buildings of the Ministry of the Interior housing the emergency operations centre and the DPC have been destroyed; the Port-au-Prince fire station was seriously damaged by the earthquake: it needs complete

rebuilding. The damage relates solely to public administrations simply because there are no private equipment or capabilities in this field.

### Summary of damage and losses

Table Disaster risk management: damage assessment <sup>9</sup>	
Components	Damage Assessment
Civil Protection and COU	3 500 000
DPC buildings	3 000 000
Emergency Operation Centre (COU)	500 000
Fire Brigade	3 000 000
Buildings and equipment	3 000 000
Sectoral Capabilities	50 000
Vulnerability Reduction Unit (CRV)	50 000
<b>TOTAL</b>	<b>6 550 000</b>

The National Disaster Risk Management System (NDRMS) suffered major damage in terms of both human and material resources. The damage is estimated at US\$ 6,550,000 with regard to buildings and non-operational equipment. There is no estimation of losses since there is no shortfall to be made up as regards risks and disasters.

The DPC is currently housed in a rented office, pending provisional offices and the reconstruction of appropriate premises. Following the earthquake, the Government has created provisional mechanisms to face the crisis and coordinate interventions. The political coordination of the NDRMS is weak, which affects its support for the Government in crisis management. The very limited operational capabilities of the sectors and their vulnerability have also constituted a salient point which has emerged as a result of this disaster.

**Vulnerability in terms of disaster risk management will be even more pronounced:** with over 250,000 buildings destroyed or damaged, there are some 660,000 people affected who have been moved towards their areas of origin (the majority of which had been hit by the hurricanes in 2008), and over one million homeless people in the Ouest department. The sometimes badly-planned post disaster effort (camps in flood areas, drains blocked by debris, etc.) and the survival strategies (use of charcoal) have also contributed to increasing vulnerability in the face of the approaching rainy and hurricane seasons.

<sup>9</sup> Although they have DRM functions, the damage and losses incurred by ministries have not been accounted for here to avoid duplication of costs.

**Table 14: Vulnerability and actions to reduce vulnerability**

<b>Environmental vulnerability</b>	Reducing the deterioration of the environment and increasing the resilience of ecosystems in order to contribute to the priorities of disaster risk reduction (DRR) and adaptation to climate change (adaptation based on ecosystems). Examples: Developing watersheds in such a way as to combat erosion and flooding; Managing mangrove swamps in order to protect coastal zones.
<b>Economic vulnerability</b>	Minimising loss of productivity and competitiveness in sectors which generate revenue (agriculture, fishing, commerce, industry, tourism); fighting against the increase of unemployment and the development of an informal economy; transferring financial risk; establishing business continuity plans.
<b>Vulnerability with respect to governance</b>	Strengthening crisis governance mechanisms and tools to enable rapid transition to a development agenda; drawing up and implementing a regional development policy
<b>Infrastructure vulnerability</b>	Protecting civil engineering infrastructures (transport, communication, energy, water and sanitation); maintaining availability of and access to services.
<b>Social vulnerability</b>	Preventing deterioration of the population's living conditions (housing, health, education, food security), particularly for vulnerable persons; settling displaced persons in their areas of origin

**Table 15: Disaster Risk management, summary of recovery and reconstruction needs, US\$ millions**

Components	Items	Short Term (6 months)	Medium Term (18 months)	Long Term (3 years)	TOTAL
<b>Disaster Risk Management (DRM)</b>	Risk identification	8.0	11.0	22.7	<b>42.0</b>
	Protection of human life	28.0	11.7	23.3	<b>63.0</b>
	Protection of investments	18.0	103.3	206.7	<b>328.0</b>
	Legal framework		0.5	0.5	<b>1.0</b>
<b>GRAND TOTAL</b>		<b>54.0</b>	<b>126.8</b>	<b>253.1</b>	<b>434.0</b>

**The earthquake underlines the lack of control of urban issues in Haiti:** on a regional level, the earthquake demonstrated the limit of response capabilities to emergencies, particular in urban environments, and to non-climatic threats. The regional committees in urban environments require organisation, skills and equipment to enable them to face the complex dynamics of the neighbourhoods. What worked for the disasters in 2007, 2008 and 2009 was designed for a rural setting. These functions must be adapted to suit an urban environment. Lastly, the occasional interventions to mitigate damage undertaken by the committees must be renewed and reinforced very quickly, particularly due to the approaching 2010 hurricane season, worsened by the effects of the earthquake on the hillocks above Port-au-Prince and Léogâne.

Adjustment of the legal framework and development of normative tools are necessary to clarify the roles and responsibilities of public, private and international stakeholders. Currently, too many infrastructures and equipment are exposed to risks, jeopardising the achievements of previous generations, and the sustainability of the development process. In particular, the absence of regional planning, which has led to 66% of GDP and 39% of the population being concentrated in the same department, cannot go on. In addition to the functions of the State, the earthquake has brought to the fore the need to create a culture of risk within the nation, with, for instance, measures aimed at the following: (i) sectoral development programmes (building code, maintenance budgets, insurance schemes, etc.), (ii) the educational curriculum (first aid, behaviour in the event of an emergency, etc.) and professional training (techniques, applications, resilient materials suited to the national situation), (iii) regional planning (identification of risk areas, use of suitable standards, regionalisation according to potentials and risks, etc.).

## Strategy

In terms of **disaster risk management**, the issue is both institutional, operational and organisational. The post-earthquake needs fall into 4 areas of intervention: (i) knowledge of hazards (natural and others), (ii) clarification of the roles and responsibilities of the main public and private participants (legal framework, standardized tools, etc.), (iii) the organizational and operational capabilities for preparation and response of the sector ministries and specialist bodies (e.g. fire service, regional GRD committees), (iv) sectoral capabilities in risk analysis, planning, and monitoring/assessment for the protection of physical capital. The final objective is to protect populations, property and investments from various external shocks. In the short and medium/long term, the specific objectives are as follows:

### **Making national stakeholders responsible through an appropriate legal framework**

This involves emphasising the reinforcement of the legal basis for the National Disaster Risk Management System (NDRMS) by proposing in particular the adoption of two bills. The first would relate to promoting the Civil Protection Department (DPC) making it into a National Department within the Ministry of the Interior so that it can fully assume its role of coordinating the protection of life and property. The second bill would be for the creation of an independent National Fire and Rescue Department in order to provide the necessary foundations for their rescue work, the latter presently being part of the Ministry of Justice and Public Security. In the medium and long term, the legal framework needs adjusting to clarify the roles and responsibilities of stakeholders (public, private, civil society) so that each stakeholder can play their part and the decision-making process can take into account the different factors of vulnerability.

The emergency law needs revising rapidly and the necessary provisions made for crisis governance with a view to the 2010 hurricane season followed by the period of reconstruction.

In the medium and long term, the NDRMS needs to acquire a status in law and the organic laws of the ministries need revising to clarify their roles and responsibilities and set up a national fire and rescue department.

### **Strengthening preparedness and response capabilities to make the institutions and players**

**concerned more operational:** In the short term, the following need reinforcing: the operational structures of the DPC and fire brigade, to enable a more efficient response to a major crisis. In addition, the contingency plans for vulnerable persons, in particular displaced and homeless persons, need adjusting (supporting their relocation if necessary); drawing up sectoral contingency plans, raising awareness in the population, training technical managers, reinforcing the fire brigade, reinforcing the regional DRM committees, in particular with a view to preparing the 2010 hurricane season.

In the medium and long term, the action capabilities of all stakeholders, from professionals to ordinary citizens, must be supported in order to reduce the impact of external shocks on populations and property. In addition the issue of risks and disasters should be included in the school curriculum; equipping the fire brigade with suitable operational resources (training, equipment, budget); strengthening sectoral capabilities on a local level.

**Developing the knowledge of risks in order to enable identification, analysis and support for decision-making by general and sectoral governance:** in the short term, this involves aiming at the installation of monitoring systems and developing risk maps with the National Centre for Geo-Spatial Information. In the medium and long term, the work will consist of developing scientific capabilities for processing and analysing data, producing decision-making tools and networking the different existing Observatory initiatives (environment and vulnerability, poverty and social exclusion, food safety, etc).

**Including prevention and risk and damage mitigation measures in sectoral programmes for the protection of physical capital and fostering the reconstruction process:** in the short term, this will involve developing normative and strategic tools (incorporating climate change). A response should be given to the approaches which constitute risks for the reconstruction programmes, with decisions

directed to enabling anticipation and consolidation measures. In the medium and long term, capabilities will need to be put in place within the sectoral ministries to manage the threats to the environment and safety of individuals, as well as to supply the State with the means of applying them. Efforts will be made to provide systemic, technical, human and financial support for the process of reconstruction and to direct the programming of development strategies. Following approaches to the stakeholders from civil society and the private sector, the objective will be to develop a national culture of risk reduction. Again in the medium and long term, efforts will be made to establish the sectoral capabilities (centrally and locally) for analysis, planning, monitoring and assessment of risks and disasters, to include these issues in the higher education curriculum and in chambers of trade and the private sector, as well as to develop risk transfer measures (such as insurance).

### **The cross-cutting nature of Disaster Risk Management**

DRM is a cross-cutting issue, the result of which is determined by the actions of each stakeholder. Through their actions, they can either increase the level of vulnerability, or help reduce it. Rather than being seen as a problem, DRM must be seen as an opportunity to change the current way of doing things by stakeholders in favour of the following: (i) a unifying, regulating State, which is decentralised and sector-based, serving the interests of the nation, (ii) a responsible civil society, capable of giving itself structure, organising and mobilising itself in order to limit the impact of the disasters, (iii) an innovative private sector capable of adapting itself and changing direction in order to take hold of opportunities to protect physical capital.

## **Social sectors**

### **Health**

#### **The situation before the earthquake**

The health situation in Haiti was the worst in the region, with a maternal mortality rate of 630 per 100,000 and infant mortality of 57 per 100,000. Around 47% of the population has no access to health care. The health system is fragmented, highly unfair (6% of the poorest women give birth in health care institutions, compared with 65% among the most well-off) and highly inefficient, with expenditure of 32 USD per capita per year and poor health outcomes for expenditure of this level. The income barrier plays a key role in access to healthcare due to the fee-for-service arrangement. There is a major lack of human resources, both in terms of quantity and quality. The national health authority is unable successfully to fulfil its organisation, regulation and service provision role.

#### **Impact of the earthquake**

Within the disaster zone, 30 out of 49 hospitals have been damaged or destroyed. The ability of the health care system to respond has been permanently affected by the destruction and service delivery is disorganised, with 50% of staff living in tents. The intervention of a number of NGOs has meant that the Ministry is unable to fulfil its leadership role, primarily because its main building has been completely destroyed. Nevertheless, 90% of health centres remain intact or have only suffered light damage.

Almost 600,000 people have moved to departments not affected by the earthquake, significantly increasing pressure on the host population and local health care services.

The ability of the health care system to respond has been permanently affected. The earthquake has had a major impact on health care staff, with more than 50% living in tents, leading to disorganised service delivery. Although the arrival of NGOs has improved access to health care, it has made the Ministry's leadership role more difficult, especially as its main building was completely destroyed in the earthquake. The loss of its main building has had a directly proportional impact on its leadership capacity. However, it is important to note that 90% of health centres and clinics remain intact or have only suffered light damage, providing an excellent network through which to implement a community-based health strategy.

Component	6 months (Million US\$ )	18 months (Million US\$ )	3 years (Million US\$ )	Needs (Million US\$ )
Health	283.0	500.0	708.0	1,491.0

Table 16: Health - summary of damage sustained by type of structure

Level of damage by type of structure	No damage or very little damage	Light damage	Severe damage	Completely destroyed	Total
Secondary and Tertiary Hospitals	14	5	22	8	49
Health Centres and clinics	215	38	12	9	274
MPSS and other admin. buildings	4	8	1	10	23
University and training institute	23	2	3	19	47
<b>Total</b>	<b>256</b>	<b>53</b>	<b>38</b>	<b>46</b>	<b>393</b>
<b>Total as a percentage (%)</b>	<b>65</b>	<b>14</b>	<b>10</b>	<b>12</b>	<b>100</b>

Table 17: Health: - summary of damage

Description of damage	Total (Million US\$ )	Public (Million US\$ )	Private (Million US\$ )
Infrastructure	148.8	70.3	78.5
Equipment, supplies, etc.	43.8	22.4	21.3
Drugs and consumables	3.9	1.9	2.0
<b>TOTAL</b>	<b>196.6</b>	<b>94.6</b>	<b>101.9</b>

Table 18: Health - summary of losses

Description of losses	Public (Million US\$ )	Private (Million US\$ )	Total (Million US\$ )
<b>Infrastructure</b> - cleanup and temporary infrastructures	19.2	24.7	43.9
Health Care Human Resources - replacing the workforce (dead, displaced, missing) and loss of productivity (absenteeism)	12.1	9.9	22.1
<b>Drugs and technologies</b> – costs associated with unusable equipment and the destruction of unusable drugs	9.8	7.8	17.6
<b>Financial Access to Health Care</b> - lost profits due to free health care provision and loss of funding from the government budget	32.5	12.0	44.5
<b>Medical interventions/impact on health</b> (fight against HIV/AIDS, vaccination, vector control, psychosocial support, medical and nutritional support, disabled people, service improvements)	114.0	31.7	145.7
<b>TOTAL</b>	<b>187.6</b>	<b>86.2</b>	<b>273.9</b>

### Estimate of damage and losses

All three levels of the health care system have been examined, with a separate assessment of the public sector (including the private, non-profit sector) and the private sector. The Ministry of Health buildings and training institutes are also included.

Total losses in the public sector are an estimated 188 million USD. Assuming that the government will cover 35% of the budget with tax receipts, the total impact is 66 million USD. Spread over three years, the fiscal impact per year is 22 million USD. Given that 90% of reconstruction materials will have to be imported, the estimated impact on the balance of payments is 227 million USD.

### Strategy

The strategy involves making major changes to Haiti's health care system. The new system will be based on two key principles: (i) a social contract that guarantees access to a set of services for all, based on the principle of primary health care, and (ii) the provision of high-quality health care services. The restructuring process will go hand-in-hand with the emergency response programme. Eventually, the system will be designed to guarantee access to services for vulnerable groups, both existing (before the earthquake) and new. Four strategic aims have been identified:

- Redefining the service package at each level of care and reorganising the system, including inter-sectoral community strategies (health, fight against HIV/AIDS, nutrition, water and sanitation);
- Improving governance and introducing a performance-based solidarity funding system;
- Channelling significant investment into human resources;
- Improving the way in which material inputs and essential drugs are managed and improving patient transport and communication resources.

Ensuring that all vulnerable groups and people affected by the earthquake have access to a set of services is a key outcome of the restructuring programme. This will involve: (i) improving service provision throughout the country by promoting free health care, rehabilitating institutions (particularly in Ouest, Jacmel and Gonaïves) and guaranteeing a ready supply of drugs and qualified, paid staff; (ii) promoting a front-line institution community health policy; (iii) narrowing the gap in access to health care between the first and fifth quintiles.

## Education

### The situation before the earthquake

Education service provision is both insufficient and unequal. The majority (90%) of services are provided through the non-public sector. The system is very poorly regulated and the State does not fulfil its central management role satisfactorily. School attendance rates are low (22% at secondary school and 10% in higher education). However, the primary school attendance rate is much higher, at 76%. The system performs poorly: the rate of return is 45% in primary and secondary education and 20% at university level, with major differences in discipline choices between men and women. Professional training is fragmented (managed by eight different Ministries), lacks regulation and has obsolete programmes. Higher education operates within a specific legal framework that fails to take the country's development needs into account. 38% of those aged 15 and above are illiterate (41% among women). The informal education system (including adult education) is managed in a fragmented way by the ministry and its relationship with the formal system is poorly defined. The country's education programmes include hardly any technical and scientific streams, resulting in a lack of human resources in fields that are critical to the country's development.

