

REPUBLIC OF HAITI

MINISTRY OF PUBLIC HEALTH AND POPULATION

NATIONAL DIRECTORATE FOR WATER SUPPLY
AND SANITATION



NATIONAL PLAN FOR THE ELIMINATION
OF CHOLERA IN HAITI
2013-2022



Republic of Haiti

Ministry of Public Health and Population
National Directorate for Water Supply and Sanitation

**NATIONAL PLAN FOR THE ELIMINATION OF CHOLERA IN HAITI
2013-2022**

Port-au-Prince, Haiti

Original version in French: November 2012

Updated version in English: February 2013



Preface

In October 2010, a cholera epidemic, like that of the January 12 earthquake, unexpectedly struck our country. The general population was still recovering and bandaged from injuries inflicted by the earthquake. This epidemic brought to light all the weaknesses of the Haitian health system.

Lacking expertise and resources to fight major endemic diseases, this new cholera epidemic gave rise to widespread panic. Officials of all categories (political and technical) rapidly realized that they must roll up their sleeves and manage the situation in order to prevent a rampant increase in the number of deaths and allow the population to rebuild their health.

Once again the Friends of Haiti did not compete in this struggle. They rallied to help bridge the gap, while transferring their knowledge and expertise to Haitian technical staff.

Today, with the commitment of the Haitian state, and the support of all partners, the country is taking a second breath. It sees the future differently because cholera, despite its virulence and lethality, is under control and can be eliminated.

In this context, on 11 January 2012, Presidents Michel Joseph Martelly of the Republic of Haiti and Lionel Fernandez of the Dominican Republic committed to undertake actions that could lead to the elimination of cholera by 2022. This commitment was restated on 9 October 2012 in Santo Domingo by the Ministers of Health of the two countries.

This document, prepared by the Ministry of Public Health and Population in collaboration with partners, is designed to provide a sustainable response by addressing the problem of disposing of cholera in three phases: short, medium and long term, and in four areas of action: water and sanitation, epidemiological surveillance, health promotion for behavior change, and care of infected persons in health institutions. Its strict application by everyone will help us achieve the goal to eliminate cholera by 2022.



Dr Florence **D. GUILLAUME**

Ministre de la Santé Publique et de la Population



Contents

1. Call to Action: A Cholera-Free Hispaniola	3
2. Summary of the Strategic Vision of the Government for Implementation of the Plan of Action for the Elimination of Cholera from Haiti	4
3. Context	6
4. Epidemiology of the Cholera Epidemic in Haiti	8
4.1 History of the Epidemic	8
4.2 Geographical Analysis of Most Vulnerable Areas	11
4.3 Recent Evolution of the Epidemic	13
5. Analysis of the Response Capacity of the Water and Sanitation, Solid Waste Management and Public Health Sectors	16
5.1 Water and Sanitation Sector	16
5.1.1 Water supply and wastewater disposal	16
5.1.2 Solid waste management	23
5.2 Public Health Sector: National Public Health Policy and Plan	27
5.2.1 Organization of the public health system	28
5.2.2 Steering and coordination role of the Ministry of Public Health and Population	29
6. National Response to the Cholera Epidemic	31
6.1 Response by the Government of Haiti	31
6.2 Response by the International Community	33
6.3 Financial Resources Mobilized	35
7. Indicators and Objectives of the Plan	37
7.1 Indicators of Results of the Plan	37
7.2 Goal and Objectives of the Plan	40
7.3 Short-term Interventions	41
7.3.1 MSPP interventions	42
7.3.2 DINEPA interventions	44
7.3.3 Roles of other actors	48
7.4 Principal Medium and Long-Term Activities	49
7.4.1 Water and sanitation	49
7.4.2 Public health sector	53

8. Activities and Cost of Implementing the Plan	59
9. Follow-up and Evaluation	60
10. Annex 1: Analysis of the Management of Cholera in Haiti	94
10.1 Community Level	94
10.2 Patient Transport/Referral Level	95
10.3 Implementation Level	96
11. Annex 2: Organizational Structure of the MSPP	101
12. Annex 3: NGOs Registered with DINEPA and Working in Development Activities	102
13. Acronyms	103
14. References	107

1 Call to Action: A Cholera-Free Hispaniola

January 11, 2012

On the second anniversary of the earthquake in Haiti, the international community determined that it was time to put an end to the scourge of cholera through short- and long-term actions to help the people of Haiti and the Dominican Republic combat this pandemic. In light of this concern, ***the presidents of Haiti and the Dominican Republic on 11 January 2012 joined the Pan American Health Organization/World Health Organization PAHO/WHO, United Nations Children's Fund (UNICEF), and the U.S. Centers for Disease Control and Prevention (CDC) to launch an appeal to mobilize major investments in water supply and sanitation with the aim of eliminating cholera from the island of Hispaniola.***

The Call to Action for a Cholera-Free Hispaniola has been supported technically by PAHO/WHO, UNICEF, and the CDC in collaboration with the governments of Haiti and the Dominican Republic. **The immediate goal is to prevent cholera from becoming endemic on the island of Hispaniola.** The elimination of cholera from the island entails interrupting its transmission. However, because the bacteria are in the environment, sporadic cases will always be detected.

As part of the Call to Action, representatives from PAHO/WHO and UNICEF are requesting donor countries and organizations to finance investments, and to meet the commitments made to Haiti following the earthquake of January 2010, with new funds specifically directed toward the construction of water supply and sanitation infrastructure. These investments are necessary to raise Haiti's level of access to potable water and sanitation to the levels of neighboring countries.

Following the declaration of the Call to Action by the Heads of State, the Ministers of Health of Haiti and the Dominican Republic on 12 March 2012 reaffirmed the commitment of their governments to proceed with joint efforts to eliminate cholera from Hispaniola **over the next 10 years.**

Within the framework of this commitment, Haiti and the Dominican Republic formed a working group on health and water and sanitation comprised of responsible government authorities from both countries in the area of health and water and sanitation, and assisted by international experts from the sectors involved. The group is tasked with developing a calendar of activities and a detailed plan to finance and install the infrastructure necessary to support the desired changes in public health.

2 Summary of the Strategic Vision of the Government for Implementation of the Plan of Action for the Elimination of Cholera from Haiti

The elimination of cholera from the island of Hispaniola means interrupting its transmission. However, because the bacteria are in the environment, sporadic cases will always be detected.

The Plan of Action is national in scope and will be implemented across the entire country, while targeting as a priority, rural villages and communities where there is a shortage of health facilities needed to protect the welfare of the population. In the short term, the plan will integrate the components of the emergency plan for cholera and elements that are fundamental for the long-term development of the health, water supply, and sanitation sectors.

The Plan of Action will be implemented under the supervision of a high-level national steering committee composed of all social sector ministries as well as the Ministry of Finance. It will oversee the sustainability of the systems and infrastructure designed and built within the framework of the Plan of Action and accompanying budget. This committee will carry out the government's monitoring and evaluation functions, and will advocate for the strengthening of both the regulatory and legislative frameworks, and the administrative and management procedures.

This initiative requires greater synchronization of interventions by the National Directorate for Water Supply and Sanitation (*Direction Nationale de l'Eau Potable et de l'Assainissement – DINEPA*) and the Ministry of Public Health. Toward this end, a presidential resolution will be issued regarding the cooperation modalities between DINEPA and the various ministries involved in implementing the Plan of Action.

The plan corresponds to the Government's policy of decentralization of the public health system and its extension to the most remote population areas. The objective is for the entire population to have access to a health post within a reasonable distance. The Plan of Action proposes to put in place health structures to reduce the incidence of cholera, to improve water supply and sanitation coverage, improve health coverage, and promote greater awareness

among the population about the importance of better services impacting health (i.e. primary health care, solid waste management, water supply and sanitation facilities, etc.)

The contribution of NGOs to the provision of health services in Haiti is very important. However, the Government will take steps to ensure that they are well integrated into the public health system in order to support the long-term objectives. Through the Plan of Action, the Government of Haiti will address this issue, and develop legal and procedural mechanisms (including administrative and technical accreditation, competency requirements, evaluation, training, contracting modalities, etc.) to better incorporate this assistance into public health structures.

Implementation of the Plan of Action will also be geared toward health promotion and prevention, and other health events such as cholera outbreaks. It will also address other social problems that require the participation of actors from the various sectors (United Nations agencies, NGOs, independent professionals, municipalities, etc.). The private sector and civil society are called on to play an important role in the activities identified in the plan, as well as at the Ministry and DINEPA levels. This intersectoral action will generate the synergy necessary to improve the health situation of the population and to ensure the sustainability of the environmental and social standards of the health, water supply and sanitation systems designed or built within the framework of the Plan of Action.

The plan includes enhancing the information system to enable national authorities to have reliable data for timely decisions pertaining to health care and interventions in water supply, sanitation, and waste management. This will consist of modernizing the health information system and strengthening epidemiological and microbiological surveillance, laboratory research, etc.

Finally, the opinion of civil society, and, in particular, the specific needs of children, women, and the handicapped, will be addressed during implementation of the Plan of Action.

Opportunities will be provided for public engagement in the decision-making process with regard to water supply and sanitation services at different levels: planning and budgeting, management and operations, regulations and compliance, and monitoring and evaluation.

3 Context

Ten months after the devastating earthquake on 12 January 2010, Haiti experienced one of the largest cholera epidemics in modern history. The first cases of cholera were discovered in Haiti in October 2010 in the Central Department and Artibonite. A month later, cholera spread into all of Haiti and to the Dominican Republic. On 15 January 2013, 642,832 cholera cases had been reported in Haiti, of which 8,015 had died, for a fatality rate of 1.2%, that represents the largest epidemic ever recorded in a single country in the world. In the Dominican Republic, the first cholera case was reported in November 2010. By 31 December 2012, there had been 29,433 suspected cases, 422 fatalities and a fatality rate of 0.7% in the Dominican Republic. The risk of cholera becoming endemic on the island of Hispaniola is high unless addressed.

The different manner in which the disease spread in the two countries is explained in part by health conditions that persist on the island. At the start of the epidemic, it was estimated in Haiti that 50% of urban residents and 30% of rural residents had no access to potable water, and 83% of the population had no access to adequate facilities for excreta disposal.¹ The lack of good hygiene practices among most of the population, and particularly among groups without access to basic health services, was among the factors that furthered the rapid spread of the disease. In addition, even before the earthquake in January 2010 and the cholera outbreak in October of that same year, 46% of the Haitian population had no access to health care. Access is defined in part by the distance that must be traveled to reach the nearest health center, and in part by the fact that a large portion of the population cannot pay for the cost of services.

Environmental degradation is extreme in Haiti and has a significant impact on the availability of and access to potable water, which constitutes an important factor for health and the spread of

¹ Source: WHO/UNICEF Joint Monitoring Program, 2012.

cholera. Throughout the entire country, poor waste management practices and the lack of modern sewerage and sanitation systems are among the environmental factors that affect the health of the population.

Despite the cholera epidemic in Latin America and the Caribbean in the 1990s, which killed approximately 12,000 people in 21 countries, the two countries of Hispaniola had not reported a cholera epidemic prior to the October 2010 outbreak. The epidemic in the 1990s was finally controlled after eight years of international public health efforts and massive investments in infrastructure, water supply, and sanitation in the region.