### Impact of the earthquake

The region affected by the earthquake was home to almost 50% of the country's total school and university population (90% of students are located in Port-au-Prince). Loss of staff and

**Table 19: Education: establishments destroyed or damaged (Ouest, Sud-Est and Nippes departments)**

	Ouest			Sud-Est			Nippes			Total		
Level	Tot.	Dest.	Dam.	Tot.	Dest.	Dam.	Tot.	Dest.	Dam.	Tot.	Dest..	Dam.
Pre-school	149	52	97	20	8	12	0			169	60	109
Primary	2,502	825	1,677	171	19	152	127	5	122	2,800	849	1,951
Secondary	1,180	396	784	35	3	32	18	2	16	1,233	401	832
Professional	17	17	0	0						17	17	0
Higher	49	25	24	0			0			49	25	24
<b>Total</b>	<b>3,897</b>	<b>1,315</b>	<b>2,582</b>	<b>226</b>	<b>30</b>	<b>196</b>	<b>145</b>	<b>7</b>	<b>138</b>	<b>4,268</b>	<b>1,352</b>	<b>2,916</b>

**Table 20: Education - summary of damage and losses**

Components	Damage (US\$ million)		Losses (US\$ million)	
	Public	Private	Public	Private
<b>INFRASTRUCTURE*</b>	<b>33.5</b>	<b>363.0</b>		
Buildings destroyed	20.2	222.2		
Buildings damaged	13.2	140.7		
<b>EDUCATIONAL EQUIPMENT</b>	<b>7.6</b>	<b>74.7</b>		
Equipment in destroyed buildings	4.3	36.9		
Equipment in damaged buildings	3.4	37.8		
<b>TUITION FEES (18 months)</b>			<b>6.1</b>	<b>75.4</b>
(Of which unknown salaries in the non-public sector)				51.7
<b>TEMPORARY EDUC. PROGRAMMES</b>			<b>1.3</b>	<b>60.0</b>
Reliance on ministry activities: relocation, reallocation of resources			1.3	
Provision of temporary shelters, training and psychosocial support in schools				60.0
<b>CLEANUP / DEMOLITION</b>			<b>0.5</b>	<b>4.6</b>
Buildings destroyed			0.2	1.4
Buildings damaged			0.1	1.3
Losses associated with missing teachers**			0.2	1.9
<b>TOTAL</b>	<b>41.1</b>	<b>437.7</b>	<b>7.9</b>	<b>140.0</b>
* Unit costs are detailed in the estimates in the appendices to this document				
**Additional pay for replacement teachers over a period of 18 months				

Component	6 months (Million US\$ )	18 months (Million US\$ )	3 years (Million US\$ )	Needs (Million US\$ )
Education	449.3	465.4	1,685.1	2,599.8

infrastructures is also a barrier to the immediate reinstatement of educational activities. Population displacement to other departments has placed additional demands on existing education provision. Educational demand has itself been disrupted by the upheavals that families affected by the earthquake have experienced. The majority of damage to the education sector is in the form of destroyed or damaged buildings. Most of this damage has been sustained by the private sector (363 million USD sustained by the private sector, out of total building damage of 396.6 million USD).

The metropolitan area is home to 1,769,972 pupils/students, which is almost 50% of the country's total school and university population. Education establishments in this area have suffered significantly from the earthquake, especially higher education establishments, with 90% of students located in Port-au-Prince.

Population displacement to other departments places additional demands on the education infrastructure and staff in departments receiving an influx of migrants (82,000 pupils). Loss of staff is also a barrier to the immediate reinstatement of educational activities.

### **Estimate of damage and losses**

The cost of destruction or damage to establishments at all levels of the system and to equipment is estimated at 478.9 million USD. The cost of losses is 147.9 million USD.

### **Impact on communities, children and young people:**

The disaster on 12th January has had a devastating impact on the ability of Haitian families to meet the immediate educational needs of their children. In February 2010, the Education Sub-Committee conducted a survey for the PDNA among 860 families living in camps in the four communities of the Ouest department. The results of this survey were as follows: 71.6% will no longer be able to live in their former homes; 17.5% of families stated that they had at least one member in work (compared with 66% before the earthquake); family structures have undergone major changes; and one in five families includes at least one parent killed by the earthquake. As a result of this situation, the risk of short-term disruption to educational demand is high, threatening the current academic year and placing children in an even more vulnerable position.

### **Strategy**

The State must find long-term solutions to transform a system that is currently unfair and ineffective.

In the short-term, this will involve ensuring that the administration returns to full working order and that children in the affected areas return to school, as well as incorporating displaced pupils and students. A number of social protection measures will be put in place to help families, including conditional payments and bursaries to guarantee fairer access to education services. Support will be provided to non-public schools (staff wages/salaries, temporary shelters). This support will be offered to all establishments for a period of six months. It will then be provided on a contractual basis. Reconstruction standards will need to take account of the country's vulnerability to risks and provide employment opportunities. There are plans to introduce short-term training programmes for young people outside the education system, so that this group can also make a contribution to the rehabilitation work. Particular attention will be paid to psychosocial support and to the protection of vulnerable groups. Life skills education (including HIV/AIDS prevention) will be strengthened in school curricula. Municipalities and community organisations will need to be involved.

The process of restructuring the system involves reorganising the system itself, strengthening its capacity and introducing an effective regulation system. The State must gradually take greater control of education provision and must aim to provide free primary education for all by 2020. Improvements will also be made to early childhood, secondary, professional and higher education. This requires an increase in public investment, redesigned education programmes and partnerships with the socio-economic sector. In the medium term, an education information system will need to be introduced, including a map of all schools and the necessary education infrastructures. An educational establishment accreditation system will need to be introduced, the partnership framework agreement with the non-public sector will need to be revised and the necessary infrastructures will need to be put in place.

Incorporating risk reduction and disaster management into the education sector will involve focusing on the following elements: protecting school buildings and rebuilding destroyed schools to natural disaster standards, incorporating risk management into the school curriculum and improving risk management training in higher education.

## Food Security and nutrition

### Situation before the earthquake

Prior to the earthquake, Haiti had among the highest levels of starvation and malnutrition in the Americas. Despite imports and international aid, an estimated 3.8 million people, or 40% of households, lived below the poverty line and lacked the means to cover their basic food needs. 30% of children suffered from chronic malnutrition, with an economic cost of at least 1.2 billion USD, or 30% of GDP. The country has no wide-scale integrated nutrition and food security programmes and the public bodies responsible for this sector lack the necessary human and institutional resources. Furthermore food insecurity, combined with low purchasing power, an inadequate production sector and unstable sources of income, has left households more vulnerable to economic or social crises. The riots that took place following the price rises in 2008 demonstrated how households are unable to cope with an increase in the cost of living. These riots, which resulted in the Prime Minister's resignation, also showed that food insecurity is a key factor in the country's social and political stability.

### Impact of the earthquake

The earthquake has aggravated the structural problems that existed beforehand, further reducing the government's ability to deal with the situation. In the regions affected by the earthquake, the percentage of households suffering from food insecurity has risen from 40% to 52%. Worryingly, this inability to meet food needs in terms of both quantity and quality is particularly pronounced among pregnant and breastfeeding women and very young children. More than half of all households are severely indebted following the earthquake. 95% of this debt is related to the purchase of food. There is evidence that many households have also sold their possessions to buy food. Furthermore, almost one third of households lost their entire food stock in the earthquake, equivalent to a value of 12 million USD. Moreover, an estimated 600,000 people have left the areas directly affected by the earthquake, placing additional pressure on the host communities. The cost of the increase in malnutrition is estimated at 35 million USD.

Component	6 months (Million US\$ )	18 months (Million US\$ )	3 years (Million US\$ )	Needs (Million US\$ )
Nutrition	21.0	299.1	399.5	719.6

Table 21: Food security and nutrition: summary of damage

Description		Total (Million US\$ )	Public (Million US\$ )	Private (million USD)
Infrastructure	Administrative buildings destroyed or out of use	2.5	2.5	0.00
Equipment and supplies		292.5	0.00	292.5
Domestic equipment including food stock				
Total		295.0	2.5	292.5

Table 22: Food security and nutrition: summary of losses

Description: type of Losses	Total (Million US\$ )	Public (Million US\$ )	Private (million USD)
DALYs (Nutrition)	35	0	35
Total	35	0	35

## Estimate of damage and losses

### Estimated damage

A very cautious estimate of total damage in terms of lost domestic possessions (household appliances, telephones, etc.) is 250 million USD.

### Estimated losses

Almost one third of households lost their entire food stock in the earthquake, equivalent to a value of 12 million USD. A cautious estimate calculates the increase in malnutrition at 8,000 disability-adjusted life years (DALY), a total loss of 35 million USD.

### Reconstruction strategy

In order to tackle the problems in this sector, the government plans to focus on reducing food insecurity and preventing malnutrition. In the very short term, it will introduce a “safety net” programme targeted at households suffering from food insecurity in areas affected by the earthquake. There are also plans to introduce a fully-functional early warning system (EWS) and to create and maintain a decentralized food storage network holding at least 35,000 tonnes of food for disaster purposes.

In the medium and long terms, the strategy will involve guaranteeing access to a regular food supply for the rural population, primarily by increasing support for small producers. It will also involve resolving existing nutritional deficiencies in urban and rural areas and protecting vulnerable groups (children, pregnant and breastfeeding women, etc.) through school-based food programmes and conditional payments. The programme will also include measures to reconstruct buildings and to recover and redeploy human capital, which has been affected by the earthquake.

### Reconstruction requirements

Since the earthquake, 180 million USD in funding has been received through the Humanitarian Appeal. More than 14,000 tonnes of rice have been handed out to 2.9 million people in the Port-au-Prince area. In addition, specially-targeted products containing added micronutrients have been supplied to 421,000 vulnerable people. There are currently more than 160 nutrition recovery centres in operation across the country. Taking account of the emergency response funding already provided, tables below detail the funding targets required to resolve the nutritional deficiencies identified. This represents a total of 719,600,000 USD. Table sets out the long-term objectives (10 years):

## Drinking water, sanitation and hygiene

### Situation before the earthquake

Prior to the earthquake, drinking water coverage was poor in both urban (70%) and rural (51%) areas, according to 2008 data (WHO/UNICEF JMP). These figures date to before the series of hurricanes in 2008 that had a severe negative impact on water supply service. In rural areas, for example, around 250 water supply networks affected by the hurricanes remain unrepaired. Furthermore, in the Port-au-Prince area, a large portion of the population relies on the private sector for access to drinking water (water sold in bottles or bags, for example). In structural terms, water resources are exploited in an anarchic manner and there is a lack of water quality monitoring systems. The sector's major weaknesses are a lack of adequately-trained human resources and rural network management, with these networks often managed by volunteers instead of paid professionals.

The sanitation sector has suffered from low-priority status from the authorities, with access levels of 29% in urban areas and 12% in rural areas prior to the earthquake.

Waste collection is ineffective and many households in Port-au-Prince use private sector services. In other cities, the local council and the Ministry of Health are responsible for collecting and processing waste. It is estimated that only 52% of waste in the Port-au-Prince metropolitan area is collected. In the country's 10 largest urban areas, around 17% of waste is collected by municipal services. The sector's main weaknesses are poor general management, insufficient budgetary funding, a lack of pricing systems

Component	6 months (Million US\$ )	18 months (Million US\$ )	3 years (Million US\$ )	Needs (Million US\$ )
Water and sanitation	95.4	199.2	776.9	1 071.5

Table 23: Drinking water, sanitation and hygiene: summary of damage and losses

Component: Drinking Water	Damage (million USD)		Losses (million USD)	
	Public	Private	Public	Private
Damage to pre-existing infrastructure (1 SNEP network + approx. thirty small rural networks)	14.1	0.9	/	/
Damage to pre-existing equipment and supplies (generators, pumps, etc.)	0.1	0.1	/	/
Damage to other pre-existing assets (buildings)	0.8		/	/
Absence or reduction in income from subscribers for pre-existing services	/	/	6.0	
Additional costs to compensate for the absence of EDH and to provide a regular electricity supply to pumping stations	/	/	2.8	0.4
<b>Drinking Water TOTAL</b>	<b>15.0</b>	<b>1.0</b>	<b>8.8</b>	<b>0.4</b>
Component: Sanitation	Damage (million USD)		Losses (million USD)	
	Public	Private	Public	Private
Damage to privately-owned latrines, toilet blocks and septic tanks		13.0	/	/
<b>Sanitation TOTAL</b>	<b>2.2</b>	<b>13.1</b>	<b>0</b>	<b>0</b>
Component: Hygiene	Damage (million USD)		Losses (million USD)	
	Public	Private	Public	Private
Damage to hygiene directorate buildings	1.5		/	/
Damage to equipment	0.3		/	/
<b>Hygiene TOTAL</b>	<b>1.8</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>GRAND TOTAL</b>	<b>19.0</b>	<b>14.1</b>	<b>8.8</b>	<b>0.4</b>

and the absence of controlled landfill sites. Furthermore, anarchic land use in urban areas (shanty towns and poor access), high population density and low sanitation awareness represent major barriers to effective management of solid waste.

### Impact of the earthquake

According to initial estimates, earthquake-related damage appears to be limited. Some reservoirs have been cracked or damaged and a few hundred leaks have appeared in pipes. An exhaustive study of the network will need to be carried out to assess the earthquake's real impact on the sector. One of the five buildings of the Autonomous Metropolitan Drinking Water Plant (CAMEP) has been destroyed, with the remaining four requiring minor repairs. The National Drinking Water Service (SNEP) office in the city of Petit Goâve has been completely destroyed, and the SNEP premises in Grand Goâve have sustained damage. In the metropolitan area, there are an estimated 600 private water sales outlets, around 15% of which have been damaged. However, the drinking water production plants were able to resume operations in the days following the earthquake.

In the provincial communities affected by the earthquake, displaced and broken pipework is probably the most significant form of damage. This damage is, however, difficult to quantify as the networks are not fitted with telemetry systems. The technical performance of these networks was already poor prior to the earthquake, and this performance will certainly have been worsened by the damage. The earthquake also caused severe damage to water collection systems, pipelines, water points and reservoirs.

Where the earthquake destroyed homes, it also rendered the associated excreta disposal facilities unusable. Many of the users of these destroyed infrastructures are now living in camps and are entirely dependent on basic service equipment provided as part of the emergency response programme.

The earthquake has had little impact on solid waste management equipment and facilities (both public and private). However, collection systems and timetables are disorganised, the population is more vulnerable to the risks associated with poor sanitation conditions and there is a high volume of construction debris, estimated at 20 million m<sup>3</sup>. Furthermore, the number of subscribers served by the private sector has fallen and more solid waste is being produced (an estimated 500,000 people) due to population displacement following the earthquake, placing severe pressure on the services of other urban areas.

The table below details the estimated cost of damage and losses in the public and private drinking water, sanitation and hygiene sector.

Losses resulting from a lack of income from public water supply infrastructures are minimal. This is due to the fact that income from this source is relatively low under normal circumstances (low level of service, low debt collection rate, non-existent commercial strategy, etc.), as well as the fact that the service provided is likely to be undervalued (and therefore not charged at a sufficient rate), as water is charged at a flat rate, with no additional resource protection charges.

Total funding for this emergency from the international community (data obtained from a survey of 5 institutional donors and 13 executive agencies) is 200 million USD, 25% of which will have been spent by 31st March 2010.

### **Reconstruction strategy**

The reconstruction strategy focuses on reorganising the sector to make service provision more effective and fair. This will primarily involve: creating regional structures responsible for operating facilities, managing urban water and sanitation systems and supporting the technical operations units in urban areas; increasing private sector involvement in research, facility construction and network management; developing tools to improve the sector's technical and financial capacity; incorporating environmental risks into the sector's activities; and raising awareness about good hygiene practices among the population.

In terms of solid waste, the strategy will involve: setting out a legal framework for solid waste management, following a study which will have to be approved by all stakeholders in the sector; introducing a national financial framework for solid waste management; and defining the short-term solid waste management infrastructure and equipment needs of Haiti's major and smaller cities.

With regard to the hygiene sector, the strategy will involve: ensuring that the sanitation officer school re-opens and is incorporated into the university; introducing a coordination structure; strengthening the national public health laboratory; and incorporating the Health Promotion and Environmental Protection Directorate (DPSPE) into the national budget.

## Reconstruction requirements

Long-term objectives are indicated in table 17, without associated costs.

## Sport and leisure

### The state of the sector before the earthquake

The sports sector in Haiti is regulated by the Ministry for Youth, Sports and Civic Action (MJSAC) and comprises around 20 national associations and federations responsible for sports development in a range of different disciplines. They are also responsible for preparing athletes for regional and international competitions. A range of appropriate infrastructures, managed by the State, federations or the private sector, exist to support sporting practice. The MJSAC operates a wide range of sports centres and recreation grounds, providing the population with access to sports services and socio-cultural activities. Almost all of these infrastructures are located in the Port-au-Prince metropolitan area.

The sector is well-known for its poor human resources. The Ministry employs around 50 physical education and sport graduates, four senior supervisor-level technicians and, at present, there are fifty young people in training abroad. The majority of the country's sports associations and federations lack managers with higher education qualifications. The level of training, especially among coaches, varies from level 1 to level 4.

### Impact of the earthquake

According to assessments of MJSAC documentation, the two premises forming the Ministry's central office are damaged and out of use. The five facilities located in the metropolitan area have been severely affected. Recreation grounds are currently acting as temporary shelters or first aid centres, and the administrative buildings are cracked. The Ministry has lost eleven staff in the disaster, including three technicians.

The situation among the country's sports federations and associations (20 in total, including disabled sports associations) is much more serious, with 80% of buildings suffering heavy damage or complete destruction. In terms of human resources, 39 deaths have been reported, including twelve managers and seventeen athletes. More than forty staff members have been injured.

### Risk management and disaster management

As part of the national risk and disaster management programme, the Ministry plans to introduce standards and guidelines for athletes and all operators in the sector, governing the construction and use of sports facilities. These standards and guidelines will also make provisions for use of these facilities

**Table 24: Sport and leisure - summary of damage**

Description		Total (Million US\$ )	Public (Million US\$ )	Private (Million US\$ )
Infrastructure	Administrative buildings destroyed or out of use	1.7	0.7	1.0
	Administrative buildings cracked	0.5	n/a	0.5
	Recreation grounds damaged	5.5	3.8	1.2
	Sports centres damaged	2.9	2.9	n/a
<b>Equipment and supplies</b>				
Sports equipment destroyed or damaged		1.1	0.3	0.8
<b>Total</b>		<b>11.7</b>	<b>7.7</b>	<b>3.7</b>

during emergencies, while minimising the risk of damage. This aspect of the ministry's policy is a cross-sectional approach and will be treated as such during the implementation phase.

Table 25: Sport and leisure - summary of losses

Description: type of losses	Total (Million US\$ )	Public (Million US\$ )	Private (Million US\$ )
<b>Budget reduction:</b> the MJSAC investment budget (110,000,000.00 HTG) or 2,750,000.00 USD, a percentage of which is allocated to the sports sector, has been reduced by 27%	0.2	0.2	
<b>Withdrawal of funding:</b> The MJSAC has been forced to return a total of 10,000,000 USD, which was initially allocated for the construction of 10 regional sports and culture centres, to the government	0.2	0.2	n/a
<b>TOTAL</b>	0.4	0.4	0

## Needs

### Sport and leisure: summary

Rehabilitation, reconstruction and restructuring costs, based on the assessment of damage and losses plus the cost value of home contents.

	6 months	18 months	3 years	Total
<b>US\$ millions</b>	<b>11.4</b>	<b>22.8</b>	<b>258.5</b>	<b>292.7</b>

\* : Le coût de reconstruction est évalué à partir des dommages pour les maisons détruites et endommagées, augmenté d'un pourcentage pour reconstruire mieux et résilient aux désastres, et additionné des valeurs de coût du contenu des maisons.

## Culture

### Situation before the earthquake

The sector is managed by a number of different public and private bodies and foundations. The sector has no live show or cinema facilities and there are very few libraries, museums and art schools. There are only five printing works (one of which is State-owned) that are capable of printing books and the number of publishing houses and book shops is very limited. Furthermore, there are only three music recording studios, with the majority of Haitian releases recorded abroad. The country has almost no film production facilities and there are no cinemas. The situation is aggravated by widespread piracy, which results in poor-quality content being broadcast on national television and on private stations.

There are no mechanisms in place to manage the cultural sector and develop public cultural policies. Relationships between independent bodies and the Ministry of Culture, which is in charge of the sector, are ineffective.

### Impact of the earthquake

In Port-au-Prince, many important collections of works of art, historical archives, public administrative documents and ancient documents have been destroyed or scattered in the streets. The legal archives (documents from the Court of Cassation, the Court of Appeal, law firms, etc.), which were hidden among the ruins of the Law Courts and the National Palace, are yet to be recovered. The collection of archaeological findings of the National Ethnography Office, located in a partially collapsed building, is exposed to passers-by.

The earthquake killed or severely injured many artists and destroyed equipment and facilities, aggravating the structural weaknesses of the sector, in particular its management system and the investment that the sector normally receives in the period prior to the carnival. The majority of industrial printing equipment is no longer operational and the few distribution facilities that existed prior to the earthquake are no longer able to accommodate members of the public.

Furthermore, despite major efforts from both public and private initiatives, many libraries and private collections remain under threat of closure due to the death, severe injury or financial ruin of their manager, problems accessing storage facilities, etc. Those cultural artefacts and items of heritage currently lying under the rubble are under threat from looters, who sell them on the black market for a low price. The imminent rainy season makes the process of saving cultural artefacts even more difficult.

Table 26: Culture: summary of damage and losses

Components	Damage (million US\$)		Losses (million US\$)	
	Public	Private	Public	Private
Central Admin.	*		*	
Archives. Nat.	1.25		0.15	
Nat. Library	0.06			
BNE	1			
BHDA	0.5			
DNL	0.04			
ENARTS	1			
ISPAN	0.125			
MUPANAH	0.012			
Nat. Theatre	2.5			
Nat. Press	0.5		2	
RNH	0.09		1	
TNH	5		5	
L'Union	n/d			
FOKAL		1		10
Cult. Creation Found.		0.2		5
Africamérica		0.1		0.3
Hist. and Geog. Society		0.05		0.2
Heritage	6.25		**	
Works of Art	0.075	1.5		
Libraries	3	1.25		
Traditional scenes		0.25		
<b>TOTAL</b>	<b>21 402</b>	<b>4.35</b>	<b>8.15</b>	<b>15.5</b>

Source: Ministry of Culture and Communication

\*: damage and losses suffered by the central administration are accounted for in the Public Administration section, under Governance

\*\* : no data relating to the assessment of losses are provided.

Furthermore, the sector is suffering from a considerable loss of income after the earthquake, primarily due to the fact that the carnival cannot be held. This is normally an opportunity for small-scale producers and those working in the music, advertising and hotel industries to sell their products.

### Strategy

In order to resolve the structural weaknesses of the sector, a culture management system will need to be introduced, enabling the State to fulfil its observation, control and regulation role and ensuring wide-scale access to production facilities and cultural artefacts. There are also plans to provide funding and create a suitable legal framework to develop cultural industries, to promote the values of national heritage through a cultural education programme, and to encourage cultural exchanges and cooperation. The reconstruction strategy will also need to involve setting up a number of partnership agreements: with the Ministry of Education to develop a school-based art education programme, with the Ministry of Trade and Industry to introduce and promote creative industries, with the Ministry for Youth, Sports

and Civic Action to develop activity programmes and with the National Police to combat piracy and the illegal trafficking of cultural artefacts. The final step will involve creating a consensus-based framework agreement to govern interventions from non-state bodies, based on the provisions made in the 2005 initiative to revitalise Haiti's cultural sector.

## Rehabilitation, reconstruction and restructuring costs

**Table 27: Culture - summary of rehabilitation and reconstruction costs**

Components	Percentages	Needs (Million US\$ )
Very short term	1/3 Relèv.	7,9
Short term	2/3 Relèv. + 1/3 Recon.	28,5
Medium-term	2/3 Recon.	25,6

**Table 28: Culture - summary of restructuring costs**

Components	Percentages	Costs (million USD)
Very short term	20%	40,4
Short term	30%	60,6
Medium-term	50%	100,9

## Infrastructure sectors

### Housing

#### *Situation before the earthquake*

Before the earthquake, the city and metropolitan area of Port-au-Prince, as well as most towns in the countryside, were characterised by uncontrolled urbanisation. The hills surrounding these towns and cities are covered with dwellings of variable quality. A study carried out in 1997 showed that 67% of the urban population lived in spontaneous settlements that covered only 22% of inhabited land. Half of the slums are located on steep slopes or at the bottom of gullies; the houses are in danger of being swept away by torrents during periods of heavy rain or hurricanes. Inner-city and coastal slums are also exposed to floods as they are located close to catchment areas. Soil erosion is therefore a serious problem for the housing sector. The absence of earthquake-resistant materials in construction and the total lack of control over development increase the vulnerability of this sector.

Uncontrolled urbanisation also makes it difficult to provide services such as water, energy, sanitation, and household waste collection. The majority of slums have no road system. Steep slopes make it very difficult to build access roads, and most roads, if there are any, are not paved and must be repaired after each rainy season.

Housing in poor neighbourhoods, which can have up to three storeys, is usually built with post and beam structures with an infill of perpend and concrete slabs. The advantage of this type of construction, especially concrete slabs, is the use of hurricane-resistant materials. But the under-proportioning of structures (particularly subsequent addition of a storey), defective reinforcement, and poor quality concrete with an insignificant proportion of cement make these buildings particularly dangerous in seismic zones.

***Impact of the earthquake***

The development of Haiti as well as previous urban problems have highlighted the vulnerability of the housing sector to natural disasters and have contributed to the significant loss of human life and destruction. The earthquake has caused unprecedented displacement of people and destruction in the capital city and metropolitan area as well as the areas of Gressier, Léogâne, Grand-Goâve, Petit-Goâve and Jacmel. According to statistics issued by the Haitian government, almost 1,292,707 people are now homeless. Most of these people lost their homes and have sought temporary shelter in roughly 900 camps, or have had to move in with friends or relatives. Many homes, and much of the furniture and goods in them, and often equipment and stocks belonging to small businesses run from home, were entirely or partially destroyed.

Currently, families are living in makeshift shelters with extremely inadequate access to health and sanitary services and drinking water. Tens of thousands of people are setting up shelters in the streets, at the bottom of gullies or in flood zones, putting themselves in danger. Others have taken over public spaces in towns or the outskirts of metropolitan areas. Secondary towns and rural hubs throughout the country are under heavy pressure to provide shelter due to the exodus of people from the capital that occurred immediately after the earthquake.

An assessment of the damage reveals that 105,369 houses were destroyed and 208,164 damaged in various ways. People are afraid to stay in their homes even if there is no obvious damage because aftershocks of the earthquake on 12 January 2010 are still being felt. Estimated damage and losses for the housing sector amount to approximately 2.333 billion USD in damage and 739 million USD in losses, representing 459 million USD for the public sector and 2.613 billion USD for the private sector. These data are summarised in the table below.

The estimate of economic losses takes into account the cost of temporary shelters, the loss of rental income and the cost of clearing rubble and debris from houses caused by the earthquake.

**Table 29: Housing, summary of damage**

Description	Number of damaged houses	Value of damage in damaged houses (million USD)	Number of destroyed houses	Damage, destroyed houses (Million US\$ )	Total (Million US\$ )
Infrastructure - Housing	208,164	502.9	105,369	1 245.7	1 748.6
Housing contents		84.9		499.8	584.7
Total		550.8		1 745.5	2 333.3

Table 30: Housing, summary of losses

Description	Private sector (Million US\$ )	Public sector (Million US\$ )	Total (Million US\$ )
Rent	69.8		69.8
Debris (1)	209.4		209.4
Temporary shelters		459.4	459.4
Total	279.2	459.4	738.6

(1) Cost of removing debris from houses to the street

## Strategy

**Support for secondary towns:** A specific housing strategy will be implemented for secondary towns receiving displaced persons and those offering possibilities of expansion and economic development, in order to permanently establish or attract people. This priority supports the government's strategy for decongesting Port-au-Prince and rebalancing the country's urban system.

**Reconstruction by communities:** Residents are and will continue to be key players in rebuilding their homes and neighbourhoods, whatever the amount of the aid provided by the Government and the international community. The aim of neighbourhood reconstruction must therefore be to support strategies and initiatives put forward by the people themselves. Communities will be encouraged to work in organised groups to settle questions of land tenure, to prepare community projects, to organise local savings, to make decisions about housing design and the use of building materials, and to manage financial aid for reconstruction.

**Multidisciplinary technical assistance for local authorities:** Local authorities will receive support from multidisciplinary teams that will provide expertise in key housing-related areas such as town planning, engineering, urban management and land tenure. Their coordination role will be reinforced. The rapid transfer of knowledge by means of specific meetings and on-the-job training will be oriented towards resolving the emerging problems linked to rebuilding houses and neighbourhoods. These training schemes will also aim to provide local communities with the capacity for long-term urban planning and management, local economic development and risk reduction.

**Training in construction techniques taking account of the different risks:** Training centres will be established and linked to the towns. They will provide standardised training programmes targeting all the players in construction. These training programmes will include the use of local building materials, the promotion of culturally appropriate measures for improving housing, such as rainwater collection, energy issues and improved sanitation.

**Quality control of building materials:** The state's role in supervising the use of building materials will be reinforced to ensure that permanent buildings will not be weakened by poor quality building materials. A specific information campaign on the importance of high-quality building materials will be organised.

**Regularisation of property ownership:** Land occupancy and the right to housing will be recognised and duly registered. The initial inventory of buildings will include information about their state of occupancy and ownership status, and will then be developed in the form of a land and property register.

**Formulation and establishment of the institutional, technical and fiscal framework for the production of urban property that is safe and abides by urban development rules accessible to people for the development of new neighbourhoods.**

Housing reconstruction fund: A reconstruction fund will be set up to provide a range of financial assistance programmes related to the application of rebuilding standards. This financial assistance will include support mechanisms so that the middle classes can gain access to loans. The fund will also be used to provide incentives for rebuilding rental accommodation accessible to the most underprivileged.

Funds for providing security and equipment to neighbourhoods: With the exception of certain areas such as the bottom of gullies, the extreme vulnerability of spontaneous neighbourhoods is the result of high population density and the absence of investment for making them safe rather than the natural characteristics of the occupied land. A fund for providing security and equipment to these neighbourhoods will be set up to take into account the specific risks posed by the land on which such vulnerable neighbourhoods stand.

## Needs

The following tables show an estimate of costs related to implementing the strategy for rebuilding the housing sector according to each objective, listed in order of the time needed, from very short-term (6 months) to short-term (18 months).

**Matrix of results, rebuilding and recovery support ( millions US\$)**

Aims	Activities	Expected results	Indicators	0-6 months	6-18 months	Long-term 3 years	Total
Housing rebuilding fund (1)	- Setting up financial transfer mechanisms Establishment of the beneficiaries database - Transfers of funds to the beneficiaries.	Financial assistance is transferred to the beneficiaries	% of beneficiaries receiving financial assistance		100.000	400.000	500.000
Security provision funds	- Setting up security fund mechanisms - Transfer of funds to the communes and communities - Carrying out of seismic microzoning	Areas benefit from better risk protection	Number of persons trained.% of reconstruction meeting building standards		35.000	65.000	100.000
Training in reconstruction and security provision	- Preparation of training courses - Training of trainers Training those involved in construction	All the players involved in housing reconstruction are trained in risk-resistant construction techniques	Nombre de personnes formées% de reconstruction respectant les normes de construction	3.000	10.000	29.000	42.000

Public information campaign	<ul style="list-style-type: none"> <li>- Identification of messages</li> <li>- Preparation of the mass media</li> <li>- Dissemination of messages</li> </ul>	The target populations and groups have received continuous information about the reconstruction policy and have been made aware of risk assessment	Coverage of the information campaign	200	300	500	1,000
the communes	planning and housing	management functions	planning and housing	1.000	3.000	8.000	12.000
General technical assistance, co-ordination and monitoring	<ul style="list-style-type: none"> <li>- Reinforcing national monitoring and testing structures</li> <li>- Devising of construction techniques and standards</li> <li>- Strengthening town coordination capacity</li> <li>- Establishing a reconstruction inspection system</li> <li>- Establishing monitoring and assessment mechanisms</li> </ul>	<p>Appropriate construction techniques and standards are adopted</p> <ul style="list-style-type: none"> <li>- All affected areas receive fair financial and technical assistance</li> <li>- The financial assistance is released on the basis of the assessments made</li> <li>- Progress is duly monitored</li> </ul>	<p>% of cover of the financial and technical assistance</p> <p>Regular monitoring of training activities, flow of financial assistance and quality of reconstruction</p>				

(1) The total estimate for the housing reconstruction fund was based on a financial assistance of: (a) 500 USD per partially damaged dwelling, (b) 1,000 USD per damaged dwelling, and (c) 3,500 USD per dwelling damaged beyond repair or destroyed dwelling.

Requirements for recovery, rebuilding, and re-establishment of groundwork, based on the damage and loss assessment

	6 months	18 mois	18 months	Total
Total	5.200	149.800	505.000	660.000

### Urban and community infrastructure

This area covers all urban and community infrastructures in Haiti, both urban and rural (public buildings, historical monuments, public areas, churches, etc.).

### *The state of the sector before the earthquake*

The earthquake on 12 January 2010 caused an enormous loss of urban infrastructure. Main public buildings collapsed and small community installations providing minimum basic services were destroyed. Infrastructure refers to all the buildings and structures intended to provide a location for state structures concerned with governing, either by supplying public services or overseeing the population's well-being.

### *Impact of the earthquake*

The effects of the earthquake have been felt throughout the country, but are devastating for the three most affected departments, Ouest, Sud-Est and Nippes. In terms of infrastructure, the most affected towns are Port-au-Prince, Léogâne, Petit-Goâve, Jacmel, Pétionville, Delmas and Carrefour. An initial estimate of damage to public and community infrastructure comes to 271,685,000 USD.