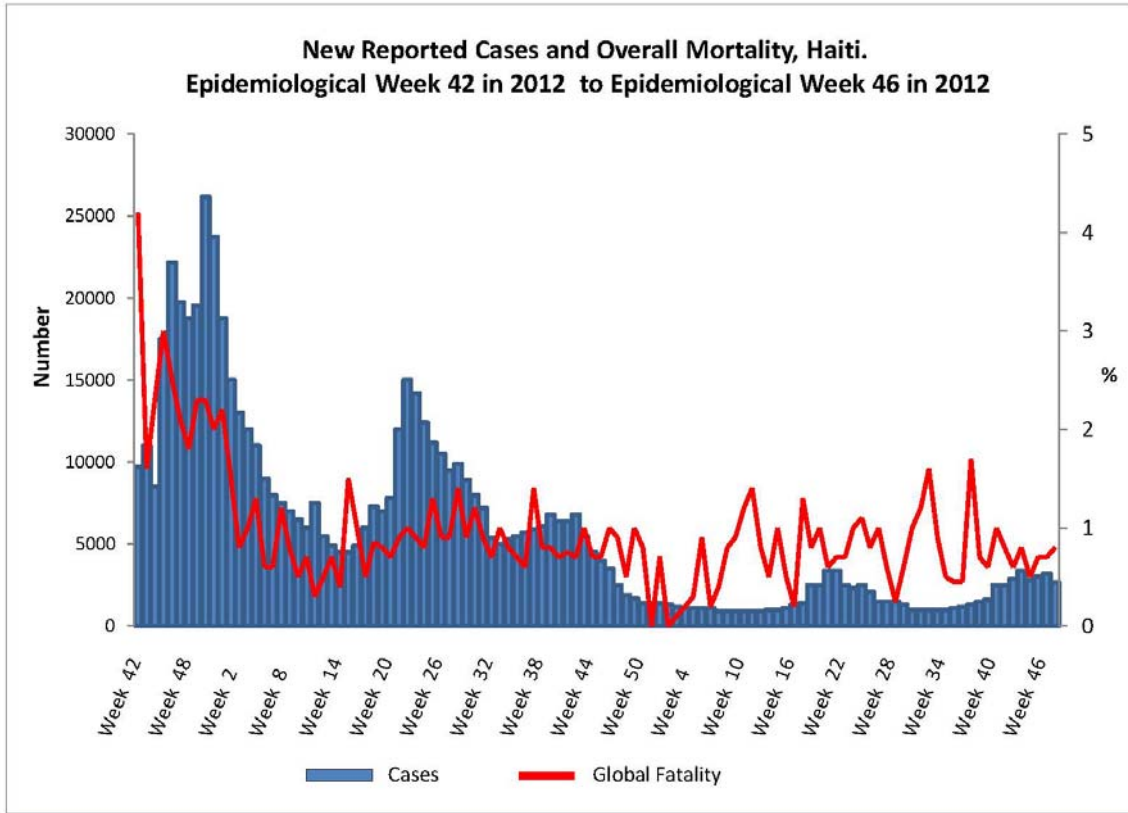


Major investments in infrastructure, water supply and sanitation are fundamental for the cholera transmission elimination

4 Epidemiology of the Cholera Epidemic in Haiti

4.1. History of the Epidemic

The cholera epidemic in Haiti began in October 2010 and was attributed to *Vibrio cholerae*, serogroup O1, serotype Ogawa, biotype El Tor. The first case was detected in the Central Department, after which the infection spread to the neighboring department (Artibonite) before spreading gradually to the other departments. Even though the infection spread rapidly across the country, it is interesting to note that two geographic areas with the densest populations have regularly reported more cases than the others: the metropolitan area of Port-au-Prince and the neighboring communes in the Western Department and the Artibonite Department. The overall mortality rate is estimated at 1.28%, compared to 1.51% for hospitalized cases. Figure 1 below shows the epidemiological curve for the period between 20 October 2010 and 14 November 2012.



**Figure 1. New Reported Cases and Overall Mortality, Haiti
Epidemiological Week 42 in 2010 to Epidemiological Week 46 in 2012**

Figure 1 shows several peaks of intensity that diminish progressively. The first peak occurred in November and December 2010, when the number of weekly cases reached 25,000. In 2011, the second and third peaks occurred in May and June, and October. In 2012, the fourth peak occurred in May 2012, with approximately 3,166 weekly cases on average, and the fifth peak took place in November with 2,811 cases per week. An important trend for these peaks in the curve is that they coincide with periods of intense rainfall. Case fatality was the highest in first few weeks of the epidemic where it reached almost 4% but stabilized around 1.2% in 2011 and 2012 (see Figure 5).

It can also be seen in Figure 1 that the mortality rate generally followed morbidity trends, until the end of 2011, when more reported deaths occurred in the country's South and Southeast Departments. It is believed that difficulties in accessing Cholera Treatment Centers following the departure of NGOs that had provided health care for cholera cases during the peak times of the epidemic contributed to this trend reversal. Between January 2012 and January 2013, the number of treatment centers for cholera declined from 370 to 215 - a 43% reduction. There is concern therefore about the coming rains.

Figure 2 shows the cumulative incidence rate of cholera for the 10 departments. Six departments have borne much of the burden. As conditions improve in the country for the elimination of cholera transmission over the next decade, particular attention will need to be directed to those departments (Grande Anse, Nord, Ouest, Artibonite, Nord Est, Centre).

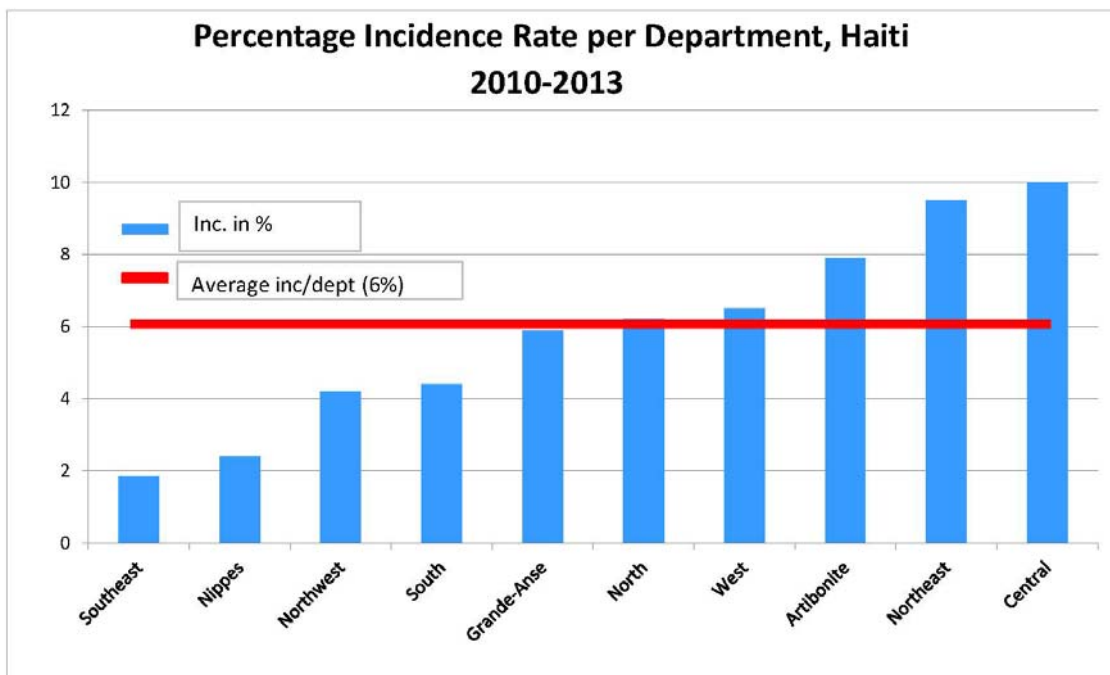


Figure 2. Percentage Incidence Rate per Department, Haiti, 2010-2013

4.2. Geographical Analysis of Most-Vulnerable Areas

The Haiti Poverty Map prepared by the Ministry of Planning and External Cooperation in 2007 shows that Artibonite and the Central Department have the greatest deficiency in access to potable water, along with Grand-Anse.

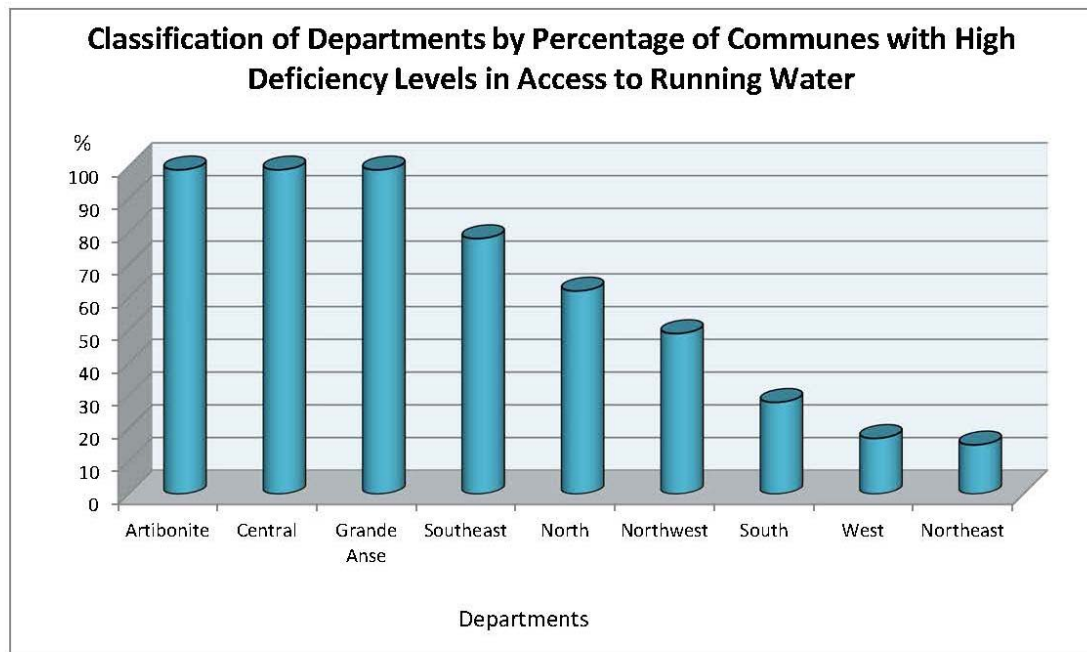
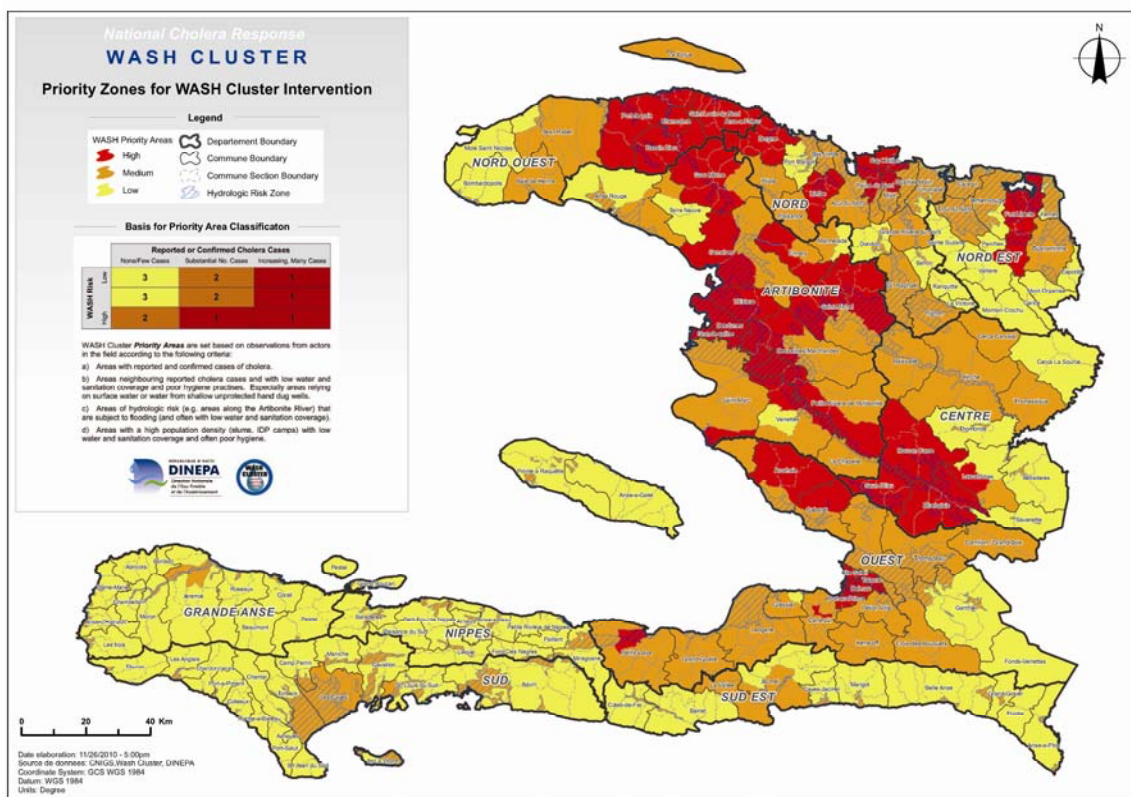


Figure 3. Classification of Departments by Percentage of Communes with High Deficiency Levels in Access to Running Water

As mentioned above, an analysis of the evolution of the epidemic, conducted in 2011 by the Ministry of Public Health and Population and the World Health Organization, identified Artibonite and the Central Department as the probable source departments of cholera. This analysis also identified other pockets of vulnerability such as the western portion of Grande Anse, the plains of Cayes, and the cities of Jérémie, Cap Haitien, and Port-de-Paix (see map below).



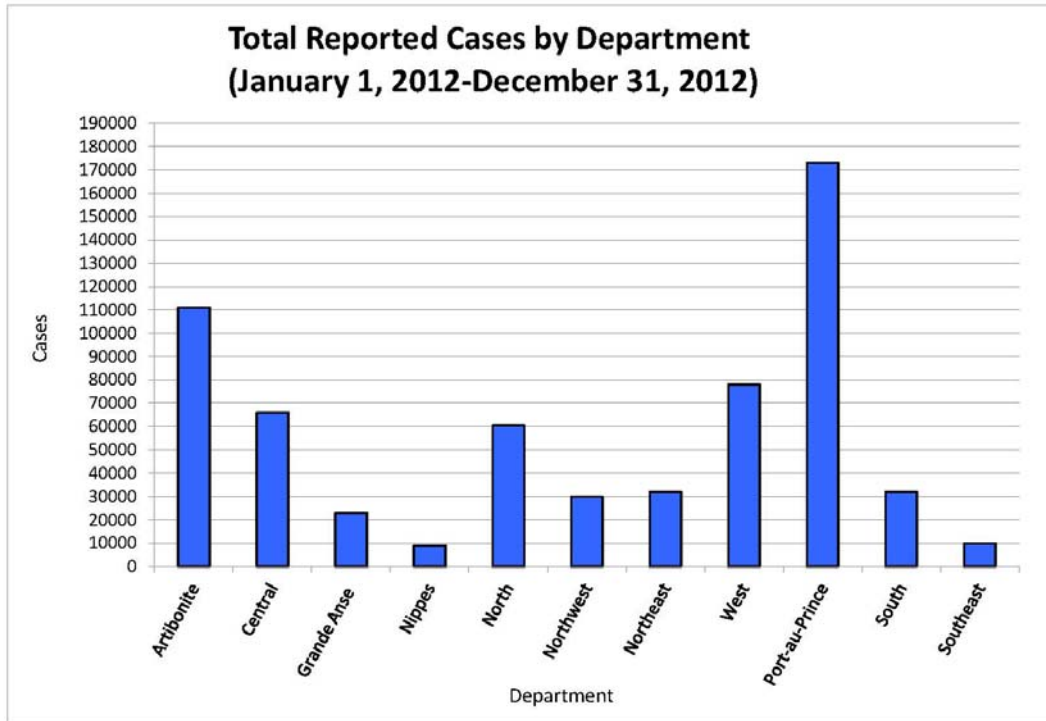
HAITI: Areas Vulnerable to Cholera in red.
Source: Data from MSPP and WASH & Health Clusters.
Mapping UN GIS team.

Particular efforts therefore need to focus on improving the water supply and sanitation situation in the Artibonite, Central, and Western Departments, together with certain hotspots in other departments (western Grande Anse, Aquin, border areas) in order to have the most rapid and effective impact on the cholera epidemic. DINEPA has already obtained greater financing for interventions in rural areas in the Artibonite and Central Departments than for interventions in other departments.

The mountainous regions of rural areas should be the focus of particular attention, given that the remote villages have poor access to potable water and sanitation. Cities come into play in the spread of the epidemic at the start of the rainy seasons. Interventions for potable water, hygiene, and sanitation in urban areas should therefore also be considered priorities.

4.3. Recent Evolution of the Epidemic

In early 2012, a declining cholera morbidity trend was noted; it was only toward mid-February that the first alert arrived indicating a resurgence in cholera cases. There was an increase in reported cases during the months of May, November and December. Figure 4 shows the number of reported cholera cases by Department from 1 January 2012 to 31 December 2012.



**Figure 4. Total Reported Cases by Department.
(January 1, 2012-December 31, 2012)**

While the threat of cholera remains real, the intensity of its transmission in 2012 declined relative to 2011. There was a reduction of more than 80% in the number of reported cases in the first 33 weeks of 2012. However, over the last 7 weeks of 2012, there were 21,509 cases as opposed to 14,765 in 2011 in the same period; in addition, 230 reported deaths had occurred in the same timeframe compared to 100 reported deaths in 2011; in the first three weeks of 2013, the number of cases had dropped compared to 2012; however, 50 deaths had been reported as opposed to 9 in the same period of 2012.

Figure 5 depicts the variation in the case fatality rate at departmental level between 2010-2013.

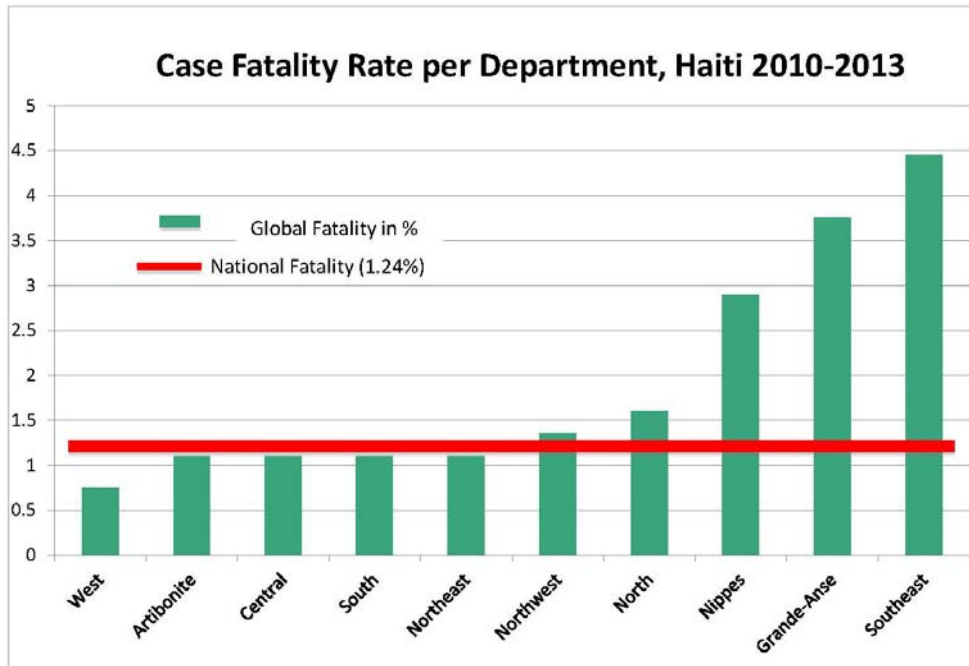


Figure 5. Case Fatality Rate per Department, Haiti 2010-2013

Figures 6 and 7 compare the data for reported cases of cholera and reported deaths up to week 51 in 2011 and for the corresponding period in 2012.

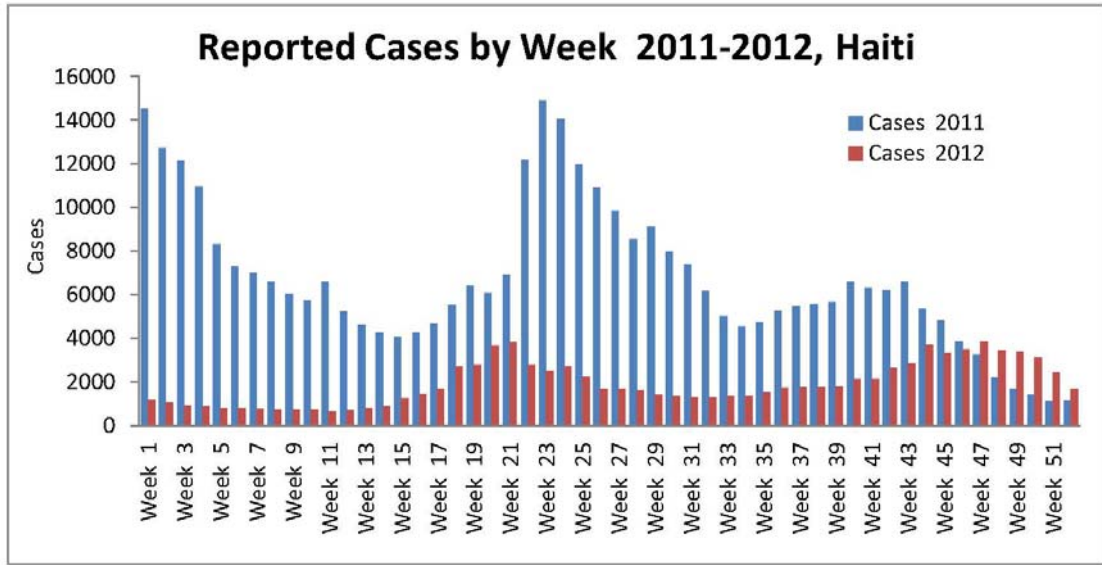


Figure 6. Reported Cases by Week, 2011-2012, Haiti.

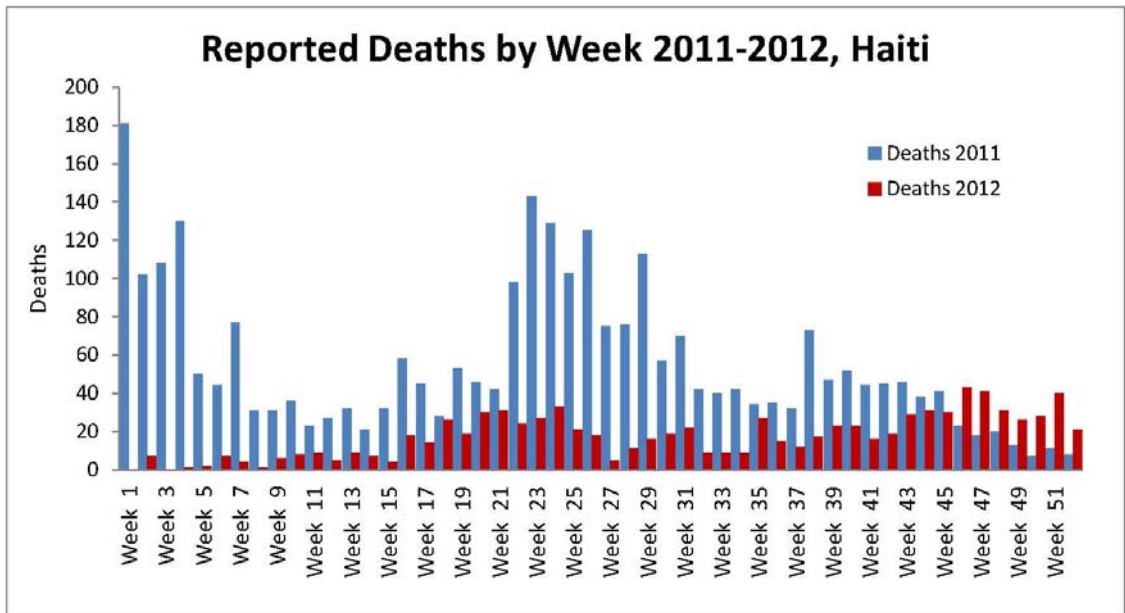


Figure 7. Reported Deaths by Week, 2011-2012, Haiti.