**Table 31: Damage and losses to the urban and community infrastructure sector**

Description	Damage million USD)		Losses (million USD)	
	Public	Private	Public	Private
Urban and community infrastructure	242.6	29.0	18.0	0.7
<b>Total</b>	<b>271.6</b>		<b>18.7</b>	

### **Summary of recovery and reconstruction requirements per sector**

Aims	Activities	Expected results	Indicators	Budget (US\$)
Reconstruction fund	<b>Setting up</b> financial transfers and expert support mechanisms <b>Establishing</b> a beneficiaries database Transfers of funds to the beneficiaries. <b>Reporting</b> to sponsors	<b>Financial assistance</b> is transferred to beneficiaries <b>Transparency</b> in the allocation of financial resources	% of the financial assistance received by the beneficiaries	280 000 000
Technical assistance to national authorities	<b>Creating</b> a team to support the national government <b>Setting up</b> a liaison mechanism with the local authorities.	<b>Monitoring and control</b> of the progress and results of the reconstruction process <b>Transparency</b> in the allocation of financial resources	% of managers trained Reports produced on the progress of national and local works	10 000 000
Technical assistance to towns	<b>Creating</b> technical support teams Supporting municipal functions involving town planning	Towns are capable of monitoring the progress of reconstruction work.	Number of local managers trained	4 000 000
Strengthening of local community and civil society organizations	<b>Creating</b> technical support teams for local NGOs	<b>Local NGOs</b> are capable of ensuring cohesion in their actions	Number of local NGO officials trained	2 500 000

Technical assistance and training of public and private businesses	<b>Providing technical assistance and training</b> for public and private businesses <b>Establishing</b> mechanisms for recapitalising businesses and providing expert support <b>Strengthening</b> subcontracting for SMEs in the construction sector	<b>Boost</b> the construction sector with the appropriate resources	Number of national and local companies involved in construction	3 500 000
Technical assistance for the definition and monitoring of risks	<b>Establishing</b> a legal framework for construction standards <b>Establishing</b> a reconstruction inspection system <b>Establishing</b> monitoring and assessment	<b>A legal framework</b> that is appropriate and respected. <b>The financial assistance</b> is released on the basis of the inspections <b>Progress is duly monitored</b>	<b>Publication</b> of legal standards <b>Site reports and progress statements</b>	1 500 000

## Summary of recovery and reconstruction requirements per sector

### Costs matrix

#### Summary table for short-, medium- and long-term requirements

Sector	Very short term 6 months	Short term 18 months	Medium-term 3 years	Long-term 10 years	Total
Reconstruction fund		53 000 000	93 000 000	134 000 000	280 000 000
Technical assistance to national authorities	700 000	6 500 000	2 000 000	800 000	10 000 000
Technical assistance to towns		3 300 000	300 000	400 000	4 000 000
Strengthening of local community and civil society organizations		1 900 000	300 000	300 000	2 500 000
Technical assistance and training of public and private businesses		2 100 000	700 000	700 000	3 500 000
Technical assistance for the definition and monitoring of risks		1 200 000	300 000		1 500 000
<b>Total</b>	<b>700 000</b>	<b>68 000 000</b>	<b>96 600 000</b>	<b>136 200 000</b>	<b>301 500 000</b>

\* From the approval of the PDNA following the Haitian fiscal calendar.

## Transport

The information and analyses referred to in this document were collected between February and March 2010 by means of a sectoral survey and on the basis of information issued by various departments within the Ministry of Public Works, Transport and Communications (MTPTC).

### *Situation before the earthquake*

The transport sector, which includes road, maritime and air transport, was already a priority for government action.

### *Road transport sub-sector*

The road network is about 3,572 km long, i.e. 0.35 km of road per 1,000 inhabitants (as opposed to 7.1 for the Latin America/Caribbean region as a whole).

The Haitian road network includes three categories of roads:

- The Primary Network includes national roads connecting the most important towns, carrying between 1,000 and 4,000 vehicles per day and covering 690 km, i.e. 20.3% of the road network.
- The Secondary Network includes the departmental roads. They connect the urban centres and provide access to the primary network (national roads). Traffic on these roads ranges from 200 to 1,000 vehicles per day. This network is 1,508 km long, i.e. 44.4% of the total network.
- The Tertiary Network is made up of communal roads.

### *Maritime transport sub-sector*

The international harbour at Port-au-Prince contains docks and warehouses used by the National Port Authority, which take up most of the harbour, as well as those managed and used by other companies. Problems already existed before the earthquake: the North and South docks were old and could not accommodate large cargo ships. Furthermore, the access channel had not been dredged since the port facilities were built. This led to a reduction in the draught and therefore the size of ships using the port. Moreover, the cranes being used were not adequate for maritime traffic.

### *Air transport sub-sector*

Toussaint Louverture International Airport, which is classified as a Class II airport, is the only airport in Haiti with navigation aids, beacons and a runway wide enough to accommodate large transport aircraft (3,040m x 43m). The width of the runway is less than international standards (42.7 m instead of 45 m) and there are longitudinal fatigue cracks. The airport's capacity is 500,000 passengers per year, which does not meet demand. There are two terminals, one for international traffic (Toussaint Louverture) and one for domestic traffic (Guy Malary).

### *Road transport sub-sector*

The main weaknesses of the road network are insufficient drainage, deformation of the road surface and unstable banks. These weaknesses are the result of underinvestment, poor maintenance and ineffective checks on heavy goods vehicles on recently refurbished roads. For some sections of the road network, the main weakness is the age of the road. All these factors combined contribute to increased deterioration of the national road network, leading to very high transport costs. Before the earthquake, the RN8 national road (which is 43 km in length and runs from Croix-des-Bouquets to the border with the Dominican Republic at Malpasse) was already in a state of advanced deterioration. It is still vulnerable to a significant increase in traffic, since it is not large enough to carry so many vehicles. The RN2 national road, which has recently been refurbished, and the RN4 national road, which benefited from a certain amount of maintenance, have been severely affected by the earthquake.

## Impact of the earthquake

### Road transport sub-sector:

The departments hit by the earthquake contain 289 km of primary roads, broken down as follows:

**Table 32: Damaged primary network**

Administrative district	Length of primary network (km)
Ouest	235
Nippes	28
Sud-Est	26

Available information allows us to estimate an overall linear figure of roughly 44km of damaged national roads, i.e. about 15% of primary roads in these three departments, and about 25 km of secondary roads. Four (4) bridges and several structures have also been badly damaged. Most of the damage occurred on the RN2 and RN4 roads and the first few kilometres of the RN8 (in the peri-urban area of the road running from Port-au-Prince to Malpasse). Minor damage has been reported on the RN3 between Kilometre Post 6 and Kilometre Post 14. Damage to secondary (departmental) roads is less substantial.

Damage to urban road infrastructure mainly involves destruction or damage to bank protections and structures, as well as cracks.

### Maritime transport sub-sector:

Maritime transport in the Port-au-Prince harbour has been seriously affected. The North dock has been completely destroyed and the South dock severely damaged. Warehouses and security buildings, as well as the access road and perimeter fence, are practically destroyed.

### Air transport sub-sector:

The runway of the Port-au-Prince airport contains several cracks, the control tower has been destroyed, the international passenger terminal has been damaged, as have the water, communications and remote surveillance networks and the terminal building.

## Estimate of damage and losses

Damage to the transport sector is estimated to be about 318 millions USD (see table and detailed explanation in the appendix).

**Table 33: Estimate of damage to the transport sector**

Description	Public (Million US\$ )	Private (Million US\$ )	Total (Million \$US)
Transport	201,7	116,2	317,9
Road Transport	99,7	116,1	215,9
Interurban network	33,7		33,7
Road maintenance	0,6		0,6
Urban road network	63,0		63,0
Means of transport	2,4	116,2	118,6
Air Transport	32,0		32,0
Port-au-Prince airport:	32,0		32,0
Sea Transport	69,9	0,03	70,0
Port-au-Prince harbour	69,4	0,03	69,4

Jacmel harbour	0,3		0,3
Miragoâne harbour	0,3		0,3

Losses are estimated to be 217 million USD.

Tableau 34 : Estimate of losses

Description	Public (Million\$US)	Private (Million\$US)	Total (Million\$US)
<b>Transport</b>	<b>128,2</b>	<b>88,8</b>	<b>217,1</b>
<b>Road Transport</b>	<b>94,8</b>	<b>60,8</b>	<b>155,6</b>
Interurban network	35,8	30,8	66,6
Urban road network	59,0	0	59,0
Means of transport	0	30,0	30,0
<b>Air Transport</b>	<b>21,8</b>	<b>0</b>	<b>21,8</b>
Port-au-Prince airport:	21,8	0	21,8
<b>Sea Transport</b>	<b>11,5</b>	<b>28,1</b>	<b>39,6</b>
Port-au-Prince harbour	11,2	28,1	39,3
Jacmel harbour	0,3	0	0,3

Losses to the transport sector resulting from the earthquake are greater than the damage caused to the sector.

#### ***Road transport losses (main grounds for requirement)***

- Foreseeable destruction/deterioration of the RN8 (which runs for 40 km from Port-au-Prince to the border with the Dominican Republic), which, following the destruction of the Port-au-Prince harbour by the earthquake, is the alternative transport route for goods bound for Port-au-Prince
- Increased drainage of primary canals and degradation of the Port-au-Prince metropolitan area
- Higher road-building costs due to the effects of the earthquake on the construction market in Haiti
- Losses due to temporary emergency repairs pending the permanent repair of structures and road surfaces
- Losses due to the rapid deterioration/destruction of the road surfaces in Port-au-Prince and secondary towns during reconstruction
- Loss of revenue from the urban transport sector
- Losses due to traffic hazards in Port-au-Prince caused by road blockages, which will increase running costs for vehicles and result in lost time

#### ***Dans le domaine maritime***

- Pertes de trafic de nature commerciale.
- Recettes en baisse à cause de la réduction temporaire du trafic commercial

#### ***Pertes dans le domaine aérien***

- Construction des bâtiments provisoires pour les passagers.
- Construction de la tour provisoire.
- Sur -utilisation de l'aéroport.
- Recours à d'autres aéroports plus éloignés.

### **Impact on communities, households and the provision of social services according to age, sex and social class**

The earthquake damaged part of the country's road network. Moreover, much of the rubble remains on the streets, hampering traffic in affected areas.

As the Port-au-Prince harbour has been damaged, commercial traffic has been interrupted, leading to a sharp fall in economic activity, exports and imports. Delays and cancellations to flights at Port-au-Prince International Airport meant that passengers had to use other airports further away.

### **Disaster Risk Management (DRM)**

The process of restoring transport infrastructure must be guided by the principle of risk reduction. Special attention should be given to action that will be taken to ensure that the risks caused by future disasters are minimised in accordance with risk charts. A crisis and vulnerability reduction taskforce has already been set up by the MPTC to address potential disasters. Furthermore, a database for road infrastructure is being created. The restoration of transport infrastructure must include protection of drainage and sanitation facilities, roads and checks on heavy goods vehicles, while taking environmental factors into account; regularisation of traffic in affected areas; adoption and application of the maritime code to ensure the safety of passengers at sea; refurbishment of the control tower at Toussaint-Louverture airport.

### **Relief and reconstruction requirements**

Breakdown of very short-term (6 month), short-term (18 month) and medium-term (3 years) requirements for the transport sector

**Tableau 35 : Répartition des besoins dans le secteur du transport**

Component	General (studies, AT & equipment (Million US\$ )	Road transport (Million US\$)	Maritime transport (Million US\$ )	Air transport (Million US\$ )	Needs (Million US\$ )
Very short-term (6 months)	7,6	41,5	4,0	1,5	54,7
Short term / Rehabilitation (18 months)	17,9	96,9	9,4	3,6	127,8
Medium term / Reconstruction (three years)	38,0	153,0	187,0	70,0	448,0
<b>TOTAL</b>	<b>63,5</b>	<b>291,5</b>	<b>200,4</b>	<b>75,1</b>	<b>630,5</b>

## **Strategy**

Rebuilding the transport sector must fall within the overall land management strategy by prioritising strategic infrastructure and working together with the housing, telecommunications, energy, environment and planning sectors. In particular, it means:

- implementing an overall programme for land management, deconcentration, decentralisation and regional integration;
- adapting this programme for the transport sector based on the National Transport Plan, and setting up investment and development master plans for each sub-sector taking into account detailed studies of strategic investments;

- strengthening the capacities of the MTPTC and its deconcentrated services to deal with the emergency and the rebuilding of the country;
- ensuring sustainable investment by regularly carrying out maintenance of infrastructures;
- investing in basic infrastructure in the countryside by using the local workforce to contribute towards providing stability for the population and opening up the various regions of the country;
- revising the legal framework of the transport and road-building sectors and providing the means for government institutions to apply it;
- supporting the development of the private sector's capacities, allowing it to enable competition in transport services and in rebuilding the country, and to handle increased traffic;
- integrating risk and disaster management into the creation, maintenance, safety and flexibility of the transport system;
- using debris from the earthquake to build roads and ports.

### Products and results expected from the reconstruction

Considering the damage caused by the earthquake, a needs assessment in terms of human and material resources is necessary in the very short-term in order to have an efficient and sustainable transport system. In the medium-term, a systematic, coherent strategy must be put in place to ensure that transport infrastructures are restored effectively and efficiently. Repairs are essential to 44 km of primary roads and 25 km of secondary roads. Where sea and air transport are concerned, the damaged infrastructures: north and south quays, control tower and runway must be rebuilt. Finally, in the long-term, the reconstruction strategy must be part of the development plan for the sector, which is based on the land management plan.

### Objectives per sector:

#### *Road transport sector :*

- Swift repairs of damage reported on the road network;
- Development and restoration of structural and priority networks (primary and departmental roads);
- Creation of a trade-route centre (bus station and integrated market zone);
- Adaptation of the interurban road network for transporting passengers and goods;
- Adaptation of urban roads for transporting passengers in order to structure this sector, facilitate transport and eliminate untimely delay on major roads, an important cause of congestion;
- Road maintenance and checks on excess loads to avoid rapid deterioration caused by the transport of debris and aid in the country;
- Rapid implementation of labour-intensive projects for developing local tertiary and urban road networks in areas of population migration as a means of creating jobs and generating sustainable local investment. Small-scale structures for local production of building materials (e.g. like paving slabs) ought to be set up in parallel with this.

#### *Maritime transport sector*

- Prompt restoration of port capacity at Port-au-Prince;
- Development of port capacity outside the capital through investment and technical support;
- Assessment of the possibility for relocation, taking into account the considerable level of damage and the cost of repairs to the main harbour at Port-au-Prince, enabling harbour

- development while also integrating the existing port capacity of the private sector;
- Substantial involvement of the private sector in developing and operating port infrastructures;
- Improvement or creation of a new large-capacity harbour facility in the Nord region to accommodate container ships and safeguard maritime links;
- Inclusion of regional and local development of port capacity in the master plan in addition to strategic infrastructure;
- Provision of maritime buoys.

#### ***Air transport sector***

- Re-establishment of airport capacity at Port-au-Prince;
- Development of airport capacity in the countryside through investment and technical support;
- Development of airport capacity in the Cap Haïtien and Cayes regions either by improving existing infrastructure or creating new infrastructure enabling international traffic to be received in the Nord and Sud regions.

## **Energy**

### ***Situation before the earthquake***

Port-au-Prince metropolitan area: Most of the damage to the generating installations in Port-au-Prince occurred at the Carrefour power station (33.7 MW). The station is shut down as a safety measure. Surveys are currently being carried out.

There was relatively little damage to substations (dislodged transformers, broken insulators, oil leaks, etc) except at Ancien Delmas and Nouveau Delmas. The dispatch building was damaged and requires some repair work. A few minor breakages have also been reported on transmission lines.

Damage to the distribution network is greater throughout the LT network and connections. Commercial activity has also been greatly affected (the agency on rue Pavée has been temporarily relocated, and IT equipment is out of use). The headquarters suffered light damage, but several buildings were damaged (such as the meter room, shop, technical room and rue Pavée agency).

Grand-Goâve / Petit-Goâve / Miragoâne regions: Damage mainly occurred in Petit-Goâve and Grand-Goâve. At the thermal power station housing mobile generator sets, units fell off their hydraulic rams. Checks and correction work is being carried out. Damage to the MT network is light. Work is continuing on the LT network, which suffered the most damage. The (Haitian State) administrative office at Petit-Goâve was destroyed.

Jacmel region: At the thermal power station, problems were not significant. There has been little damage to the MT network. Work is continuing on the LT network, which suffered the most damage. The (rented) administrative office in Jacmel is badly damaged and services have been temporarily moved to a tent on the site of the thermal power station.

### ***Impact of the earthquake***

Port-au-Prince metropolitan area: Most of the damage to the generating installations in Port-au-Prince occurred at the Carrefour power station (33.7 MW). The station is shut down as a safety measure. Surveys are currently being carried out.

There was relatively little damage to substations (dislodged transformers, broken insulators, oil leaks, etc) except at Ancien Delmas and Nouveau Delmas. The dispatch building was damaged and requires some repair work. A few minor breakages have also been reported on transmission lines.

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Jacmel region: At the thermal power station, problems were not significant. There has been little damage to the MT network. Work is continuing on the LT network, which suffered the most damage. The (rented) administrative office in Jacmel is badly damaged and services have been temporarily moved to a tent on the site of the thermal power station.

### Estimate of damage and losses

For Port-au-Prince, the damage assessment was carried out by a mixed EdH-NRECA-CDDEEE team and represents the costing for restoring the current as quickly as possible using the existing infrastructure, which was already in a precarious state before the earthquake. The PDNA energy group assessed damage in the Grand-Goâve and Petit-Goâve areas. Damage is estimated to be 20.08 million USD.