5 Analysis of the Response Capacity of the Water and Sanitation, Solid Waste Management, and Public Health Sectors

5.1. Water and Sanitation Sector

5.1.1. Water supply and wastewater disposal

5.1.1.1. Coverage of water supply and disposal of excreta

Even before the earthquake and the start of the cholera epidemic, the water and sanitation sector in Haiti lagged in comparison with average water and sanitation coverage in the Latin American and Caribbean countries. The level of services for improved water supply is characterized by:

- very low coverage (about 50% in urban areas and 30% in rural areas);
- high levels of leakage in the water supply networks, in some cases as high as 90%;
- uncertain supply and doubtful quality of the water distributed.²

The study of water and sanitation conducted as part of the 2003 population census provides a fairly good picture of the situation: (i) only 8.5% of households are connected to the water distribution system; (ii) 32% of the population gets its water supply from rivers; and (iii) 32% of the population uses water from the nearest source. The study found sanitation services to be practically nonexistent, with 29% of urban households and 12% of rural households having access to sufficient waste disposal. Most households use a rudimentary latrine or a hole dug on the property.

According to the 2006 demographic and health study, 10% percent of the population in urban areas and 50% in rural areas still defecate outside in open areas.

Wastewater collection systems are practically nonexistent in urban areas in Haiti. Household wastewater is generally dumped into the drainage system for rainwater.

² IADB, Haiti Sector Note, April 2011.

Septic tanks are the only technology currently in use for the treatment of wastewater. Sludge from latrines and septic tanks is a major concern and is generally dumped into ditches, without any control, or into the natural environment.

It is only recently that efforts have been undertaken to alleviate this situation through the construction and start-up in 2011 of two excreta treatment stations in Morne à Cabri and Titanyen, not far from the capital, for the disposal and treatment of wastewater from latrines and septic tanks. Each treatment station is designed to receive a volume of 500m³ of excreta from latrines and septic tanks.

5.1.1.2. Organization of the water and sanitation sector

For many years and until recently, the water and sanitation sector was fragmented, unregulated, and lacking in coordination authority. The needs of the sector are primarily covered by three institutions:

- i. The Autonomous Central Metropolitan Water Supply Authority (*Centrale Autonome Métropolitaine d'Eau Potable – CAMEP*), responsible for water supply (only) in the metropolitan area of the capital, Port-au-Prince;
- ii. The National Water Supply Service (*Service National d'Eau Potable - SNEP*), which is in charge of water supply for the rest of the country. However, due to its lack of capacity, SNEP concentrated its activities on drinking water for secondary cities;
- iii. The Ministry of Public Health and Population (*Ministère de la Santé Publique et de la Population - MSPP*), which through its Public Hygiene Division, health districts, and special projects such as the Community Water Supply and Hygiene Posts (*Postes Communautaires d'Hygiène et d'Eau Potable - POCHEP*) has responded to certain sanitary needs in rural areas through the construction of small systems for water supply, hygiene, and sanitation (installation of latrines).

Other sanitary needs were met by NGOs and through large government investment projects such as the Port-au-Prince sanitation project (project to build a rainwater drainage system) and the metropolitan waste management project (Metropolitan Solid Waste Collection Service - *Service Métropolitain de Collecte des Résidus Solides* – SMCRS), which, depending on the circumstances, was managed by the Ministry of Public Works or by different municipalities.

The consequences of this institutional fragmentation are:

- That the three main entities (CAMEP, SNEP, and MSPP) encounter difficulties in increasing coverage at the pace required to meet the sanitary needs of the population and ensure water and sanitation services of sufficient quality;
- A limitation on the financing available for the sector;
- An enormous loss of trained and qualified staff for the management of water and sanitation projects and programs, often to the funding providers and NGOs. These other organizations have a wide variety of positions available, and as a result attract the most qualified professionals;
- A lack of a national or regional registry of water system management committees;
- A lack of registries of associations of water committees at the municipal, department, and national levels.

To improve the performance of this sector judged as critical to the country's development, the Haitian government in 2008 launched a major institutional reform of the agencies that provide water and sanitation services. It established a national regulatory and coordinating agency for the sector through a legal framework adopted by the legislative assembly in August 2009: *the Framework Law Covering the Organization of the Water Supply and Sanitation Sector (CL)01*.

The law aims to strengthen government policy as well as its coordination and control functions as regards water and sanitation service providers. Thus the National Directorate for Water Supply and Sanitation (DINEPA) and 10 regional water supply and sanitation bureaus were established under the Ministry of Public Works. DINEPA is responsible for implementing policy for the sector, coordinating assistance from funding providers, and regulating services providers.

Specifically, DINEPA carries out its mission along three large axes:

- i. Development of the sector
- ii. Regulation of the sector
- iii. Monitoring of the actors involved.

The regional services bureaus under the authority of DINEPA are known as Regional Water Supply and Sanitation Offices (*Offices Régionaux de l'eau potable et assainissement - OREPA*), and their mandate is to provide water supply and sanitation in urban areas. According to the framework law, municipalities that currently have limited capacity should, over the long term, assume the functions of OREPAs. Private operators could also assume the management and operation of water systems. The framework law also calls for hundreds of Water Supply and Sanitation Committees (*Comités d'Approvisionnement en Eau Potable et d'Assainissement – CAEPA*) to be established. These committees will be responsible for small sanitary systems in small towns in the country's rural areas.

The structure of DINEPA should be sufficiently broad to handle the different tasks for which it will be responsible in the coming years. Responsibilities must address the reform of the sector, and improvements in water supply and sanitation coverage. DINEPA already has a Technical Directorate to establish standards and procedures to undertake the range of projects, and a Regional Operations Directorate capable of

ensuring operations of the OREPAs, in this way transferring the capacity necessary for their autonomy in the future.

The National Plan for the Elimination of Cholera forms part of DINEPA's broader Plan of Action, the objective of which is to improve the performance of the sector through a major institutional reform and a series of ambitious projects.

5.1.1.3. Analysis of the financial resources available for the water and sanitation sector

Even before the January 2010 earthquake and the cholera epidemic that began in October 2010, the water and sanitation sector was underfinanced and coverage levels in Haiti's urban and rural areas were the lowest in the hemisphere. One can conclude from Figure 8 that over the years the financing for the sector has not been proportional to the increase in the population.

During the 1990s, external aid to Haiti decreased significantly, which affected the performance of the sector and deprived an important portion of the population of improved services.

External aid resumed in 2004, but international aid for the water supply and sanitation sector was not significant until after the reform law adopted by the Parliament in 2009, which established the National Directorate for Water Supply and Sanitation (DINEPA).

At present, the major funding providers for the sector in Haiti are the Inter-American Development Bank (IDB) and the Spanish Agency for International Cooperation and Development (AECID). However, several funding providers contributed financing for priority activities for the country's water and sanitation needs based on the Priority Investment Plan (PIP) developed by the Government (see Table 4, Annex 1).

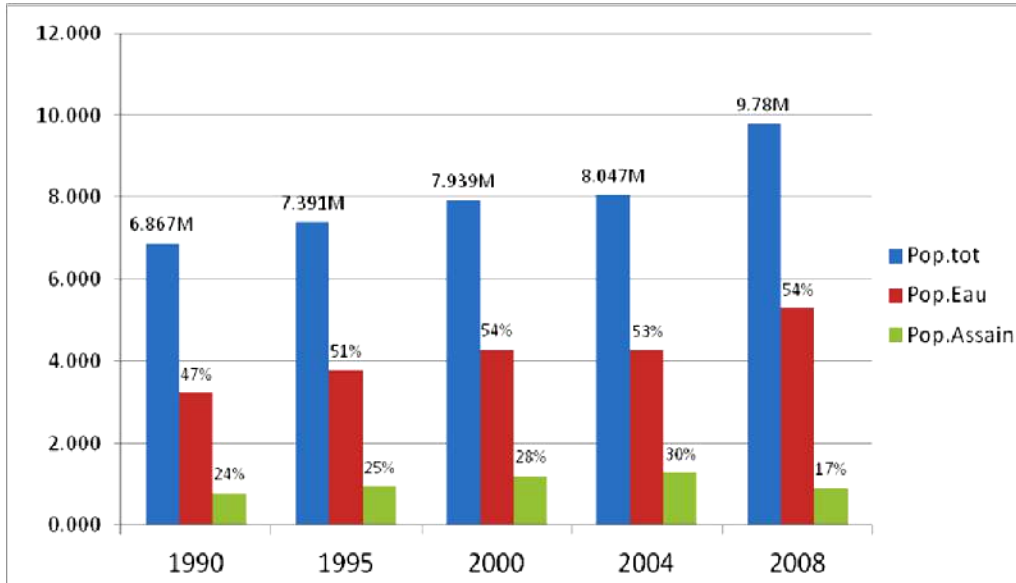


Figure 8. Trends in Water and Sanitation Coverage in Haiti from 1990 to 2008

Key: Total population

Population with potable water coverage

Population with sanitation coverage

Owing to the availability of these funds, the financial needs for the development and institutional strengthening of DINEPA are covered in part for the next four years, with an estimated US\$134.5 million in funding including USD 5 million dedicated exclusively to cholera). The IDB has currently in its 2013 pipeline, a water and sanitation project for Port-au-Prince for USD35.5 million. In addition, funds from different donors (see Table One, Annex 3) are already disbursed for Haiti and are in the process of being spent on urgent repairs of priority water and sanitation systems (mainly in Port-au-Prince, the capital, and other large cities). Similarly, funds are available for the construction and repair of water supply and sanitation systems in schools, health centers, and public places. However, the funds that have been obtained are allocated within the framework of the reform process, and supplementary funding will be needed to specifically target the elimination of cholera transmission in accordance with epidemiological priorities. That is, certain

cities identified as very vulnerable to cholera were not included in the reform framework, where priority interventions are selected according to criteria that are essentially economic in nature. In addition, DINEPA lacks financing to implement an ambitious program in rural areas, particularly in sanitation, that would ensure the ongoing presence of Communal Water Supply and Sanitation Technicians (*Techniciens Eau Potable et Assainissement Communaux* - TEPACs) in all communes across the country and maintain an emergency response through the Emergency Response Department (*Département de Réponse aux Urgences* - DRU).

The AECID and the IDB contributed US\$5 million that has already been disbursed and is being used by the Government through DINEPA specifically for emergency interventions in water and sanitation linked to the cholera epidemic.

In addition, DINEPA receives other important external financial aid that is not included in the figures above. It includes financial support from UNICEF, CDC/USAID, and technical cooperation assistance from PAHO as well as certain NGOs. Also, even though the amount is not counted in the table provided by DINEPA, financial support from UNICEF during the period after the earthquake was important and is crucial to combat the current cholera epidemic. This aid includes transport of water by truck for the camps in Port-au-Prince and Léogâne, repairs of systems that distribute water through public spickets in localities where cholera is a threat, and the distribution of public and family latrines in areas in need.

In addition, other funds available or in use for water and sanitation works in rural and peri-urban areas are not counted through the government system. These funds are resources provided by bilateral or multilateral funding sources

and disbursed through international NGOs for the construction of hydraulic and sanitation works in Haiti.

As these organizations are not required to declare the amount of funding received for Haiti, it is difficult to count these funds among the sums invested following the cholera epidemic or during the period following the earthquake.

The financial contribution of national counterparts available for the sector is almost negligible and limited to certain operational costs that are not always visible. This lack of investment coming directly from the country's fiscal budget represents a threat to the stability of the sector, which is going through a process of large-scale institutional structuring in order to meet the needs of the water and sanitation sector. An effort has been made for the 2012/2013 fiscal exercise, with an allocation of 155 million gourds for DINEPA (functions and investment).

5.1.2. Solid waste management

5.1.2.1. Solid waste management situation

Management of solid waste—from collection to disposal and treatment and appropriate discharge—is a problem that confronts many Haitian municipalities. The problem is particularly acute in urban areas where it is associated with overpopulation and urban sprawl.