**Table 36 : Estimated damage to the energy sector**

Evaluation of damage				
	Port au Prince	Petit Goâve	Jacmel	Total
Generation	4.00	0.02	0.01	4.03
Transport	4.50			4.50
Distribution	5.40	0.20	0.05	5.65
Customers	2.55	0.12	0.18	2.86
<b>Buildings</b>	<b>3.00</b>	<b>0.02</b>	<b>0.02</b>	<b>3.04</b>
<b>TOTAL</b>	<b>19.45</b>	<b>0.36</b>	<b>0.26</b>	<b>20,08</b>

The value of imports associated with this figure is estimated to be 95%.

The losses incurred by EDH concern mainly the loss of revenue caused by the earthquake. It therefore concerns the loss of revenue from the metropolitan region of Port-au-Prince, the Petit Goâve sector and the Jacmel region. Gross losses due to the earthquake are assessed on the basis of the fall in income observed over the preceding months.

**Table 37 : Monthly income in affected areas and estimate of gross losses resulting from the earthquake**

Million USD					
	Nov 09	Dec 09	Average	Jan 10	Feb 10
Port-au-Prince	172.20	189.50	180.85	57.00	19.70
Petit Goâve	2.00	4.10	3.05	0.56	0.42
Jacmel	6.30	9.20	7.75	1.80	4.26
Total (million USD)	4.51	5.07	4.79	1.48	0.61
<b>Loss of revenue</b>				<b>3.31</b>	<b>4.18</b>

Taking as a hypothesis the gradual improvement in revenue up to 60% of pre-earthquake levels, income from January to September 2010 would be 15.88 million USD, compared to 43.11 million USD based on 2009 figures. These losses are estimated to be 27.23 million USD from January to September 2010. From October 2010, the new customer system will have been set up and it will be possible for commercial activity to be much more aggressive. Losses are forecast to be 10 million USD from October 2010 to September 2011, and total losses 37.23 million USD.

**Table 38 : Estimate of losses in the energy sector**

Evaluation of losses	Million USD
January to September 2010	27.23
October 2010 to September 2011	10.00
Subtotal, short-term	37.23
October 2011 to March 2013, medium-term	0.00
<b>Total (million USD)</b>	<b>37.23</b>

## Recovery and reconstruction requirements

The reconstruction requirements have been divided into 3 major groups: (i) the cost of emergency and short-term work to get plant back into service; (ii) cash-flow requirements to enable EdH to operate during the rebuilding period; (iii) the rebuilding strategy.

### Cost of emergency and short-term works

Reconstruction costs for Port-au-Prince were estimated by the mixed EdH/NRECA/CDDEEE team.

These costs were estimated to be 38.1 million USD by EdH and NRECA and cover urgent work in substations and on the MT and LT networks in Port-au-Prince. Civil surveys of installations are being carried out, and it is estimated that 5 million USD are required. Furthermore, 9 million USD is required for Petit-Goâve and Jacmel. The overall total would be 44 million USD.

These works are already underway despite a shortage of financial resources. As of 3 March 2010, 7 substations out of 9 are powered up (21 MT outlets out of 35). MT lines have had to be cut for network safety reasons and the peak is currently about 40 MW (compared to about 160 MW before the earthquake).

### Cash-flow requirements to ensure that EdH operates

Cash-flow requirements are assessed based on generating costs for power plants, wages, current expenditure and possible revenue during this critical period.

Thermal generating costs are 36.7 million USD for the period lasting from January to September 2010 for the Port-au-Prince network and approximately 5 million USD for Petit-Goâve and Jacmel, i.e. a total of 41.7 million USD.

Monthly wages for these three zones total 1 million USD and current expenditure 0.5 million USD. 13.5 million USD is required to cover the period from January to September 2010. Total operating costs for the period lasting from January to September 2010 are 55.2 million USD and predicted revenue is 15.88 million USD. Additional aid required is therefore 39.32 million USD.

For the period from October 2010 to October 2011, we expect that the situation will have improved and predict that 20 million USD will be required. For the following period (18 months to 3 years), it is expected that 10 million USD (which is equivalent to requirements) will be lost.

**Table 39 : Needs assessed**

Assessment of requirements	Million USD
January to September 2010	39.32
October 2010 to September 2011	20
Subtotal, short-term	59.32
October 2011 to March 2013, medium-term	10
TOTAL	69.32

Requirements far outweigh losses, mainly because EdH has a large deficit.

### The reconstruction strategy

The reconstruction strategy must be part of the development plan for the sector. The overall vision for the electricity sector is to make it efficient and financially viable, operating as an open, transparent market, and attracting sufficient capital to maintain and develop the service on offer in order to meet the rising demand for energy, to promote clean energy and to satisfy local demand for affordable, high-quality electricity. This vision will be decisive in supporting manufacturing industries and the tertiary sector in creating sustainable jobs that will help reduce poverty.

Migration under way and decentralisation objectives will influence demand for energy and therefore the investment plan for generating, transmitting and distributing electricity throughout the country. It will be necessary to allow for the risks in the areas most susceptible to catastrophes (flooding, landslides, geological conditions, earthquakes, hurricanes, etc.) Hence it will be necessary to choose facility locations taking due account of these risk factors (mainly in Artibonite). Building methods will also have to be adapted to take into account these risks (mainly the use of anti-earthquake materials).

An overhaul of equipment and of the sector's legal, regulatory and managerial framework is required in order to define energy market parameters and establish a legal standard for the electricity sector to promote productivity, transparency, responsibility, competition, private sector involvement and investment, and the development of renewable energy offers. Within the framework of a well-drafted energy law, a regulatory authority would draw up rules for the energy market based on technical principles and criteria, as well as guidelines for private contracts to ensure its application. An augmented policy cell within the MPTC will make it possible to develop the policies and incentives for improving the operation of the market, increase the effectiveness of the system, and promote energy saving and renewable energy.

To confront these weaknesses, the reconstruction strategy contains the following aspects:

1. Assessment of energy demand forecasts and review of the strategic investment plans taking into account current and future population migrations as well as natural risks (such as hurricanes and earthquakes) in Haiti (mainly in the Gonaïves region).

2. Increased service to the population and improved service quality. Guidance for choosing generating methods in order to reduce running costs and the impact on the environment (while maximising renewable energies).
3. Development of a legal and regulatory framework to define the energy market, the role of different parties (such as the state, EdH, IPPs and local authorities), including the possible role of the private sector, as well as regulations (such as rates, purchase of energy, complaints and fraud) required for the sector to operate well, and allowing it to cover necessary investments.
4. Improved EdH management with the aim of achieving financial integrity and quality service, mainly as a result of:
  - a. Improved management of energy purchase contracts, in which costs are now well above international norms, particularly by improving procedures for letting contracts, standardising contracts and regularly auditing performance.
  - b. More effective operation and maintenance of electricity generation, transmission and distribution.
  - c. More effective management of commercial activity (compliance of metering stations, invoicing and recovery as well as tackling fraud and non-payment).
  - d. Creation of centralised operating units able to carry out their missions, and functional units that are efficient in their control and support roles. An analysis is needed to determine the real level of autonomy of each decentralised regional unit and to meet investment needs to achieve a certain level of commercial viability. The analysis will be carried out as part of a modernisation plan that must quickly be drawn up to pinpoint the use of new resources that the international community, public or private, may provide following the earthquake.
  - e. Gradual reconstruction of a competent, motivated and better-sized workforce (with an emphasis on ensuring that workers are suitable for the post and receive training in the current situation of population migration and decentralisation).

The following tables provide requirement costs in terms of activity and cash-flow. In the long-term, it would be suitable to review the development plan for this sector before moving ahead with specific activities. The following activities are provided as an indication.

Table 40 : Short-term plan, 0 to 18 months (September 2011), for the energy sector

Components	Activities	Results	Budget (Million US\$ )	
Planning	Development plan	New plan	1.0	
Generation	Emergency works	Carrefour power station in service	5.0	
	Studies		0.4	
	Refurbishment of generator sets at Carrefour and parts	Power station strengthened and reliable	16.0	
Transport	Emergency works	Substations made safe	6.0	
	Studies		0.2	
	Repair dispatching facilities	Effective network management	10.0	
Distribution	Emergency works	MT and LT lines powered up and reliable	24.0	
	Studies		0.2	
	Public lighting	Connections made safe	5.0	
Commercial	Emergency works	Regularised metering	9.0	
Governance	Frameworks and regulations	Rules defined	2.0	
	Management	Effective systems	12.2	
Human resources	Training, etc.	Competent employees	1.5	
Material resources	Studies and repairs	Refurbished premises	3.3	
Sub-total	very short term: 44 million USD, short term: 51.8 million USD		95.8	
Cash-flow	very short term: 39.3 million USD, short term: 20 million USD		59.3	
<b>Short-term TOTAL</b>			<b>155.1</b>	
<b>Needs</b>	<b>Activities</b>	<b>Cash-flow</b>	<b>Total</b>	<b>%</b>
<b>Late Sept. 2010</b>	<b>44.00</b>	<b>39.30</b>	<b>83.30</b>	<b>53.7</b>
<b>Oct. 2010 to Sept. 2011</b>	<b>51.80</b>	<b>20.00</b>	<b>71.80</b>	<b>46.3</b>
<b>Total</b>	<b>95.80</b>	<b>59.30</b>	<b>155.10</b>	

Tableau 41 : Medium-term plan, 3 years (October 2011 to March 2013)

Components	Activities	Results	Budget (Million US\$ )	
Generation	Refurbishment and strengthening at Péligre		40.0	
	Alternative energy studies		2.00	
	Parts for maintenance		2.00	
Transport	Refurbishment of substations	Substations made reliable	20.00	
	New substation at Tabarre	MT network strengthened	30.00	
Distribution	Strengthening of networks	Effective network management	25.00	

	Public lighting, new concept	Connections made safe	15.00
Commercial	Improving commercial returns	Regularised metering	10.00
Governance	Planning and follow-up tools, etc.	Rigorous approach to monitoring activities and costs	6.20
Human resources	Training, etc.	Competent employees and executives	5.00
Material resources	Repairs and planning		7.00
Sub-total			162.20
Cash-flow			30.00
<b>Total medium term</b>			<b>192.20</b>

<b>Long-term plan (3 to 10 years)</b>
Build Artibonite 4c.
Study the possibility of importing electricity from Santo Domingo at a reduced rate.
Refurbish, strengthen and develop the MT networks taking migrations into account.
Increase the range of urban cover, connecting new urban customers.
Electrify secondary towns and rural communities.
Improve the management of energy contracts; standardise future contracts, independent monitoring and auditing.

## Telecommunications

### *Situation before the earthquake*

The telecommunications sector falls within the responsibility of the Ministry for Public Works, Transport and Communications (MPTC). The sector is operated by a group of operators authorised by le CONATEL to provide various services such as telephony (fixed line and mobile), Internet access, radio broadcasting, and conventional radio communications.

Before the earthquake, the sector already suffered from major deficiencies:

- Insufficient national spine. Each operator operates its own small-scale spine as a radio link for its own individual needs;
- Outdated legal and regulatory framework governing the sector;
- Absence of a development master plan;
- Lack of checks and supervision when installing telecommunications infrastructures;
- Lack of respect for emergency communication standards and protocols under telecommunications laws and regulations, and absence of earthquake-resistant materials when constructing buildings and towers to house telecommunications infrastructures;
- Limited access to foreign networks (connection by satellite and radio link to the Dominican Republic).

### *Impact of the earthquake*

The earthquake had a major impact on the sector. Although there was no loss of life, the communications headquarters were nevertheless destroyed as well as local network equipment serving the Ministry. Wiring (telephone and data) was lost. The regulatory authorities also suffered considerable damage. Their offices at Bicentenaire were badly damaged and will probably have to be pulled down. Their new offices, which were being built when the earthquake hit, collapsed completely.

Damage to the various operators was not insignificant. The long-standing operator TELECO's network was badly hit. The building in Grand-Rue housing the main technical services, the international switching

centre and the landing station for the submarine cable was completely destroyed. A survey of the Pont-Morin building and its facilities is needed, but it is inaccessible and visibly cracked. The metropolitan fibre optic ring serving the financial system and the National Palace no longer works. The metropolitan and interurban transmission networks and electrical installations on various sites have been badly hit. TELECO's wire distribution network in Port-au-Prince has been partly destroyed (damaged copper cables, switching unit destroyed, etc.).

Installations belonging to mobile telephone operators have suffered considerable damage. More than a hundred sites have been destroyed. The main COMCEL building has withstood damage, but the structure and the walls were cracked. Twenty-seven sites (particularly those on the roofs of buildings) have collapsed and six service vehicles parked by walls were flattened. The main DIGICEL building resisted fairly well but still sustained some light damage. About 50 DIGICEL sites have collapsed, but DIGICEL has not provided an estimate of damage, which is fully covered by insurance. The Canapé-Vert building housing core equipment for HAITEL has been badly damaged, as well as those in Pétienville, Place-Geffrard, Léogâne, Gressier and Jacmel. Ten or so HAITEL sites have been destroyed.

Internet providers have lost some of their sites on the roofs of buildings and have stated that about 40% of their customers are without internet since 12 January 2010.

Most buildings housing studios for radio stations have been damaged or destroyed along with equipment and materials for production and broadcasting. The day after the earthquake, only three radio stations and one TV station were still broadcasting. The building housing central equipment for the Télé Haiti (TH) network (at Bicentenaire) resisted the earthquake but the broadcasting network suffered considerable damage (collapsed poles, destroyed or missing equipment and material for broadcasting signals and supplying the network with power), which jeopardises the swift return to service provision for the company.

The table below gives a breakdown of damage and losses (profits) caused by the earthquake. It should be noted that mobile phone operators has seen traffic increase, especially for international calls (which have more or less doubled during the last two months). It is estimated that 90% of the cost of construction materials for buildings and all equipment is imported, making a total of 82.56 million USD worth of damage.

**Table 42: Damage and losses in the telecommunications sector**

	Damage (million USD)				Losses and profit (million USD)		
	Total	Public	Privé		Total	Public	Private
<b>Buildings</b>	<b>23.08</b>	<b>8.60</b>	<b>14,48</b>		<b>46.27</b>	<b>24.00</b>	<b>22.27</b>
CONATEL	2.80	2.80					
TELECO	5.80	5.80		(12 months)	24.00	24.00	
Mobile phone operators	7.58		7,58	(2 months)	6.28		6.28
ISPs and cybercafés	0.90		0,90	(6 months)	0.75		0.75
Radio, TV and cable TV	6.00		6,00	(12 months)	15.24		15.24
<b>Equipment</b>	<b>61.78</b>	<b>31.50</b>	<b>30,28</b>	<b>Profits</b>	<b>-31.40</b>		<b>-31,40</b>
MTPTC	0.50	0.50					
TELECO	31.00	31.00					

Mobile phone operators	17.19		17,19	(2 months)	-31.40		-31.40
ISPs and cybercafés	1.20		1,20				
Radio, TV and cable TV	11.90		11,90				
<b>TOTAL damage</b>	<b>84.86</b>	<b>40.10</b>	<b>44,76</b>	<b>TOTAL losses</b>	<b>14.87</b>	<b>24.00</b>	<b>9.13</b>

### *The response so far*

On the day of the earthquake, most operators took measures to ensure a degree of continuity of service to customers and to repair or replace essential components of their infrastructures that had been damaged or destroyed. The MPTC and CONATEL relocated some of their staff and are co-ordinating emergency activities. Most operators have restored their networks and services.

### *Risk management*

Despite the high risk of earthquakes in Haiti, very little information was available to prevent or reduce the impact of the disaster of 12 January. Facilities and masts housing telecommunications infrastructures were not built using earthquake-resistant materials. It is recommended, after this tragic event, that standards and protocols relating to emergency communications be included in laws and regulations governing the telecommunications sector.

### *Relief and reconstruction requirements*

The strategy adopted for recovery and reconstruction is based on the main guidelines of the Government's 2006 sectoral policy declaration (SPD), and focuses in particular on the population's involvement in the national economy through technology. It will consider public sector recovery requirements and reconstruction needs for the sector, based on five major pillars: i) good governance of the sector (creation of a favourable environment); ii) development of infrastructure; iii) development of access; iv) strengthening of capacities and creation of jobs; v) development of relevant content and applications. This table summarises requirements in the short-, medium- and long-term:

**Table 43: Summary of telecommunications sector requirements**

Component	Needs
(Million US\$ )	6,02
Very short-term (6 months)	6.02
Short term / Rehabilitation (18 months)	9.03
<b>Medium term / Reconstruction (three years)</b>	<b>53.30</b>
<b>Total</b>	<b>68.35</b>

Les tableaux suivants identifient les programmes et projets à entreprendre à court, moyen et long termes dans le cadre de la reconstruction du secteur :

Objectif	Short Term activities	Expected results	Indicators	Budget (million USD)
<b>Creation of a favourable environment for good sectoral governance</b>	Updating of the SPD and the development plan	New strategic vision shared by all the players	SPD and development plan updated	<b>0.35</b>
	Completion of the process for adapting the legal and regulatory framework, including sharing network infrastructures (roads, electricity, urban infrastructures)	Effective regulation of the sector and reduced environmental impact	Laws and regulatory texts approved.	<b>0.5</b>
	Strengthening of the political and regulatory function	MTPTC and CONATEL capable of guiding and arbitrating the market	Efficiency and effectiveness in decision-making	<b>0.6</b>
	Monitoring the implementation of the plan	Effective performance of the programmes and projects	Development objectives reached	<b>0.3</b>
<b>Infrastructure development</b>	Relief of destroyed public infrastructures (Conatel and MTPTC buildings and equipment)	Returning the public sector to normal operation	Public infrastructures restored	<b>3.3</b>
	Construction of a national spine with terrestrial links to the Dominican Republic	Efficient carrying of national and regional traffic	Lowering of prices for services	<b>3</b>
	Construction of a new terminal providing access to the international submarine cables	Better international access and resilience to disasters	Lowering of prices for leasing circuits and reduction of service interruptions	<b>3</b>
	Creation of a communication and emergency network for the Government	Easy and efficient government emergency services	Online information and services, better risk management	<b>2</b>
<b>Strengthening of capacities and promotion of employment</b>	To Promote ICT businesses with investments in technological assets and risk capital	Diversification of the economy, growth of employment in the service sector	The number of businesses created, the number of jobs created, turnover of the ICT sector	<b>1</b>
<b>Development of relevant content and applications</b>	Develop the postal sector	Postal services such as counters providing access to ICT in rural zones	Diversity of ICT services in the post offices	<b>1</b>
<b>Total</b>				<b>15.05</b>

**Brief note on employment in the infrastructure sector**

The infrastructure sector is the main job provider for local economies. Work following the HIMO approach must be recommended in all instances in which it is technically applicable and economically profitable. Above and beyond the direct impact on the ground and the injection of revenue locally, the question of job sustainability will be considered by training public and private players and choosing productive infrastructures with the greatest impact on the local economy. Apart from manpower and materials, the use of local resources calls for the technical and organisational capacities of the various players to be strengthened, particularly in the countryside. This approach also contributes directly to providing stability to displaced persons outside the capital.

**Production sector****Situation before the earthquake****a) Agriculture**

This sector accounts for about 25% of the country's GDP and 50% of jobs. It includes 1 million small farms (with an average of 1.5 ha). 1.5 million hectares are cultivated, although only 770,000 ha are considered cultivable. Techniques are rudimentary and fertilisers are used on only 5% of farms. 85,000 hectares are irrigated out of a possible 150,000 ha. The maintenance and management of irrigation systems is very inadequate.

Livestock farming and fishing suffer from inadequate tools and a lack of processing, marketing and credit systems.

**b) Trade and industry**

2009 was a dynamic year for manufacturing industries (5% growth) and the construction and public works sector (3% growth). Textile exports rose by 10% during the same period.

There are two types of industries. One deals with exports and operates under a special regime. Companies that are exempt are governed by the free-zone law. The other type of industry works for the local market.

Overall, the means of production are very weak. This is also the case for foreign direct investment. In terms of foreign trade, there is considerable dependence on imports and foreign goods.

Trade is largely dominated by the informal sector, with the exception of a few large groups.

**c) Tourism**

Tourism has an influence on various sectors, such as construction and public works, trade, handicraft, art and transport. It created 30,000 direct and indirect jobs in 1979. Since then, its importance has declined, particularly due to political instability over the last 20 years.

Overall, the production sector is very vulnerable to political events and natural disasters. It suffered enormously from the 2004 political crisis and the disasters of 2008. The 2010 disaster also revealed the sector's weaknesses: fragile business network; cost and access to credit; inadequate legal framework; lack of reliable economic and social data; lack of infrastructure.

## Impact of the earthquake

### a) *Agriculture*

In agricultural areas hit by the earthquake, debris and landslides have damaged irrigation systems for over 3,500 ha of farmland, as well as permanent storage and processing centres on the plains. Buildings at the Darbone sugar factory and administrative and technical buildings of the Ministry of Agriculture have been damaged.

### b) *Trade and industry*

Many public, commercial and industrial buildings were not built using earthquake-resistant materials and have therefore suffered considerable damage, leading to loss of human life and stocks of raw materials, goods and equipment. Production has therefore ceased. The formal trade sector has been greatly affected (90% of the commercial centre of Port-au-Prince has been destroyed). The informal sector has been affected mainly by the loss of human life.

**Table 44: Production sector, summary of damage and losses**

Component	Damage [million US\$]		Losses [million US\$]	
	Public	Private	Public	Private
Agriculture	25.49	0.41	3	3
Trade and industry	0	223.3	0	981.5
Tourism	0	22.89	0	19.49

## Strategy

### a) *Agriculture*

The Ministry of Agriculture's special action plan drawn up after the earthquake pinpoints:

- Increasing products on offer in the country (especially by mobilising input and improving marketing);
- Integrating displaced persons;
- Creating rural jobs to increase revenue;
- Signing contracts to supply local food commodities to NGOs, the WFP and canteens;
- Preparing for the next hurricane season.

Beyond the emergency, constructive action must be taken to increase national agricultural production in compliance with the agricultural development policy that is currently being defined.

### b) *Trade and industry*

The main objective is to help businesses re-launch their activity, in order to improve work, increase the number of goods and services on offer locally and take proactive measures in terms of the cost of staple goods.

Later, the sector's capacity will need to be strengthened and regulatory activity developed; a suitable trade and industry policy will need to be implemented taking into account the constraints and potential of the population.

Finally, it is also necessary to continue the process of integrating the country in regional markets, especially with the Dominican Republic and Cuba. The means must be made available for Haiti to fulfil the necessary conditions to allow it to benefit from the Cotonou Agreement, the agreement between Canada and the LDCs, and the HERO Act.

### c) *Tourism*

After returning to pre-disaster levels, the strategy will be based on an updated Master Plan.

Returning to pre-disaster levels must be done in compliance with internationally recognised standards on space, services and safety. This includes the classification of facilities.

### Reconstruction needs

Table below provides an estimate of costs related to the implementation of the strategy for rebuilding the production sector: agriculture, trade and industry, and tourism. There are short-term and medium-term needs.

**Table 45: Production sector, recovery and reconstruction needs (estimated using the damage and loss assessment)**

Component	6 months (Million US\$ )	18 months (Million US\$ )	3 years (Million US\$ )	Needs (Million US\$ )
Agriculture	6.9	13.7	20.5	41.1
Trade and industry	6.1	75.8	151.7	233.6
Tourism	1.7	16.2	25.7	43.6
<b>Total</b>	<b>14.7</b>	<b>105.7</b>	<b>197.9</b>	<b>318.3</b>

### Employment

#### *Situation before the earthquake*

According to IHSI<sup>10</sup> projections, in 2010 Haiti's population, consisting of 2 million households, numbered 10 million, and 64% of the population were of working age (15-64 years). Before the earthquake, 35% of the working population were considered to be unemployed. (The proportion for the urban population was even lower, since the unemployment rate was 41% for men and 43% for women). That means that there are 2.9 million working people in the whole of the country, including a large number of poor workers. This situation is associated above all with under-employment, which manifests itself in inadequate hourly rates, in the number of self-employed and workers in the informal sector, and in inadequate working conditions.

Before the earthquake, nearly 40% of workers were in agriculture, over 25% in commerce (where women were very well represented), over 15% in services, about 11% in industrial production, 7% worked as independent craftsmen<sup>11</sup> and 2% worked in public administration. In rural areas around 72% of working people worked in agriculture and 17% in commerce. Agricultural workers often worked on farms which were under 2 hectares<sup>12</sup> in size. This sector was already notable for its lack of modern technology, basic infrastructure and technical help. Soil erosion is one of the sector's main problems, as only 2% of the land is still covered with vegetation.

In urban areas up to 40% of the working population worked in the commerce sector, 25% in services, 19% in industry and 5% in public administration. The FAFO study shows that 50% of young people worked for themselves, 17% worked in a family business and 18% of young people between 10 and 24 years of age had an income-producing activity. Nearly 50% of shopkeepers sold their goods at market, while the rest sold theirs either in the street or at home (20% respectively). According to this data, the informal sector, consisting of self-employed people and micro and small businesses, employed 1.9 million people nationally. In the areas of the Ouest and Sud-Est departments which were affected by the earthquake, this sector covered 814,000 people (bosses, employees and apprentices) out of a population of 4.3 million. By contrast, in the tourism and services sectors people working in the formal sector represented 26% and 56% of all jobs, respectively. This includes education, which constitutes 30% of all services, and which contains a majority of employees in the formal private sector.

<sup>10</sup> Source: Population Trends and Forecasts, Demographic and Social Statistics Department, IHSI, February 2009

<sup>11</sup> According to ILO calculations, as an ILO projection based on the 2003 census, the 2007 survey of the informal sector and IHSI estimates of population trends for 2010

<sup>12</sup> 78% in 2006, according to work undertaken by the World Bank

Before the earthquake, demographic growth in Haiti caused about 150,000 young people to enter the job market every year. This provided a mass of available unqualified labour who often had to work informally in craft production and retail.

Before the earthquake, vocational training in Haiti had a low budget and schools; youth centres and sports centres were few and far between and poorly equipped.

Private investment in industrial production was clearly inadequate and in decline before the earthquake. In the long term, big investment programmes which will generate a qualified, protected workforce should be prioritised. Finance for micro, small and medium businesses will also be fundamental, and will help to build up their capital, and also sources of employment.

As for agricultural production, indiscriminate tree-felling over a period of years for charcoal production has caused deforestation of more than 97% of the country's green areas. The main consequence of this has been soil erosion, with subsequent loss of agricultural productivity and the dangers arising from the heavy rains which affect the country every year.

Approximately 50% of Haitians are under 18. Before the earthquake some 40% of children were at school. Children were often employed in informal rural sectors where they suffered from working conditions which were the same or even worse than those of adult workers: long working hours, unhygienic environment, and risks in the workplace. Children were also employed in the informal sectors with the lowest wages, as unsalaried workers, apprentices or family helpers.

Newly disabled people as well as those who were disabled before the earthquake and who have lost their means of subsistence must be targeted by the state, so that welfare efforts can be concentrated. (See chapter on Social Welfare).

## Impact of the earthquake

The earthquake generated damage and losses in relation to employment. The chief damage consists of the total or partial destruction of workplaces, stock, access routes to markets, energy sources and supplies. All of these taken together have caused the relevant economic activity to be suspended and closed, with the consequent (temporary or permanent) loss of jobs. The employment sector has also suffered indirect losses, including market contraction and the loss of customers in certain fields, an interruption in finance flows, and loss of qualified staff (and therefore reduced competitiveness), which has consequences on the level of employment.

The PDNA assessment shows that just over 11 million working days were lost in the four affected regions. The resulting loss of income has been assessed at 53 million US dollars. Of the four departments which were affected by the disaster, in terms of working days and lost revenue, the Ouest department, where the city of Port-au-Prince is situated, was the most badly affected, followed by the Sud-est and Nippes. La Grande Anse also suffered losses, but these were of lesser magnitude.

The major losses were recorded in the services sector (education, health, transport and tourism), because of the infrastructure that was destroyed, thus causing jobs to be lost or suspended for longer periods, and affecting larger teams of workers, as in education. Commerce and small-scale craft production are different, since they are composed of myriad self-employed people who, because they normally operate in a hand-to-mouth way, were able to restart their work after a few days. In the production sector, 830,650 working days are estimated to have been lost.

This has mainly affected men, who represent more than 60% of the workforce. Women, for their part, have lost more than 63 million gourdes in terms of revenue from this type of work. 44% of the sector is made up of independent craftsmen, and they have felt the worst effects. Of the 450,000 shopkeepers

who worked in their homes, in the street or on market in the affected areas, at least 45,000 are thought to have been affected, mainly in the Ouest department. Over 75% of these are said to be women<sup>13</sup>. In public administration, about 20% of jobs have been lost, notably in central government. These losses are due, essentially, to the suspension of temporary jobs, as well as the collapse of some of the infrastructure where the administration was housed.

## Strategy

In this context, the government's main objective should be to create jobs and income as a matter of urgency, while simultaneously formulating and planning active policies to create new jobs in the medium and long term. The main elements of this strategy include:

- ***Creating jobs and revenue in the very short term as a matter of urgency, through*** (i) a support programme for re-starting micro, small-, and medium-sized businesses, in particular by developing loan systems suited to the needs of the poorest people; (ii) support to the most vulnerable groups; (iii) prevention of commercial exploitation of children.
- ***Creating jobs and revenue in the very short term as a matter of urgency, through*** (i) adopting the HIMO approach as the favoured reconstruction framework, which would involve creating the necessary institutional and regulatory framework; (ii) placing greater value on human capital; (iii) emergency employment services; (iv) recovery of local businesses, which should be more highly valued; (v) complementary activities to assist vulnerable groups.
- ***Creating sustainable jobs in the medium term through:*** (i) job creation in infrastructure maintenance; (ii) job creation through investment in the industrial sector; (iii) job creation through investment in agriculture; (iv) creation of sustainable jobs in environmental restoration and protection; (v) promoting, facilitating and supporting investment opportunities in Haiti and the Haitian diaspora, and making productive use of "émigré donations"; (vi) support for the improvement or emergence of a high quality craft sector; (vii) creating production zones (as incubators for business); (viii) improving the job market's institutional capacities and institutions; (ix) creating institutional vulnerability prevention mechanisms at decentralised levels.

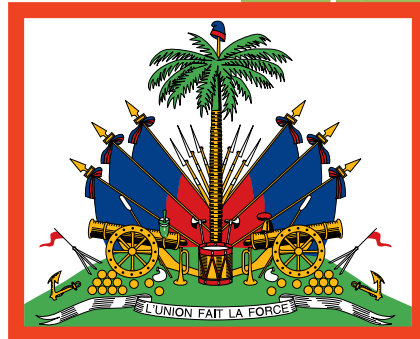
This proactive policy requires some preparation time to define each institutional player's priorities and responsibilities. Commitments will then be presented to the other players in a perspective of mutual public commitments. The progress of this policy will depend on all the reconstruction players' ability to take their place in the framework of the strategy referred to.

The fundamental stages of the implementation process will be as follows: (i) In an initial phase, it will be necessary to set up a high-level inter-ministerial commission that can launch a campaign of explanation, discussion and lobbying on the policy adopted. A series of meetings between the different players will enable them to find a consensus on political feasibility, and on the employment policy's effective contribution to the needs of the economy. (ii) In parallel with this, technical committees will nominate action plans for each component of this strategy. (iii) As soon as there is a consensus, all the players must commit themselves publicly to implementing the policy which is adopted. The time-scale for this approach should be two to three years, with the incorporation of checking mechanisms to ensure that each player completes its task.

In parallel with this procedure, and within the reconstruction framework, there are many courses of action which now need to be undertaken in tandem with infrastructure reconstruction and progressive strengthening of local capacity. One consequence of this approach is that the financial backers would be jointly responsible for the efficient use of funds they supply. Reference points must be established for assessing performance, and there must be mechanisms for following through the job creation policy.

<sup>13</sup> It has been considered that in cases where a house was totally destroyed, those who worked in the street or on the markets lost a month's work (possibly due to loss of stock, or reconstruction or displacement tasks). For home workers, the situation was more serious. As a result, even where houses were damaged work stopped for a week.





## Chapter III: Macro-economique and social impact



### 3.1 Summary of damage and losses

As detailed in the table below, the earthquake on 12th January caused considerable damage and losses in a number of sectors of Haiti's national economy. These sectors were already facing difficulties prior to the earthquake, as demonstrated by their costs and requirements, which are outlined in the following table.

The impact of the earthquake on Haiti's economy is equivalent to 1.2 times the country's 2009 GDP, more than 8 times the value of its exported goods and services, and almost 3 times the value of its imported goods and services. In terms of raw capital generation, the value of destroyed stocks is equivalent to more than double the value of the latter.

The second table below shows that total reconstruction costs and requirements are approximately USD 12 billion. Around USD 1.5 billion (13 percent of requirements) will be deployed in the very short term (by September 2010), primarily to meet urgent social needs (around USD 900 dollars). Over the next few years (2010-2012), the highest priority will be given to social sectors (52 percent of requirements), followed by infrastructure (15 percent).