Bad management of solid waste is apparent in the country's large cities and particularly in Port-au-Prince, where the squalor is visible.

Collection: It is estimated that only 50% of household garbage in the metropolitan Port-au-Prince area is collected.³ More than half of waste is dumped into the drainage system for rainwater, in the ocean, or in vacant lots.

³ Data from the National Plan for Solid Waste Management (*Plan National de Gestion des Déchets Solides - PNGDS*)

In certain neighborhoods, latrines are used to dispose of solid waste. This has a major impact on the emptying of latrines and the use of treatment stations, and it increases the risk of the spread of cholera.

Final disposal: Landfills for large cities are regularly occupied by the neighboring population, which sorts and resells recyclable products under dreadful conditions. The landfills are located in medium-sized cities, along rivers, or upstream from water sources regularly used by the population for household needs.

Education and regulation: Besides the lack of adequate services, it is important to note a major weakness in the level of education and in the promotion of hygiene in regulations, as well as a lack of rigor in terms of enforcing existing laws.

This situation is due to a lack of structure and financing in this sector in Haiti.

5.1.2.2. Administrative and legal framework for solid waste management

There is no specific legal framework for the management of solid waste in Haiti. However, the sector is governed by various laws found in urban planning and public health codes.

The institutional framework of the sector remains unclear, particularly in the large cities. Indeed, according to the law, urban sanitation is reserved for municipalities, which have the responsibility for street cleaning, garbage collection, and treatment of urban residues. However, to meet the needs for waste collection in metropolitan areas that are generally agglomerations, an autonomous organization, the Metropolitan Solid Waste Collection Service (*Service Métropolitain de Collecte des Résidus Solides - SMCRS*) was created by public decree on 3 March 1981 under the auspices of the Ministry of Public Works, Transport, and Communications. As the budget of SMCRS is handled by

the Ministry of the Interior and Local Governments (*Ministère de l'Intérieur et des Collectivités Territoriale* - MICT), this agency is under double supervision. This considerably complicates its operations and the monitoring of its performance.

Besides these public entities officially responsible for the sector—that is, the municipalities and the SMCRS under the supervision of the MICT and the MTPTC—other ministries are involved in particular aspects or subsectors of solid waste management, as follows:

1. Ministry of Planning and Cooperation, responsible for management of the national territory and involved in the selection of the locations for works and facilities for solid waste management.
2. Ministry of the Environment, the regulatory entity for the environment since 2000, which is responsible for handling hazardous waste and for the environmental regulation of its removal, treatment, and conditioning.
3. Ministry of Public Health and Population, responsible for handling biomedical waste. The Ministry of Public Health is very aware of the danger to the environment of hospital waste. Apart from two incinerators in Port-au-Prince, there is no budget at present for the construction of other incinerators for this type of waste. Certain health facilities burn the waste in a ditch and then cover it with quick lime.

In addition, other actors intervene in the sector, including:

1. NGOs financed by funding providers. These NGOs include Viva Rio, Groupe de Recherche et d'Échanges Technologiques (GRET), Centre Francophone de Recherche Partenariale sur l'Assainissement, les Déchets et l'Environnement (CEFREPADE), Solidarités Internationales, Action Against Hunger (ACF), FOKAL, and Oxfam Great Britain.
2. The private sector, through collection companies and companies interested in the purchase and resale of material recycled from plastic, metal, batteries, etc.

5.1.2.3. Current financing for solid waste management

According to Article 66 of the Constitution, the communes are autonomous from the standpoint of financing and administration. But in reality they function under the supervision of the Ministry of the Interior and Local Governments, and they do not have sufficient funds to adequately manage the collection and treatment of urban waste.

The SMCRS receives a monthly allocation that enables it to carry out half of waste collection.

Organization of the sector

In view of this situation, the MTPTC in 2009 launched a study financed by the French Development Agency (*l'Agence Française de Développement*) with a view to developing a National Solid Waste Management Policy. The policy proposes:

- An institutional framework for waste management under the supervision of a single authority, a National Directorate (DNGDS), and monitored through an administrative council. It is understood that urban cleaning and the management of solid residues is the responsibility of the communal authorities. However,

inter-commune facilities will be regulated by a regional strategy under the control of the council of town halls, which will design the management modality (including partners) that is most appropriate for the region.

- A financing mechanism through solid waste management funds, initially supported by taxes and levies on certain products, and adding a payment for services over the long term.
- A legal structure through a framework law that pulls together all of the laws linked to the sector and is strengthened by new laws that take into account technological advances and the country's socioeconomic and cultural context.

This study was presented to all of the sectors in national life and across different regions and was approved by the Ministry of Public Works, Transport, and Communications. It will be presented to the Parliament for ratification.

5.2. Public Health Sector: National Public Health Policy and Plan

All health system facilities are supervised and coordinated by the Ministry of Public Health and Population (MSPP) in the context of its regulatory role. However, the ministry is unable to assume this role completely. Still outstanding is an efficient health management and financing system, a human resources policy compatible with the ministry's needs, the strengthening of community participation, intrasectoral and intersectoral coordination, and legislative modifications compatible with the interests of the largest number of people.

In 2005, the MSPP published a *National Strategic Plan for Sectoral Reform*. The plan identified health as a fundamental human right of all Haitians, free of discrimination, and underlined the direct link between health and human development, as well as the respect necessary for the principles of solidarity, equity, and social justice. The principal mandate of health policy in Haiti calls for strengthening the steering role of the ministry with regard to planning, implementation, and evaluation of health programs.

The development of strategies to implement activities that guarantee the provision of basic health care is often constrained by inadequate institutions and a deficient and obsolete legal code. The absence of basic laws and the lack of coherence among existing services have contributed to a situation in which the government is incapable of regulating, supervising, or monitoring the quality of services, equipment, and materials necessary. Addressing these shortcomings in a priority within the Plan of Action.

5.2.1. Organization of the public health system

The health system in Haiti consists of the public sector, the for-profit private sector, the mixed nonprofit sector, and the traditional sector. The public sector includes the Ministry of Public Health and Population and the Ministry of Social Affairs, charged with the health of workers in the formal private sector. The for-profit private sector includes all health professionals in private practice who work independently or in private clinics. The mixed nonprofit sector is made up of health care institutions of the Ministry of Public Health and Population and facilities managed by the private sector, nongovernmental organizations, or charity organizations.

Health care is provided by Primary-Level Health Centers, Secondary-Level Community Hospitals, and the ministry's Specialized Reference Hospitals. The public sector represents approximately 35.7% of health infrastructure, the mixed private sector 31.8%, and the private sector 32.5%. It is estimated that 47% of the population has no access to health services and that about 80% has access to traditional medicine.⁴ Groups that use traditional medicines live for the most part in rural areas, accounting for 13% of the population, and live more than 15 kilometers away from the nearest health center.

In accordance with the Organic Law of 2005, the Ministry of Public Health and Population is comprised at the central level of two administrative bureaus, nine technical directorates, and four coordination units for the management of special programs such as infectious and communicable diseases, the Expanded Program on Immunization (EPI), nutrition, and

⁴ Source: PAHO, Health in the Americas, 2007.

hospital safety. Under the titular leadership of the ministry, all of the directorates are coordinated by a general directorate assisted by three support units (Health Decentralization Support Unit, Planning and Evaluation Support Unit, and Legal Unit). (See the organizational chart in Annex 2.)

There are also 10 departmental health directorates, one for each of the country's 10 geographic departments, and their services are decentralized to the level of Communal Health Units (*Communes de Santé* - UCS). Their number and location is determined by the size of the population covered, their jurisdiction, and geographical location.

The UCS are decentralized administrative units responsible for managing, within their geographical area, health and quality assurance activities, in partnership with public and private health entities and with the participation of the community. Traditional medicine, which is largely accepted regardless of social class or religious affiliation, is practiced by a variety of healers.

The for-profit private sector is concentrated in the metropolitan area, where most of the professionals work. Private facilities, including clinics, laboratories, and pharmacies, operate without restrictions and do not participate in either national health programs or in epidemiological surveillance of compulsorily notifiable diseases.

5.2.2. Steering and coordination role of the Ministry of Public Health and Population

The weak coordination capacity of the ministry became evident during the cholera crisis. There was very little investment in strengthening the ministry during the emergency phase. This situation should be taken into account in all assistance to the public health sector. The ministry should implement a structure for emergency response to all events.

Capacity strengthening is therefore essential to implement a successful and lasting national plan for the elimination of cholera. The ministry is going to pursue a strategy to take on new partners to strengthen capacity, which should complement current efforts already under way.

While clinical and curative health services are clearly necessary during major emergency situations, it is also just as important to invest at the government level in order to ensure that the Ministry of Public Health has the capacity to efficiently manage the health system on a national scale, as well as the local capacity to be able to supervise hospital and health clinic services that are handled by NGOs.

One of the main lessons learned from the earthquake in Haiti and the response to the cholera epidemic is the necessity to strengthen the Ministry of Public Health not only to coordinate the large number of NGOs that work in health, but also to establish a strategy for the reorientation of aid in the public health system.

In summary, there is an opportunity to rethink humanitarian assistance in such a way that it becomes integrated into and strengthens the health systems of the country in crisis, rather than replacing those systems. One of the essential lessons learned from the events in Haiti is that humanitarian aid should support, rather than undermine, the local authorities, so that the health ministries of countries receiving aid from the international community can be able to assume a coordination role and absorb the services provided during the acute emergency phase.

Another important lesson arising from the earthquake and cholera emergency is that information management and dissemination requires further attention. Even though the Ministry tried to map out its interventions, its capacity to do so remains limited, and the data being generated are incomplete.

6 National Response to the Cholera Epidemic

Upon confirmation of the first cases of cholera, the government of the Republic of Haiti mobilized rapidly to respond to the epidemic. The Head of State made a national address to the nation to announce the cholera outbreak and to state that the government would spare no effort to combat the epidemic. The government took several steps.

6.1. Response by the Government of Haiti

Policies and strategies:

- ✓ Creation of an interministerial unit with the specific mission of guaranteeing policy engagement by all the sectors of national life and mobilizing resources in support of the fight against cholera;
- ✓ Establishment of a Steering Committee responsible for coordinating the activities to combat cholera on a national scale;
- ✓ A government measure decreeing cholera to be a “national security problem;”
- ✓ Measures with regard to Haiti’s international partners to mobilize the resources necessary to combat cholera;
- ✓ Development of a national response plan.

On the operational side, the Ministry of Health:

- ✓ Launched a large-scale public information and awareness campaign with the cooperation of the local press;
- ✓ Strengthened the epidemiological surveillance system with implementation of a system of compulsory notification for cholera;
- ✓ Strengthened health protection measures and activities for the distribution of potable water in the displaced persons camps and in marginal areas;

- ✓ Developed clinical management protocols for cases with the assistance of PAHO/WHO;
- ✓ Opened 35 cholera treatment centers throughout the country with the support of several national and international NGOs;
- ✓ Trained health personnel in the affected communes;
- ✓ Supported a pilot vaccination campaign against cholera in two sites.

Policies and strategies undertaken by DINEPA:

- ✓ Creation in June 2011 of the Emergency Response Department (*Département de Réponse aux Urgences - DRU*), one of the responsibilities of which is to ensure the emergency response to cholera outbreaks in coordination with the MSPP;
- ✓ Leadership for the DRU from the WASH cluster, which brings together all organizations working with emergencies involving water supply, sanitation and hygiene;
- ✓ Development of the National Strategy to Combat Cholera, finalized in November 2010.