**Table 1: Summary of Damage and Losses (in USD million)**

Theme/Sub-theme:	Damage			Losses		
	Public	Private	Total	Public	Private	Total
<b>Environment &amp; disaster risk management</b>	<b>3.00</b>	<b>0.00</b>	<b>3.00</b>	<b>321.40</b>	<b>1750.00</b>	<b>496.40</b>
<b>Social sectors</b>	<b>153.80</b>	<b>805.40</b>	<b>959.40</b>	<b>197.80</b>	<b>355.60</b>	<b>553.30</b>
Water and sanitation	20.90	13.10	34.00	8.40	193.00	201.40
Health	94.70	101.70	196.40	187.70	86.10	273.70
Education	38.20	395.60	434.00	1.70	41.50	43.20
Food safety and nutrition	0.00	295.00	295.00	0.00	35.00	35.00
<b>Infrastructure</b>	<b>628.1</b>	<b>2 538.60</b>	<b>3 166.7</b>	<b>774.2</b>	<b>520.60</b>	<b>1294.8</b>
Housing	0.00	2333.2	2333.20	459.40	279.30	738.70
Transport	188.50	118.6	307.10	91.60	197.50	289.10
Telecommunications	66.00	28.00	94.00	24.00	22.00	46.00
Energy	20.80	0.00	20.80	37.23	0.00	37.23
Urban and community infrastructure	352.80	58.80	411.60	162.00	21.80	183.80
<b>Production sectors</b>	<b>3.10</b>	<b>394.00</b>	<b>397.10</b>	<b>0.00</b>	<b>933.30</b>	<b>933.30</b>
Agriculture	3.10	49.90	53.00	0.00	96.00	96.00
Industry	0.00	74.60	74.6	0.00	267.70	267.70
Retail	0.00	148.70	148.7	0.00	490.60	490.60
Finance and banking	0000	98.20	98.2	0.00	0.00	0.00
Tourism	0.00	22.60	22.6	0.00	79.00	79.00
<b>Total</b>	<b>781.80</b>	<b>3,738.00</b>	<b>4,526.2</b>	<b>1,293.4</b>	<b>1,984.50</b>	<b>3,277.8</b>

Table 2: Summary of requirements (USD millions)

	(6 MOIS sept 2010)	(18 MOIS sept 2011)	3 ans	Total
<b>Total</b>	<b>1,477.5</b>	<b>3,086.1</b>	<b>7,627.2</b>	<b>12,190.9</b>
<b>Governance</b>	<b>329.3</b>	<b>374.3</b>	<b>215.0</b>	<b>918.6</b>
Rule of law, Justice, Security	40.0	215.5	200.0	455.5
Democratic process	40.3	35.2	0.0	75.5
Administrative governance and public services	249.0	123.6	15.0	387.6
<b>Regional development</b>	<b>0.0</b>	<b>192.0</b>	<b>533.0</b>	<b>725.0</b>
Regional development	0.0	46.0	118.0	164.0
Land tenure management	0.0	54.0	100.0	154.0
Decentralisation and deconcentration	0.0	92.0	315.0	407.0
<b>Environment - Disaster risk management</b>	<b>60.1</b>	<b>345.4</b>	<b>992.7</b>	<b>1,398.2</b>
Environmental governance	3.0	15.0	12.5	30.5
Land and resource management	10.0	58.5	380.8	449.3
Pollution and nuisance	43.1	221.9	472.9	737.9
Disaster Risk Management	4.0	50.0	126.5	180.5
<b>Social sectors</b>	<b>900.4</b>	<b>1,547.0</b>	<b>3,928.9</b>	<b>6,376.3</b>
Health	283.0	500.0	708.0	1,491.0
Education	449.3	465.4	1,685.1	2,599.8
Food safety and nutrition	21.0	299.1	399.5	719.6
Water and sanitation	95.4	199.2	776.9	1,071.5
Sport and leisure	11.4	22.8	258.5	292.7
Culture	40.3	60.5	100.9	201.7
<b>Infrastructure</b>	<b>124.9</b>	<b>417.4</b>	<b>1,295.1</b>	<b>1,837.5</b>
Housing	5.2	149.8	505.0	660.0
Urban and community infrastructures	0.7	68.0	96.6	165.3
Transport	29.7	118.8	448.0	596.5
Energy	83.3	71.8	192.2	347.3
Telecoms	6.0	9.0	53.3	68.3
<b>Production sectors</b>	<b>29.6</b>	<b>108.3</b>	<b>204.5</b>	<b>342.4</b>
Agriculture and fishing	6.9	13.7	20.5	41.1
Tourism	1.7	16.2	25.7	43.6
Trade and Industry	6.1	75.8	151.7	233.6
Employment	14.9	2.6	6.6	24.1
<b>Transversal</b>	<b>48.1</b>	<b>101.7</b>	<b>458.0</b>	<b>607.8</b>
Youth	45.0	93.0	440.5	578.5
Gender	2.8	8.4	16.9	28.1
Vulnerable persons and social welfare	0.2	0.3	0.6	1.1
Information management	0.1	0.0	0.0	0.1

## Overall economic impact

The overall economic impact of the earthquake is likely to result in an 8.5 percent fall in the country's GDP growth rate in 2010. The sectors that will see the biggest impact on growth will be infrastructure (-24.8 percent), the production sectors (-7 percent) and social sectors (-9.3 percent). Clearly, the earthquake will also have a severe fiscal impact. The Port-au-Prince metropolitan area contributes around 85 percent of the country's tax income and 70 percent of its customs income. This economic decline is further aggravated by a fall in tax revenue from the country's main contributing companies (around 60 percent), due to a slow-down in economic activity and as a result of the damage caused by the earthquake. These elements combined represent a substantial reduction in tax income, in an economy that is already under fiscal pressure.

As in the past, Haiti's current-account balance is facing chronic deficits. However, the costs associated with the country's reconstruction programmes are likely to result in even greater deficits, due to forecasts of a significant increase in associated imports. This is likely to lead to an even larger deficit in the country's current account (excluding donations), from 10.6 percent of GDP (in 2008-09) to 24.6 percent of GDP (in 2009-10). This is despite an increase in net current remittances of around USD 1.25 billion, to USD 1.37 billion. This situation is likely to arise due to a reduction in exported goods and services, from 14.6 percent to 11.6 percent of GDP, and a slight increase in imported goods and services, from 44.1 percent to 57.5 percent of GDP.

The following areas of intervention have been proposed:

- External funding to meet major post-disaster challenges and sufficient budgetary support to minimise monetary funding;
- Assistance allocation practices that do not compete with national production or contradict fiscal, monetary and foreign exchange policies;
- A new, fairer fiscal pact that involves fiscal decentralisation and expanding the tax base;
- A Public Investment Programme (PIP) that is consistent with growth, poverty reduction and quality of life improvement objectives;
- Growth in national income, based on revitalising production sectors (strategic areas) and creating employment.

## 3.2 The situation before the disaster

### 3.2.1 Recent economic development

The macroeconomic situation prior to the earthquake showed signs of the continued recovery of economic activity in Haiti that had started after the recovery and reconstruction efforts following the external crises of 2008 (e.g., oil/food products price crisis, four hurricanes). On the eve of the earthquake, the Haitian government was preparing to finalise negotiations with the IMF for a new programme as part of the Extended Credit Facility (ECF) and the sixth review of the PRGF (Poverty Reduction and Growth Facility) programme that had been implemented over the previous three years.

The macroeconomic indicators had stabilised and the Haitian economy was starting to grow again. Inflation was within the fixed objectives, fiscal discipline was adhered to and the economy's external position had improved due to the significant increase in exports, continued expatriate remittances and an increase in net reserves.

Indeed, despite the devastating effects of the 2008 hurricanes and the external impact of the global economic crisis and increasing oil prices, growth reached almost 3 percent, inflation fell significantly from 19.8 percent to -4.7 percent, the balance of payments current account deficit was scaled down (from 11.1 percent of GDP in 2008 to 9.9 percent of GDP in 2009) and monetary funding of fiscal deficit was below the amount anticipated within the framework of the PRGF agreement with the IMF (0.2 percent compared with 0.9 percent) despite the loss of income and the delay in budgetary support provision.

Private sector credit grew during the tax year by an average of 14.7 percent, with a trend in favour of credit in HTG, dollarisation of the system having been tempered by the reduction in interest rates in HTG and the fixing of a ceiling of 50 percent for the ratio of loans against deposits in foreign currencies. At the end of the financial year, the banks were showing positive results but had an abundance of liquid assets.

**Table 3: Main Indicators**

	<b>GDP growth rate</b>	<b>Rate of inflation (Sept.-Sept.)</b>	<b>Exchange rate End of period (HTG/USD)</b>	<b>Exported goods (in USD millions)</b>	<b>Remittances (in USD millions)</b>	<b>Budget Balance (as percent of GDP)</b>	<b>Current account deficit, excluding donations (as percent of GDP)</b>
2007	3.3%	7.9%	36.4	522.1	1,125.5	0.2	-6.9
2008	0.8%	19.8%	40.0	490.8	1,252.7	-3.1	-11.7
<b>2009</b>	2.9%	-4.7%	41.8	551.0	1,240.3	-4.4	-10.6

Sources : IHSI, BRH, MEF

Growth in economic activities and investments in the tourism and manufacturing sectors, particularly in textiles and energy, showed increased confidence in the private sector. In fact, some improvements had been noted in the investment environment, such as a substantial reduction in the time required to register a company. These improvements were accompanied by strong signals from the government to the private sector, including: (i) significant progress in the process of partial privatisation of Haiti's Teleco (sale of 60 or 70 percent of the capital), resulting in an expression of interest from the Vietnamese firm Viettel; (ii) changes in the law on property ownership to facilitate growth in construction sector activity; (iii) improvement of the public-private partnership with the creation of various mixed presidential committees to draw up recommendations for increasing competitiveness; and the subsequent creation of the private sector's Economic Forum, which brings together all the chambers of commerce and employers' associations to improve dialogue between the private and public sectors.

### 3.2.2 Economic governance and policies

This improvement in macroeconomic performance was accompanied by certain major achievements. The government implemented the National Strategy for Growth and Poverty Reduction (DSNCRP), which was well received by the international community. At the end of the first half of 2009, Haiti reached the point of completion in terms of the Heavily Indebted Poor Countries (HIPC) initiative and Multilateral Debt Cancellation, cancelling out a major part of around USD 1.2 billion of Haiti's external debt. Furthermore, at the start of the 2010 financial year, Haiti joined the partnership agreement with the European Union (EU EPA), opening the way for stronger economic ties between Haiti and the CARICOM countries and the Dominican Republic.

Significant progress had been made in terms of economic governance, in particular: (i) the adoption of a new law on the granting of public contracts; (ii) submission to Parliament and approval of the national budget within the constitutional deadlines; (iii) Senate approval of a revision of the Customs Code, designed to implement article VII of the GATT, harmonise customs procedures following Haiti's inclusion in the CARICOM common market, modernise customs practices and reduce contraband and tax fraud; and (iv) implementation of Sydonia World.

The government also pursued a recovery policy by exploiting the opportunities offered by the HOPE II law, by strengthening economic infrastructure to increase the private sector's capacity to create jobs and capitalise fully on this law. The purpose of this policy was to establish private-public partnership agreements, to increase direct foreign funding to modernise and increase the available space in industrial parks, to widen the range of products on offer and improve services in the electricity sector, and to improve services at the country's ports and on its road infrastructures.

These initiatives were supported by the following reforms:

- A modernised budgetary preparation, execution and control system and public accounting system;
- Greater transparency in management of the financial resources of the Road Maintenance Fund (RMF) and more sustainable investment in renovating and expanding the road network;
- Modernised electricity prices, designed to reflect production costs and reduce public payments (subsidies of almost USD 80 million in 2009) to EDH, and improved transparency and monitoring mechanisms;
- An improved fiscal income deployment capacity, including the adoption of a plan to implement the fiscal administration modernisation programme;
- A more transparent and efficient system for awarding public contracts, following the adoption of the new Public Contracts Code;
- Improved anti-corruption initiatives, through implementation of the Declaration of Assets law and the anti-corruption strategy;
- An improved debt management system.

### 3.3 Pre-disaster projections for the year 2010

The government planned to consolidate its achievements in terms of macroeconomic stability. As mentioned earlier, prior to the disaster the Haitian government was on the verge of finalising negotiations with the IMF to implement a new programme as part of the Extended Credit Facility (ECF). Following the example of the PRGF, this programme was to be spread over three years and allowed for balance of payments support of approximately SDR 61.4 million.

#### 3.3.1 Main indicators

GDP was set to grow by 3.6 percent in 2010 to achieve growth of 4.5 percent in 2012. The growth target areas selected by the presidential competitiveness committee were agro-industry, construction, infrastructures and the textile manufacturing industries and tourism. These were to be supported by increased public investment and direct foreign investment in the telecommunication and energy sectors.

Projected inflation trends showed a continued increase within the 6 percent-8 percent bracket. This rise was to be attributed to an increase in the price of certain commodities, the minimum wage, the electricity tariff and the customs tariff. The balance of payments current account deficit (excluding donations) was to be maintained at approximately 10 percent of GDP, despite the anticipated strong revival of imports, due to an increase in exports and unconditional payments.

A credit squeeze in the public sector was anticipated with a zero monetary financing objective and a new treasury bond issuing programme was scheduled for the end of the financial year. At the same time, the tax pressure was to increase from 11.2 percent to 11.8 percent of GDP in 2010.

### 3.3.2 Reform programme

An ambitious programme of structural reforms was also being considered. It was based on three key principles:

- i. Tax reforms to increase fiscal resources, create a fairer taxation system and improve public spending efficiency. The measures included the introduction of tax on telecommunications, and an increase in turnover tax (TVA) and the tax on manufacturers' labels. Efforts were also to be made to reduce tax exemptions and evasion. As far as spending was concerned, the efforts were to result in better allocation of the resources linked with implementation of the NSGRP paper and increased transparency;
- ii. An improved monetary policy framework and reform of the financial sector. The measures in this area included making the BRH more autonomous, implementing the recommendations of the IMF mission to assess safeguarding mechanisms within the BRH, developing better projections of the banking sector's liquid assets, and targeting monetary aggregates and a new organic law for the BRH which would include the progressive and permanent elimination of monetary financing by developing the treasury bonds market;
- iii. improvement of the business framework and infrastructure, the privatisation of certain public companies and the establishment of a public-private strategic partnership for public service provision.

### 3.4 Changes to the macroeconomic situation after the disaster

The Port-au-Prince metropolitan area alone houses 25 percent of the population and a significant share of the country's economic activities and sources of employment, as well as its tax and customs income.

The effects of the earthquake on economic activity and, as a result, on macroeconomic variables will be felt both directly and indirectly in the very short, short, medium and long terms. Regardless of the amount of external funding available for reconstruction, and disregarding the reconstruction programme and project implementation structures, it will take the Haitian economy years to recover from the damage and losses sustained. The crisis is further aggravated by the disappearance of human capital and the subsequent brain drain.

The reconstruction process will take time and will be influenced by a number of factors: (i) the formation of a national and international consensus on a reconstruction plan; (ii) the absorptive power of the administrative system and the economy; (iii) the introduction of suitable coordination structures; and (iv) the availability of external aid, including budgetary aid (as detailed in above) to support the government's rehabilitation efforts. The timeframes for this reconstruction programme must also take into account the elections schedule and any resulting changes in leadership.

The table below details the new forecasts for a limited number of indicators, which will be discussed in greater detail in subsequent sections. These indicators take account of the government's vision as set out in the strategy document entitled "*Le Plan d'Action de Relèvement et le Développement National - Les Grands Chantiers pour l'Avenir*" (National Recovery and Development Action Plan – Building for the Future), which was finalised in March 2010.

Tableau 4 : Projections de certains indicateurs (compte tenu des dommages et pertes)

	2010 Pre-disaster	2010 Post-disaster	2011
GDP growth rate	3.6	-8.5	10.2
Rate of inflation (end of period)	8.3	8.5	8.6
Exports (in USD millions)	635.0	486.0	545.0
Remittances (in USD millions)	1 240.0	1 371.0	1 435.0
Budget Balance (in HTG millions)	-2 660.0	-19 173.0	-16 495.0
Current account deficit (excluding donations, as percent of GDP)	10.6%	24.6%	26.6%

### 3.4.1 Real sector

The earthquake's effect on the economy will probably be felt in terms of an overall fall in growth of -8.5 percent. The three main sectors analysed below were the worst hit.

In terms of infrastructure, the *transport and communications* subsector suffered losses leading to a 24.8 percent reduction in growth in this sector. Many vehicles and buildings were destroyed or damaged. The streets of the capital were partially impassable due to the rubble, which slowed down traffic; ICT companies were affected and their services interrupted immediately after the disaster.

The *electricity, gas and water* subsector was also badly hit, with around 12.6 percent reduction in growth. EDH reported damages to its distribution network. The funds required to repair the damaged network have been estimated to be approximately USD 40 million. The Delmas 33 distribution plant was badly hit. Initial assessments suggest that 6 months to a year will be needed to re-establish energy distribution capacities in the metropolitan area. Distribution of petroleum products was reduced in the first two weeks following the disaster as a result of damage to certain substations in the capital. This interruption caused a short-term shortage and therefore an increase in the cost of fuel. Finally, the main water production and distribution companies suffered damage, causing the supply of mains water and drinking water to be interrupted in the metropolitan area for 2 to 3 weeks following the disaster.

Within the social sector, *other non-market services* were worst hit, experiencing a 19.8 percent reduction in growth, mainly in the provision of health and education services. In the *health* subsector, infrastructure was destroyed (e.g., hospitals, health centres, clinics, private general hospitals, laboratories, etc.) causing a reduction in employment and revenue. As for the *education* subsector, most of the schools and universities collapsed. The interruption to schooling has meant continued loss of income for teachers, school staff, and small businesses that provide services to schools and universities.