Operational-level activities by DINEPA:

- ✓ Diagnosis and repairs of water systems at 81 health centers;
- ✓ Chlorination of 700 water systems and 11 private pumping wells;
- ✓ Delivery of water by truck to three temporary camps for displaced persons;
- ✓ Massive distribution of household water treatment products to more than 700,000 families;
- ✓ Installation of 33 potable water stations in Artibonite;

- ✓ Emergency repairs of more than 20 potable water supply systems in rural areas;
- ✓ Installation of nine water-quality laboratories in at-risk areas;
- ✓ Chlorination and control of chlorine residue (SISKLOR) in small water systems around the capital and in 1,300 temporary camps for displaced persons;
- ✓ Coordination of the cleaning of latrine pits in the camps for displaced persons;
- ✓ Construction of two waste stabilization ponds near the capital for the treatment of wastewater, but primarily for the disposal of sludge from septic tanks and latrine pits;
- ✓ Intensification of hygiene promotion in at-risk areas and throughout the country;
- ✓ Provision of health infrastructure for more than 30 schools and 80 health centers.

Teams from the different ministries concerned and from civil society and international partners have made enormous sacrifices that contributed to the control of the epidemic. However, these efforts are nevertheless insufficient in the face of the extreme vulnerability of Haiti to such epidemics because of unsafe water, lack of hygiene, and the precarious state of health infrastructure.

6.2. Response by the International Community

During the course of the last year, the international community supported the efforts of the governments of Haiti and the Dominican Republic in implementing a cholera prevention and control strategy, including improvement in access to potable water and sanitation, promotion of good hygiene and food security practices, and the provision of prevention, clinical care, and treatment materials.

In particular, the organizations in the sector (see table in Annex 3):

- ✓ Helped DINEPA maintain the minimum sanitary conditions necessary in the emergency camps established after the earthquake (maintenance and emptying of latrines, installation of water supply systems, etc.);
- ✓ Distributed water treatment products to households for more than 1.2 million families;
- ✓ With technical support and guidance from DINEPA, established more than 11,000 water points, carried out more than 400 drillings, and repaired nearly 100 potable water supply systems;
- ✓ Under the coordination of DINEPA and the MSPP, transmitted awareness messages to 13 million people (this figure is larger than the Haitian population because some families received messages several times from different campaigns).

These health interventions played an important role in controlling one of the largest tragedies to ever hit the island, but even closer coordination with DINEPA should be established. Within the framework of the reform, DINEPA is the entity that monitors and regulates the sector and should therefore be able to coordinate actions in the sector, including decisions on bilateral financing.

These actions by the MSPP, DINEPA, and the organizations working in health, water supply, hygiene, and sanitation should be supported in the years to come in order to strengthen the global health systems in the two countries. To eliminate cholera from the island of Hispaniola, and achieve a standard in Haiti that is comparable to the other countries of Latin America and the Caribbean (LAC),⁵ the effort under way should be intensified in order to increase access to potable water and improved sanitation facilities.

⁵ CDC Global Health 2012. www.cdc.gov/globalhealth/features/cholera.htm.

6.3. Financial Resources Mobilized

The United Nations Office for the Coordination of Humanitarian Affairs (OCHA) launched an appeal to the international community at the start of the cholera crisis to finance the response by the different sectors involved. The donations that have been committed or received since the appeal up until now, and that have been reported to the Health Cluster, are shown in the table below.⁶

DONOR/SECTOR	BENEFICIARY INSTITUTION	AMOUNT (U.S. dollars)	PURPOSE AND REMARKS
World Bank	MSPP, FAES, DINEPA, 3 NGOs	15,000,000	Response to the emergency linked to the cholera epidemic
Inter-American Development Bank	UNICEF/DINEPA/MSPP	15,000,000	UNICEF(14M)/ MSPP(1M)
	DINEPA	5,000,000	DINEPA
ACDI, EU Delegation, DFID, CERF, ERF, Finland, Andalusia, Italy, USAID, ARC, Russia, South Africa, Spain	PAHO	25,230,700	
OCHA	Action Against Hunger	560,000	Response to the emergency linked to the cholera epidemic
	MERLIN		Response to the cholera epidemic in Port-
Germany	World Vision	170,000	
Sweden	Action Against Hunger	1,489,647	
	IOM	2,979,294	
	Save the Children	84,433	
France	UNICEF	111,111	
	CRF	138,889	
Spain	Haitian government	3,591,837	Estimate of resources received
USAID/OFDA/CDC		90,000,000	
Clinton Foundation	Haitian government	1,000,000	
	Total (U.S. dollars)	125,274,591	

Table: Funds Received or Committed for the Control of Cholera as of December 2012 (U.S. dollars)

⁶ Source: MSPP, December 2010; Management of the Cholera Epidemic.

DONOR/SECTOR	BENEFICIARY INSTITUTION	AMOUNT (euros)	PURPOSE AND REMARKS
ECHO	Goal Cholera	863,565	
	Care Cholera	1,500,523	
	AMI	582,277	
	MDM-BE	838,000	
	MERLIN	1,087,570	
	COOPI	424,704	
	Terre des Hommes	318,336	
	OXFAM-UK	1,700,000	
	ACF-FRA	758,000	
	ACTED	778,397	
	MDM-FRA	1,300,000	
	PAHO	1,450,000	
	CRF	1,439,056	
	CRA	703,803.2	
	Concern Worldwide	668,750	
	UNHAS	1,000,000	
Total euros	15,412,981.2		

Table: Funds Received or Committed for the Control of Cholera as of December 2012 (euros)

Source: Ministry of Public Health, December 2010; "Management of the Cholera Epidemic."

7 Indicators and Objectives of the Plan

7.1. Indicators of Results of the Plan

The Action Plan for the Elimination of Cholera in Haiti is comprised of three planning phases:

- Two years for the short-term objectives (2013-2014)
- Five years for the medium-term objectives (2015-2017)
- Ten years for the long-term objectives (2018-2022)

The indicators of results for the three phases are described below:

BY THE END OF 2014	
Biological indicator	Annual cholera incidence rate in Haiti reduced from 3% to ≤ 0.5 .
Result of health determinants	The people living in areas of the country where there is active secondary transmission wash their hands after defecating and before eating.
Commentary	Even when the necessary financing is assured, the construction of large water and sanitation infrastructure takes considerable time to be put in place. It is therefore necessary to continue emergency actions in a systematic manner through 2015, incorporating the strengthening and expansion of the primary health care system, integration of the food hygiene component, acceleration of sanitation and hygiene activities (construction of excreta disposal facilities and the cleaning of existing latrine pits in the camps), and intensification of health promotion activities, including making available simple safe water technologies to the communities identified as active cholera transmission areas or at-risk areas.

BY THE END OF 2017	
Biological indicator	Annual cholera incidence rate in Haiti reduced to $\leq 0.1\%$ in 2017.
Result of health determinants	<p>All public water supply systems are regularly chlorinated and monitored.</p> <p>All national research laboratories are functional and generating surveillance data.</p> <p>Institutional management and supervisory capacity in the water and sanitation sector is strengthened to the extent that is capable of managing and mobilizing the necessary resources to develop the sector so that it can reach coverage levels comparable to those of the Latin American and Caribbean countries.</p> <p>The public health system, including information management and health promotion, is strengthened in order to increase access to primary care and integrate the resources of DINEPA and the municipalities in epidemiological and environmental surveillance.</p>
Commentary	<p>The restructuring of the water and sanitation sector in 2009 was a necessary stage to achieve the long-term Millennium Development Objectives, as well as the government's long-term development objectives. However, DINEPA, which is responsible for the sector, is a new agency and is in the process of structural organization and as such has limited operational capacity. In fact, DINEPA currently is able to disperse \$30 million to \$40 million annually. In addition, the country has a severe shortage of professionals in areas of the environment, sanitation, and water.</p> <p>The rapid spread of cholera demonstrated the need to strengthen the health system, particularly primary health care and the structure for health care promotion as well as information management.</p>

BY THE END OF 2022	
Biological indicator	Annual cholera incidence rate in Haiti reduced to $\leq 0.01\%$
Result of health determinants	Access to potable water and sanitation increased in Haiti to at least the average level of the countries of Latin America and the Caribbean. The risk of contamination is reduced as a result of the proper disposal of excreta.
Commentary	<p>Eliminating cholera from Hispaniola means expanding water and sanitation coverage on the island to a level comparable to that of the countries of Latin America. For Haiti, this means accelerating current investments for the construction of water and sanitation infrastructure to the point that in 2022, access to potable water will surpass the current 69% level and increase to 85%, and that access to adequate sanitation will increase from the current 17% to 80%.⁷</p> <p>Vibrio cholera is a bacteria that lives in the water. As a consequence, before its arrival in Haiti, it may have been present in the natural environment of Hispaniola. Given the uncertainty regarding the time needed to reach the water and sanitation coverage levels necessary in Haiti, it is difficult to imagine the complete elimination of cholera from the island in a short time horizon. Instead, it is preferable to target over the next few years stopping active secondary transmission of cholera in Haiti.</p>

⁷ The average coverage level for the countries of Latin America and the Caribbean as indicated in the Call to Action.

7.2. Goal and Objectives of the Plan

Goal of the Plan: The ultimate goal of this Plan of Action is to eliminate cholera from the island of Hispaniola through technical and financial support from the international community and binational coordination.

Specific Objectives: In order to prevent deaths and reduce the suffering caused by the cholera epidemic, the Haitian government's main strategy is to put in place an integrated approach to prevent and stop the secondary transmission of cholera in Haiti.

From this perspective, the Haitian government has established the following specific objectives to be attained over the next 10 years, that is, by 2022:

1. Increase access to potable water to at least 85% of the population;
2. Increase access to improved sanitary and hygiene facilities to at least 90% of the population;
3. Increase collection of solid waste in the metropolitan area of Port-au-Prince to 90% and in secondary cities to 80%;
4. Strengthen the public health system to facilitate access to health care services for 80% of the population by increasing the number of physicians and nurses per 100,000 population;
5. Strengthen epidemiological and laboratory surveillance for early detection of all cholera cases and other diseases under surveillance. This will be achieved through an integrated surveillance system, better information, feedback, an information administration, and regulations for communications;
6. Ensure research on outbreaks and a response linked to surveillance activities;

7. Ensure a strong laboratory surveillance component to examine the possible serotypes and genotypes, as well as eventual changes in antimicrobial resistance among *Vibrio cholerae* strains in Haiti;
8. Intensify education of the public about household hygiene and food hygiene to the extent that by 2022, 75% of the general population in Haiti will have knowledge of prevention measures for cholera and other diarrheal illnesses;
9. Put in place an evaluation tool to measure the impact of activities related to cholera, water-borne diseases, and, more broadly, socioeconomic indicators such as absenteeism from schools and workplaces.

7.3. Short-term Interventions⁸

While mobilizing and beginning implementation of long-term actions, the National Plan for the Elimination of Cholera calls for the acceleration over the first two years of systematic emergency measures at the level of the plan's four strategic areas: water and sanitation, health care management, epidemiology, and health promotion. It was thus decided that the short-term actions will focus on **preventing the transmission of cholera from one person to another** through the use of drinking water disinfected with chlorine, and the promotion of hand washing, good sanitary practices, and food hygiene.

This principal short-term objective will be implemented in parallel with actions already being undertaken by DINEPA and the other organizations of the sector (see Annex 3, Distribution of NGOs). Within the framework of the reform, DINEPA will undertake the repair of water supply systems in 21 cities in the country and in the metropolitan region of Port-au-Prince, actions in rural areas, particularly in Artibonite, and the construction of excreta treatment stations in each department.

⁸ Currently called Phase II emergency interventions to control the epidemic. Planned for 2013 to 2015 (two years).

7.3.1. MSPP interventions

1. Continue with emergency measures to provide health care and treatment with oral rehydration solution;
2. Based on epidemiological data, implement a cholera vaccination campaign in certain densely populated agglomerations in urban areas and certain remote rural communities that are difficult to access, as a complementary measure to control and prevent the epidemic.
3. Strengthen the network of Multipurpose Community Health Agents (*agents de santé communautaire polyvalent - ASCP*) in order to have one agent for every 500 to 1,000 population in at-risk areas.⁹ Within the framework of the fight against cholera, their function will be to:
 - > Conduct home visits targeting households where there are suspected cholera cases;
 - > Provide regular reports to the Ministry of Health about detected cholera case and deaths;
 - > Facilitate the treatment of persons infected with cholera, following ministry protocol for oral rehydration solution, accompanying patients during hygiene and sanitary actions with a view to protecting other members of the family, and, when necessary, referring patients to a higher level of care in the health system (cholera treatment center or communal hospital);
 - > Promote and encourage the population to follow food hygiene measures according to the directives of MSPP and DINEPA;

⁹ Communities at risk for cholera are those that have had previous outbreaks or those that do not have access to potable water or excreta disposal.