A reduction in growth has also been observed in the production sector (-7.0 percent), including retail (-26.2 percent), tourism (-25.3 percent) and to a lesser extent industry (-5.6 percent). These subsectors have been badly hit by the earthquake. *Retail*, which represents approximately 25 percent of the GDP, has been severely affected. Most commercial buildings in the centre of the capital were destroyed along with equipment, material, stocks of merchandise and working capital. In the *tourism* subsector, many buildings have been destroyed (at least 750 hotel rooms and many small restaurants). Furthermore, tourism in Haiti could also be affected by the danger of aftershocks in the coming years. In the *industry* subsector, 50 to 60 percent of rum distilleries are thought to have been destroyed on the plains of Léogane and the main rum producer was badly hit.

**Table 5: Growth pattern summary (%)**

	2009	2010	2011	2012
Pre-earthquake baseline	2.9	3.6	3.9	4.0
Predicted growth in recovery phase	2.9	-8.5	10.2	9.1

### 3.4.2 Inflation

Year-end inflation for 2010 is forecast to be 8.5 percent compared to -4.7 percent in 2009. This turnaround is due to a fall in supply, an increase in transport costs and a rise in overall demand following the influx of foreign aid. Inflation is predicted to remain fairly high (at around 8.5 percent) until 2012.

### 3.4.3 Public finances

The public finance sector has been negatively affected in various ways by the earthquake, particularly due to the following factors: (i) concentration of revenue in Port-au-Prince and the sharp fall in economic activity; (ii) prevalence of import-derived tax revenue and reduced number of companies (about 100) that together contribute 37 percent of total current revenue; (iii) fall in income tax because many companies are not operating; (iv) reduction in the capacity of fiscal bodies to collect tax.

Furthermore, considerable requirements have emerged that will demand an increase in public expenditure – in order to meet the immediate needs of the population – and therefore a planned rise in transfers and subsidies by the State, especially for the electricity subsector, leading to the possibility of a significant fiscal deficit.

### 3.4.4 Revenue and expenditure

In the short-term, tax and customs revenue will decrease significantly. This may last for most of the 2010 fiscal year despite efforts to provide technical assistance and investments to repair physical damage to the customs and tax authorities (Administration générale des douanes (AGD) and Direction générale des impôts (DGI)). Returning to 2009 fiscal levels depends primarily on rebuilding businesses that generate income and on the level of trade imports, as well as on restoring the customs and tax authorities' capacity to collect revenue.

After the earthquake, tax authorities collected 19 percent of their average monthly revenue for the first quarter of the fiscal year in January and 55 percent in February, most of these taxes being collected by the Fiscal Management and Control Unit (Unité de Gestion et de Contrôle Fiscale, or UGCF). These taxes were mainly levied on mobile phone, oil, and financial companies, which contributed 60 percent of taxes collected from the 100 largest taxpayers. Although most of the regional offices that contribute towards state resources were not affected by the earthquake, revenue collected in rural areas was minimal.

Customs revenue (except for oil) for January and February was only 31 percent of the average total collected in the first quarter. This is explained by the considerable amount of tax-free humanitarian aid, destruction of the port and damage to Port-au-Prince airport, the collapse of some import businesses or those supplying inputs, and the almost unmonitored opening of the border with the Dominican Republic.

According to revenue forecasts carried out to date, approximately 40 percent of predicted budgetary revenue will be collected during the current fiscal year, representing a fall from 11.2 percent of GDP in 2009 to 7.3 percent in 2010. Revenue is expected to recover afterwards, reaching 10.2 percent of GDP in 2011 and 10.9 percent in 2012.

Table 6: Total revenue and expenditure (as% of GDP)

	2009	2010	2011	2012
			(as percentage of PIB)	
<b>Total revenue</b>	<b>17.9</b>	<b>19.7</b>	<b>25.3</b>	<b>23.8</b>
Fiscal revenue	11.2	7.3	10.2	10.9
Donations	6.7	12.4	15.1	12.9
<b>Total expenditure</b>	<b>22.1</b>	<b>27.0</b>	<b>32.1</b>	<b>30.6</b>
Current expenditure	11.2	12.5	11.8	11.4
Investment expenditure	10.8	14.5	20.3	19.2

Source: Haiti National Statistics Institute (Institut Haïtien de Statistique et d'Informatique – IHSI), Haitian Ministry of the Economy and Finance (Ministre de l'Economie et des Finances – MEF), as well as estimates based on recovery and reconstruction scenarios using a funding plan for requirements set at 40% in 2010 and 75% in later years..

Foreign aid projections are currently unknown. Haiti's cooperative partners and donor countries have announced preliminary amounts of financial support for reconstruction, but additional resources are expected after the conference in New York at the end of March, when the impact of the disaster and reconstruction requirements will be presented. For budgetary aid, multilateral partners, such as the World Bank, the Inter-American Development Bank and the European Union, as well as bilateral partners (such as France, Spain, the United States, Venezuela and the Union of South American Nations, etc.) have already announced their commitment to supporting the budget. Considerable resources have also been announced for investments; however statements on public resources available for the 2009-2010 fiscal year cannot be made using the preliminary data.

Significant resources will need to be made available to the State of Haiti to cover reconstruction expenditure and to meet social and infrastructure requirements, even in the very short-term. Total expenditure is likely to increase from 22 percent of GDP to 32 percent in the coming years. Current expenditure will rise from 11.5 percent of GDP in 2009 to 12.5 percent in 2010, as a result of a rise in subsidies and transfers from 2.9 percent of GDP to 3.7 percent as well as preparation for elections expected to be held during the current calendar year.

### 3.4.5 External sector

The relationship between the Haitian economy and the rest of the world is marked by weak export capacity, high demand for imports, considerable dependence on transfers and donations, a low proportion of foreign direct investments, and a borrowing capacity currently restricted by Haiti's status as a HIPC. Consequently, the impact on various aspects of the external sector – including the flow of trade and capital, the balance of payments, foreign direct investments, transfers, donations, and debt – will therefore be seen in the short, medium and long terms.

The current account deficit (excluding donations) could jump from 10.6 percent (2008-09) to 24.6 percent (2009-2010) of GDP, the deficit being the result of a reduction in the export of goods and services from 14.6 percent to 11.6 percent of GDP (USD 933 million to 751 million) and a slight increase in the import of goods and services from 44.1 percent to 57.5 percent of GDP (USD 2,882 million to 3,720 million), despite an increase in net current transfers from 19.2 percent to 21.2 percent of GDP (USD 1,240 million to 1,372 million).

The closure of Port-au-Prince's port and airport has led to an immediate fall in the number of products destined for export, including those from the manufacturing industry, which represented approximately 75 percent of total exports in the 2008-2009 fiscal year. Furthermore, the destruction and looting of certain workshops and warehouses as a result of the earthquake has reduced the number of facilities available for the storage of export goods. This has also led to a reduction in imports, which can be

explained partly by the destruction of warehouses and partly by the large-scale influx of international aid, which acts as a substitute for imported products. The port's capacity should return to normal in the six months following 12 January 2010, which should encourage both exports and imports.

The requirements necessary for the various phases of reconstruction in Haiti could lead to a sustained increase in imports. The impact of the earthquake on exports and investments remains to be seen, as do the incentives taken with respect to the private sector, especially the manufacturing sector, and changes to the HTG exchange rate. In fact, the value of the gourde rose immediately after the earthquake; if the trend continues, it is in danger of reducing the competitiveness of Haitian export products and further worsening the current account deficit.

Changes to the capital and financial accounts will depend on several factors, but generally speaking, the following effects are expected: (i) a reduction in short-term FDI; indeed, the events of 12 January 2010 have undoubtedly increased the country risk, which will reduce Haiti's attractiveness as a destination for profitable investment, at least for the next six months. However, if the reconstruction effort is intensified in the medium term, Haiti will probably attract new capital investment (such as for projects to build new types of housing). Of course, foreign investors' confidence in the medium and long term will depend on the quality of the strategic governance strategy to be deployed by the Haitian authorities with regard to reconstruction; (ii) a noticeable increase in donations to Haiti in the short and medium term. A positive effect is expected in this field in the medium term depending on funding agencies' commitment to honouring agreements, the world economic situation or possible natural disasters in other countries that may call for substantial intervention by the international community; (iii) the cancellation of Haiti's debt by several of its partners.

Reserves could therefore increase in the short and medium terms. If transfers by expatriates and humanitarian donations increase, the availability of foreign currency will grow. In terms of demand, a slight reduction in debt servicing costs and a fall in demand for foreign currencies to finance imports will reduce pressure on the dollar. However, the expected recovery of imports from the second half of 2010 will increase the demand for foreign currency, thereby hampering the rise in value of the HTG – and even causing a turnaround in the upward trend.

### 3.5 Impact on employment, household living conditions and poverty

In the economic analysis of the effects of the earthquake, the impact on employment is irrefutable. The absence of a specific employment policy before the earthquake makes it vital to carry out the following analysis because the impact of the earthquake will be substantial, considering the problems that existed beforehand. In addition to analysing the impact and requirement scenarios for recovery and reconstruction, specific advocacy is necessary for these two areas to actively incorporate an employment policy, which gives rise to the recommendations in the final section of this chapter.

#### 3.5.1 Impact on employment

According to IHSI forecasts,<sup>14</sup> the Haitian population is expected to reach 10,085,214 in 2010, living in 2,241,159 households mainly in rural areas despite significant migration in the last 20 years to urban areas, where production and economic development is generally concentrated. This migration, mainly in the direction of the metropolitan areas of the Ouest (Port-au-Prince), Nord and Artibonite départements, even resulted in administrative boundary changes in 2004, with the creation of the Nippes département.

Though high, the unemployment rate (65 percent) only partially accounts for the working-age population (64 percent), since only 46 percent of the workforce is employed. These statistics conceal the high level of underemployment, self-employment or informal work and provide insufficient information on the often poor working conditions. In practice, the largest source of income in Haiti is self-employment (in the countryside as well as in towns) and the transfer of money from abroad, whereas salaried employees account for only one-fifth of total income and are located mainly in metropolitan areas and work in

<sup>14</sup> 2009 National Observatory on Poverty and Social Exclusion (Observatoire national de la pauvreté et de l'exclusion sociale – ONPES) report (unpublished)

service industries. Furthermore, in rural areas, home consumption is an important source of income.<sup>15</sup> If we consider the statistics for those who are below the poverty line or poor (47 percent and 68 percent respectively), it is clear that the existing employment market is limited in guaranteeing minimum living conditions for Haitians.

The other related statistic that should be mentioned is the disparity between the poorest and the richest Haitians (the richest receive 50 percent of the national income while the poorest receive only 10 percent)<sup>16</sup> and between the urban and rural population (in rural areas, 75 percent of the population lives below the poverty line).<sup>17</sup> The informal sector in affected areas in the West and South East Departments – whether managers, workers or apprentices – represents almost one-fifth of the population.

### 3.5.2 Damage and losses caused by the earthquake

The earthquake on 12 January 2010 caused damage<sup>18</sup> and losses<sup>19</sup> in terms of employment of the population. Damage includes the destruction of houses where income-generating activity took place (craft workshops and places for trading), the loss of equipment and stocks, and the collapse of basic infrastructure (such as access roads to markets and supply roads, or energy sources).

The suspension of economic activity and closing of some businesses with the subsequent loss (temporary or permanent) of jobs, as well as indirect losses as a result of a reduced market and the loss of customers for certain activities, the interruption of cashflow and the loss of qualified staff (and therefore productivity), has also had negative repercussions on employment. In this situation, one of the Government's main objectives will be to ease job creation and increase revenue urgently, while at the same time drafting and planning policies that will create new sustainable jobs in the medium and long terms.

According to the post-disaster needs and damage assessment, just over 11 million working days have been reported as lost in the four regions hit by the earthquake. The subsequent loss of revenue is estimated to be HTG 2,236 billion (equivalent to about USD 53 million), of which roughly 42.5 percent was recorded for women.

Major losses have been recorded in the service industries (education, health, transport and tourism) due to the destruction of infrastructure that caused the loss or closure of workplaces for relatively long periods of time, as in the education subsector. Trade and small handicraft production, which comprise a wide variety of jobs, were able to restart work just a few days after the earthquake due to the unsophisticated and therefore easily replaceable nature of the tools used.

In the production sector, it is estimated that 830,650 working days were lost, affecting mainly men, who represent 60 percent of the workforce. Almost half of the activity in this sector is carried out by independent craftsmen who lost roughly a week to a month of work, depending on whether their workplace was damaged or lost.

Of the 450,000 traders working at home, on the street or at markets, in the regions hit by the earthquake, at least 45,000 were affected, mainly in the Ouest département. More than 75 percent of them are probably women.<sup>20</sup>

Twenty percent of public administration jobs were lost, mainly as a result of temporary suspension of jobs as well as the loss of some infrastructure, which is estimated to have caused a loss of jobs in absolute terms.

<sup>15</sup> Verner, Dorte, "Labor Markets in Rural and Urban Haiti", World Bank, 2008

<sup>16</sup> Ref. Proceedings of 1st Workshop on Social Exclusion in Haiti, 2009.

<sup>17</sup> Uchiyama, Naoko, "Determinants of Job Opportunity and Wage Incomes in Haiti", World Bank, 2008.

<sup>18</sup> Total or partial destruction of material goods during the disaster, measured in physical units and calculated at replacement value.

<sup>19</sup> Variations in economic flows after the natural disaster and over a relatively long period, calculated with reference to current prices.

<sup>20</sup> In the case of total destruction of homes, people working on the street or at markets were considered to have lost a month of work (possibly due to the loss of stocks, or rebuilding or relocation) In the case of those working from home, the situation was more serious, so even where houses were damaged, it was considered that a week of business was lost.

### 3.5.3 Needs assessment

The employment situation in Haiti before the earthquake was already insecure. Not only did the country have an unemployment rate of approximately 35 percent of the working population – particularly affecting women and young people – but also among those who considered themselves to be working, there was a large majority of underemployed or self-employed persons and “*working poor*.” These extreme conditions were the result of years of political instability, weak institutional capacity, a lack of private (national and international) and public investments, fragile basic and productive infrastructure – which made it impossible to meet requirements in terms of industrial and agricultural production, trade and the economic life of the country in general – inadequate and insufficient training of human resources, and a lack of access to new technology that was necessary to modernise production conditions and improve local capacity and competitiveness.

The earthquake on 12 January increased the general needs of the employment market. At the same time, it created a unique opportunity to confront it with programmes and investments for the emergency in the short-term, as well as those relating to strategies and for developing employment capacities and quality in the medium to long term.

### 3.5.4 Recommendations: an appeal for an employment policy in Haiti

In the current situation, considering the size of the informal sector (more than 80 percent of the workforce), with an official unemployment rate of 35 percent and a high proportion of the population (47 percent) living under the extreme poverty line (USD 1 per person per day), we cannot simply count on the jobs that will be created by foreign investment that will undoubtedly call for a certain level of expertise from the workforce.

An active employment policy will need to be implemented to stimulate a package of proactive measures and create favourable conditions so that the Haitian employment market is able to meet the demand for a qualified workforce.

The following strategies should be considered:

- Adapt laws and standards to make the Haitian employment market dynamic (facilitate the application of EIIP (Employment-Intensive Investment Programme) methods for public investments, facilitate recruitment, facilitate the creation of apprenticeships and work/training contracts for young people, etc.);
- Launch a national campaign for professional training and vocational training in the short-to long-term (together with the Ministry for Social Affairs and Labour and the Ministry of Education), based on a revision of training programmes, the main ones being those required by the construction market and by economic growth and modern activities and services (i.e., not manicure, hairdressing or crochet, for example, but rather site foremen or supervisors, masons specialised in earthquake- and hurricane-resistant standards, plumbers, electricians, specialised mechanics, IT programmers, telephone specialists, sound and light specialists, small business managers, etc.);
- Sign contracts with the various ministries involved in reconstruction (such as the infrastructure, telecommunications, water and electricity, health, and education ministries) in order to apply EIIP methods to public investments and so that, as soon as calls for tender are announced, optimising job creation is considered a priority and conditions are included to assist in recruiting the local workforce (through tax assistance and selecting offers made by companies as a priority, for example);
- Sign agreements with the private sector to optimise the use of the workforce and worker training (through tax assistance and other attractive measures that can be monitored

efficiently);

- Sign agreements with workers' representatives so that they become stakeholders in the battle to create jobs with their own prerogatives and means;
- Provide support packages for SMEs to consolidate and develop activities that have the potential to create a large number of jobs in both the formal and informal sectors;
- Introduce a package to raise awareness among young people and teach them, starting in primary school, about employment, entrepreneurship and continued apprenticeships as a way of life, etc., along with the Ministry for Social Affairs and Labour and the Ministry of National Education.

However, the aim is not to create any type of job at any price. It is rather to create decent jobs based on international standards, decent salary and work conditions, safety and good health at the workplace and a consensus with workers' representatives.

Penetrating international markets calls for increased competitiveness in exports through structured employment, good quality products, adherence to delivery times, and infrastructure that facilitates transport and influences the cost of goods. This policy would include social protection for workers and those who are unable to work (such as amputees, the disabled and senior citizens, etc.). Studies have been launched to identify viable solutions according to the best international practices.