- > Provide health education to promote hygiene and behavioral changes such as hand washing and household water treatment;
- > Carry out chlorine residue tests of water consumed in households and community water pipe systems;¹⁰
- > Add chlorine (and/or teach heads of families how to add chlorine) to household cisterns for drinking water;

These community health agents should be recruited according to the ASCP profile as defined by the Ministry of Public Health. They will remain part of the primary health care system.

4. Coordinate and supervise the hygiene and health education messages that are disseminated by the various entities involved in combating cholera. Ensure that the community health agents and NGO personnel are sufficiently trained to deliver messages from the ministry and DINEPA to sensitize the population about the risks of and the protection measures against cholera;
5. Ensure that all health professionals are trained in the principles of public health and that they promote through their own daily practices the messages that champion access to potable water, sanitation, and hygiene in health centers and community clinics, and at public awareness events;
6. Establish local community health clubs throughout the country (run by health workers) in order to promote hygiene and other public health issues;
7. Establish a network of community health clubs to increase efficiency and reduce the workload of the community health agents.

¹⁰ This task can be done by the ASCP when there is a cholera outbreak and there is no health inspector or technician available in the emergency region.



Construction of a unit to treat acute diarrheal and water-borne diseases within each Primary Health Care Center

7.3.2. DINEPA interventions

1. Coordinate emergency interventions with actors from the sector and the MSPP and control the quality of the actions undertaken:
 - > Identify and coordinate nonstate emergency actors involved in the area of water supply, hygiene, and sanitation;

- > Control the quality of the water provided by DINEPA in the development of the SYSKLOR system in the departments. SYSKLOR is a simple technology based on sending an SMS that informs the Observatory of the level of chlorine residue. SYSKLOR is in operation in Port-Au-Prince and the major cities of the country. Plans are to expand it to all the networks managed by DINEPA;
 - > Coordinate the interventions with those of the Ministry of Public Health, particularly in areas being handled by community health agents. Emergency activities should be adapted to each context and can include immediate repairs or chlorination of water points, or making water treatment products available to households.
2. Strengthen the decentralization of the sector through the operationalization of Community Water Supply and Sanitation Technicians, whose principal functions linked to the response to cholera are as follows:
- > When possible, accompany municipal agents, CASECs/ASECs, and health agents during their inspection/follow-up visits to health facilities on the basis of protocols put in place by DINEPA;
 - > In cooperation with URD social representatives and the DINEPA Hygiene Promotion Specialist, and in collaboration with the Ministry of Public Health, organize trainings that promote public awareness about water, sanitation, and hygiene;
 - > Participate in implementing a communications plan adapted by the commune and directed toward changing behaviors;
 - > Monitor chlorination carried out by rural SAEP operators;
 - > Conduct random sampling of water and quantitative and qualitative measures in accordance with the resources available to the commune;

- > When possible, accompany MSPP agents during the process of implementing the MSPP health plan in the commune;
 - > Participate in the coordination and monitoring of water supply and sanitation actors in the commune;
 - > Participate in the implementation of water supply and sanitation responses to the cholera outbreak in the commune, in collaboration with Civil Protection and Community Health Bureau agents. In the event of an emergency, ensure that chlorine products, such as aquatabs, are distributed to the population;
 - > In collaboration with the URD and the CTE, participate in implementation of the DINEPA water and sanitation strategy at the commune level;
 - > Participate in sensitizing the population and the local authorities about storage and treatment of water in the home, good hygiene practices, sanitation, and protection of the environment;
 - > Participate in water and sanitation activities in schools.
3. In collaboration with the Ministry of Public Health, ensure that the residents of the communities identified as being at risk of cholera, and that do not have access to safe potable water, can drink water treated through the appropriate use of liquid chlorine or chlorine tablets;
 4. Continue with emergency measures for the provision of safe water and sanitation in public areas (schools, markets, health centers, etc.), as well as the installation of excreta disposal systems for hospitals and health centers;
 5. Continue with actions under way to improve water supply services in the city of Port-au-Prince and the largest 20 secondary cities in the country;

6. In collaboration with the Ministry of Public Health, strengthen activities in rural areas through the use of simple techniques for access to potable water, promotion of sanitation, and good hygiene practices;
7. Build an excreta treatment station for the 10 largest cities in the country;
8. Finalize the project for the collection or partial collection of wastewater launched in Ouanaminthe and study the lessons from it in order to eventually bring it to scale;
9. Collaborate with the Ministry of Public Health in the training of community health agents and municipal health technicians. The training could be included among other topics linked to water conservation, promotion of hygiene, water analysis, and understanding the equipment used for the production of chlorine.



Monitoring the quality of household chlorine residue (Training)

In the short term, the financing needs least covered are those for activities in rural areas (technically simple projects to provide potable water, promote hygiene and sanitation, and build sanitary infrastructure in public places). Certain cities that were not part of the

reform framework also require priority interventions. Implementation of these interventions requires the presence of TEPACs, for whom financing is not assured in all the communes in the country.

7.3.3. Roles of other actors

Support from NGOs in financing health services provision in Haiti is very important and much appreciated by officials from the Ministry of Public Health and DINEPA as well as the general population. With regard to the NGOs working in the health sector, the vision of the ministry is to integrate their support into the national health system. Accreditation mechanisms will be developed to manage the integration process. Meanwhile, the NGOs will continue to provide their services within the framework of Haitian laws, and in line with MSPP and DINEPA directives. The re-establishment of Sector Roundtable meetings (national and departmental) in 2011 has provided a platform for decentralized coordination among the various organizations working in the sector. DINEPA has documented the NGOs that signed the framework agreement and their geographic area of intervention (Annex 3).

Within the framework of the reform, the central government will gradually withdraw from operational functions, particularly the construction and operation of facilities. The participation of the private sector and civil society is encouraged. Over the long term, the communes will assume their prerogative to take over management of nutrition and water supply and sanitation systems.

The private sector will be strongly encouraged to get involved in implementation of the National Plan for the Elimination of Cholera in order to diversify the actors and bring knowledge and investment capacity to the sector.

7.4. Principal Medium and Long-Term Activities

The strategic approach for the long-term objectives is set out in the Plan of Action for each of the four strategic areas.

7.4.1. Water and sanitation

7.4.1.1. Water Supply and wastewater disposal

Objective: Increase coverage of access to potable water to 85% of the Haitian population and access to improved excreta disposal to 90%.

Strategic approach: Strengthen the steering capacity of DINEPA as well as the institutional capacity for implementation and control of all the entities of the water and sanitation sector (OREPAS, CTE, etc.) created by the Organic law of August 2009 in order to:

- a) Accelerate the construction and repair of water supply networks and wastewater treatment and collection systems in the capital and all of the cities in the country, with an emphasis on the needs in peri-urban areas;
- b) Facilitate the construction of water supply systems for small rural communities and promote the installation of septic tanks and latrines in these areas;
- c) Achieve economic self-sufficiency, particularly in terms of operational costs for functions at all levels. DINEPA will also put in place during this period cost-recovery mechanisms for services provided in order to ensure the sustainability of water and sanitation infrastructure;
- d) Establish microcredit funds as a principal strategy to increase sanitary coverage, facilitating the construction of sanitary facilities for excreta disposal for populations in need. Microcredit will be used in particular to promote the

substitution of latrines with septic tank systems in urban areas and to facilitate access to latrines for poor families in rural areas;

- e) DINEPA will continue its policy during implementation of the plan, as follows:
- i. Strengthening of collaboration with local communities (ASEC, CASEC) during implementation of its activities in the field, including financing municipal sanitary technician positions;
 - ii. Training of local operators throughout the country to ensure access to a chlorinated water supply;
 - iii. iii. Integration of international organizations and NGOs into the national strategy for the sector.¹¹

Expected results:

1. The risk of transmission of *Vibrio cholerae* by using water that is insufficient in quality and quantity is eliminated through repairs to existing networks and the construction of new water supply systems in all medium-size or large cities, as well as in rural agglomerations judged to be a priority;
2. The risk of transmission of *Vibrio cholerae* due to poor disposal and management of excreta is eliminated from the entire national territory through the promotion of sanitary excreta disposal systems in urban and rural areas and the construction of sanitary sewerage accompanied by wastewater treatment systems in certain large cities and treatment systems for sludge in other medium-sized cities;
3. The institutional capacity of DINEPA is strengthened at the national level and in its decentralized structures.

¹¹ Signing of the DINEPA Framework Agreement with the NGOs.



Installation of potable water pumps in public sites

7.4.1.2. Solid waste management

Objective: Increase the national capacity for integrated management of solid waste to the extent that in 2022, 90% of household garbage in urban areas is collected and disposed of following established sanitary standards.

Strategic approach: Encode Integrated Management of Solid Waste (*Gestion Intégrée des Déchets Solides – GIDS*) in a legal and regulatory framework with the aid of legal instruments and technical standards adapted to the local situation, while achieving sustainable financing through a taxation system that is socially acceptable and takes into account the capacity of the population to pay.

The GIDS aims to reduce waste at the source, optimize recycling of appropriate materials, and integrate composting and adequate final disposal in a landfill with energy recovery of biogas. In addition, the plan will adopt the measures necessary to eliminate uncontrolled dumpsites and facilitate the recovery of degraded urban areas.

The management model implemented will integrate and support the organization of sorters and recyclers as autonomous professionals by putting in place participatory methods to promote shared management and social control of the solid waste management.

Expected results:

The solid waste management structure is established and operational in all medium-sized and large cities, which signifies a visible reduction in unhealthy conditions in the country.

1. Most of the household waste in large cities and small urban centers in the country is collected and treated according to established international standards.



Health Care waste management

7.4.2. Public health sector

7.4.2.1. Health care

Objective: Increase the percentage of the population with access to primary health care from 46% to 80%.

Strategic approach: This ambitious objective is based on the principle that the selected interventions will be sustainable and capable of resisting future public health catastrophes, while contributing to the development of health policy on a national scale. Toward this end, while short- and long-term measures are put in place, the objective will be to strengthen the response and coordination capacity of the Ministry of Public Health in order to address the current epidemic and all other similar events, prioritizing the expansion of primary health care facilities across the country and at a reasonable distance for the population in terms of access. To achieve this, it will be necessary to revitalize the health inspection teams and accelerate the timely training and placement of Multipurpose Community Health Agents (*agents de santé communautaire polyvalent - ASCP*).

The concept of the initiative to eliminate cholera is based on the notion of nondependent development and on the principle of resilience, in which new approaches will make communities the focus of attention. It is recognized that the improvement of water and sanitation, combined with a package of basic services, will significantly reduce the prevalence of many water-borne and food-borne diseases and will have significant positive effect on infant and maternal mortality.

During the next intervention phase, currently termed Phase II, communities at risk of cholera in the country's poor regions will be prioritized, particularly with regard to the extension of primary health care.

In general, the plan calls for the integration of cholera patient care into the essential health care system in such a way that:

1. Management of patients with cholera will no longer be handled in a vertical manner. Cholera will be treated like all diseases, except that its treatment will include a greater degree of infection control;
2. Cholera will be treated in all health care facilities. Cholera Treatment Centers will not be separated from health centers, except in cases of an epidemic surge in patient load;
3. Medical staff working in health care facilities will be trained to be able to provide care for patients with cholera and all other diarrheal diseases;
4. There will be a strong community health component. Each of the 565 communal sections in Haiti will be given an oral rehydration point (*point de réhydratation orale* - PRO) and will be covered by a community health agent or brigadier agent.¹² During the course of the Phase II interventions, the number of PROs will be increased such that benign cases cholera and other diarrheal diseases will be treated at the community level. The emphasis will be on training community health agents and sensitizing the population;
5. Collaboration with the Pharmacy Directorate will be established in order to ensure the supply of inputs necessary to facilitate better pre-positioning of supplies during the next 3 to 5 years;
6. During the course of the Phase II interventions, all brigadiers will be trained to become Multipurpose Community Health Agents and integrated into a higher level of the health system;

¹² A community health agent currently deployed for cholera in emergency areas.

7. Finally, the oral cholera vaccine (Vaccine Cholera Oral - VCO) will be used in Haiti, leveraging its distribution to strengthen the provision of other cholera prevention measures (such as social mobilization and active case research) and national vaccination services. To achieve this objective, supplementary progress is needed in coordinating the use of the VCO with water supply,, sanitation, and hygiene (WASH) development plans, ensuring sufficient availability of the VCO and the financial sustainability of its purchase and delivery, and developing operational and monitoring capacity for the vaccine. This progress should strengthen the national and local capacity for vaccination programs and the overall health system. The campaigns will be based on geospatial analyses using data obtained through the epidemiological surveillance framework. These analyses will be used to define criteria and strategies for use of the VCO. Consequently, a phased-in introduction based on global supply will be used in Haiti. Distribution of the VCO will be determined in accordance with the following options:

- a. In the metropolitan area, supplementary vaccination activities targeting displaced persons residing in the camps (i.e., a group with low immunity that is probably in transition toward high risk) and/or larger groups residing in slum areas (a group with moderate immunity but subject to higher risk);
- b. In the rural areas, through supplementary vaccination activities targeting populations with difficult access to health care. The vaccination in rural areas will very likely require supplementary activities based on geospatial analysis of a series factors, such as distance to health care facilities;
- c. Introduction of the OCV as part of the national vaccination program for children less than one year of age, linked to provision of the measles-rubella vaccine.

Regardless of the time and the eventual outcome of the cholera vaccination program, supplementary funds and resources will be needed for its success. Without constant efforts to strengthen water and sanitation, the use of the VCO will not avert the long-term risk of outbreaks and the resurgence of the disease.

Expected results:

1. Management of diarrheal diseases is significantly improved and completely sufficient for those who are ill with cholera or diarrhea, ensuring as well that:
 - ✓ Rules of hygiene and prevention measures are understood and used in institutions;
 - ✓ Each health structure has a unit dedicated to the treatment of patients with acute diarrhea;
 - ✓ A distinct and standard protocol for treatment of those who are sick and for disinfection is defined and implemented in the entire health system;
 - ✓ An appropriate transfer process is put in place for the departure of NGOs;
 - ✓ Communities have easy and permanent access to chlorine products (aquatabs, Clorox);
2. Logistics are improved to make available and accessible all medical inputs essential for health care for the timely management of cholera cases;
3. The fight against micronutrient deficiencies through the provision of zinc is strengthened in areas vulnerable to cholera.

7.4.2.2. Epidemiological Surveillance

Objective: By the end of 2012, facilitate the strengthening of epidemiological surveillance for timely detection of cases of cholera and other diseases under surveillance with better information management and a significant improvement in central and regional laboratory capacity.

Strategic approach: Continue national-level cholera surveillance through the National Directorate of Epidemiological and Research Laboratories, including research on outbreaks and routine collection and analysis of stool samples for

microbiological study of intestinal pathogens. This surveillance will be accompanied by the participation of early alert and response teams, dissemination of information, and application of the new International Sanitary Code. It will include the integration of early alert teams from the network of Multipurpose Community Health Agents. In summary, it involves (i) providing notification of diarrhea cases on a daily basis, (ii) regularly transmitting the data, and (iii) biologically confirming all cases for which there has been notification.

Expected results:

1. Strengthened epidemiological surveillance through biological confirmation for reliable information, early detection of cases, and alert opportunities at the departmental and national levels with a view toward concerted and rapid action;
2. Epidemiological surveillance is rendered effective through the strengthening of microbiological and environmental surveillance, the establishment of a decentralized laboratory network, and the integration of research, surveys, collection, and analysis of samples in order to better and more rapidly define the evolution of diseases;
3. Rapid response and implementation teams are created and stationed at the departmental level to be deployed in emergency situations. A laboratory response is available for emergency situations.

7.4.2.3. Promotion of health and food hygiene

Objective: Achieve a change in the behavior of the population to the extent that by 2022, 75% of the general population in Haiti will understand the importance of washing their hands after defecating and before eating.

Strategic approach: Make use of the threat of cholera to effect behavioral changes among at-risk and disadvantaged groups in terms of personal, household, and food

hygiene through social communication activities and interpersonal interaction. The health promotion program will aim to:

- a) Adopt an approach of complete behavioral change, supported by research on the most important determinants of behavior to be addressed;
- b) Conduct operational research and/or qualitative surveys to identify obstacles related to hygiene practices;
- c) Build, maintain, and expand research communities through agreements with religious organizations, NGOs, and youth groups;
- d) Put in place and support healthy schools by promoting the distribution of soap and nutritious food, as well as the use of adequate sanitary facilities, accompanied by educational initiatives to help maintain the continued good use and availability of those facilities;
- e) Collaborate with the private sector to maintain good hygiene and sanitation in communes at risk for cholera;
- f) Establish agreements with civil society institutions to promote access to education on food hygiene, hygiene, and sanitation;
- g) Strengthen and put in place agreements with the media, especially community radio networks;
- h) Revise and adapt messages in collaboration with national communications media and social mobilization groups in order to update materials and methods to change behaviors.

Expected results:

1. Hygiene practices favorable for health are adopted by the population;
2. Strengthened vigilance of the population in the face of the cholera threat;
3. Food hygiene practices improve at the family level and in the formal and informal restaurant sector;
4. National standards of hygiene and environmental protection are applied in health institutions;
5. Handling of cadavers is in compliance with standards recommended by the MSPP.

8 Activities and Cost of Implementing the Plan

The activities within the different areas of action are outlined in the logical framework (see Table 3). The logical framework is divided into four areas: water and sanitation, health services and management of health care, epidemiology, and the promotion of health, hygiene, and nutrition. The activities are grouped under lines of action to achieve the stated objectives. **The tasks outlined and the calculation of cost estimates correspond to the department levels, or institutions that are presiding over the working groups. The names of the lead agencies and financial summary are highlighted in Tables 1 and 2. The calculation methods for the cost estimates are available upon request.**

The total cost for implementation of the Plan of Action is estimated to be **US\$ 2,220,022,500**, of which:

- > For the Ministry of Public Health and Population (MSPP): **US\$ 269,660,000**;
- > For the National Directorate for Water Supply and Sanitation (DINEPA): **US\$ 1,577,362,500**; and
- > For the Ministry of Public Works, Transport, and Communications (MTPTC) and the Ministry of the Interior and Local Communities (MICT): **US\$ 373,000,000**.

9 Follow-up and Evaluation

Follow-up of implementation of the Plan of Action will be the responsibility of a **Steering Committee** comprised of representatives from the cabinet ministries involved and delegates from technical and financial partners, to be designated. The role of the committee is to facilitate the policy and strategic coordination of implementation of the plan. The participation of the Ministries of Public Works, Public Health, Education, Communications, the Environment, and the Interior and Local Communities will be encouraged. This committee will meet twice a year and whenever the chief of one of the executing agencies (DINEPA, MSPP, MTPC, MICT) convokes a meeting. This committee will also advocate for the strengthening of management and administrative procedures, as well as for regulatory and legislative frameworks. It will be the mechanism to oversee evaluation and monitoring the implementation of the national plan, including activities and resources.

Operational implementation of the national plan will be supervised by a Technical Committee made up of high-level officials from the National Directorate for Water Supply and Sanitation, the Ministry of Public Health, the Ministry of Public Works, and the Ministry of the Interior, as well as representatives from international agencies cooperating in one of the areas of the Plan of Action. The Director-General of the Ministry of Public Health will preside over this committee.

The Technical Committee will meet quarterly in order to review progress in implementation of the Plan of Action, propose corrective measures as needed, and prepare reports for the Steering Committee. The members of this committee will carry out field visits in order to evaluate the results of the project.

Evaluations of implementation of the Plan of Action will be undertaken in 2014, 2017, and 2022. Similarly, an audit will be conducted at the halfway point and at the end of the plan's implementation period. The program will be evaluated taking into account the results in order to be able to understand the development mechanisms engendered and their effects. The analysis of the degree of acceptance of the works by the beneficiaries, as well as the

improvement in their welfare, will be a key element. The analysis will indicate the perspectives for the sustainability of the projects and will highlight the recommendation with a view to replicating the lessons learned and the methodologies undertaken.

In accordance with the actions involved in implementing the Plan for the Elimination of Cholera in Hispaniola, a binational meeting every six months will be organized.

AREA OF INTERVENTION	LEAD AGENCY
Water supply and discharge of wastewater	DINEPA
Solid waste management	DINEPA/Ministry of Public Works
Health care	Health Services Directorate/MSPP
Essential medicines	Pharmacy Directorate – DPMMT/MSPP
Epidemiological surveillance	Epidemiology Directorate – DERLR/MSPP
Promotion of health and hygiene	Health Promotion Directorate/DHSPE/MSPP
Food hygiene and micronutrient deficiencies	General Directorate – MSPP

Table 1. Area of Intervention by Lead Agency

Table 2. FINANCING REQUIRED FOR IMPLEMENTATION OF THE ACTION PLAN

	EXECUTING AGENCIES AND AREAS OF INTERVENTION		SHORT-TERM* 2013-2014	MEDIUM-TERM 2015-2017	LONG-TERM 2018-2022	TOTAL
AREA WATER AND SANITATION	◇ DINEPA (b + c + d)	a	214,600,000	902,400,000	460,362,500	1,577,362,500
	- Water supply	b	81,000,000	575,000,000	168,612,500	824,612,500
	- Wastewater and excreta treatment	c	59,600,000	181,400,000	226,750,000	467,750,000
	- Institutional strengthening DINEPA	d	74,000,000	146,000,000	65,000,000	285,000,000
	◇ Ministry of Public Works, Transport, and Communications/Ministry of the Interior and Local Communities (f + g)	e	141,000,000	231,500,000	500,000	373,000,000
	- Institutional strengthening of solid waste management	f	1,000,000	1,500,000	500,000	3,000,000
	- Waste collection and treatment	g	140,000,000	230,000,000	0	370,000,000
AREA OF PUBLIC HEALTH	◇ Ministry of Public Health (i + j + n + q)	h	130,344,000	73,456,000	65,860,000	269,660,000
	□ Follow-up and Evaluation	i	80,000	120,000	300,000	500,000
	□ Implementation (K + l + m)	j	108,030,000	49,665,000	40,275,000	197,970,000
	- Health care services	k	35,030,000	18,480,000	29,600,000	83,110,000
	- Inputs/Essential medicines	l	63,660,000	24,435,000	6,425,000	94,520,000
	- Micronutrient deficiencies	m	9,340,000	6,750,000	4,250,000	20,340,000
	□ Epidemiology (o + p)	n	5,400,000	7,920,000	3,000,000	16,320,000
	- Quality of information	o	2,100,000	2,200,000	1,000,000	5,300,000
	- Research capacity	p	3,300,000	5,720,000	2,000,000	11,020,000
	□ Health promotion (r + s + t + u)	q	16,984,000	15,001,000	22,335,000	54,320,000
	- Hygiene practices	r	3,580,000	1,420,000	1,900,000	6,900,000
	- Institutional strengthening	s	8,010,000	10,450,000	17,250,000	35,710,000
	- Food hygiene	t	1,240,000	860,000	800,000	2,900,000
	- Hospital hygiene	u	4,160,000	2,280,000	2,390,000	8,830,000
◇ COUNTRY TOTAL (a + e + h)		485,944,000	1,207,356,000	526,722,500	2,220,022,500	

* Funds for short-term interventions are not included in the funds planned for long-term activities.

Table 3. Logical Framework. PLAN OF ACTION FOR THE ELIMINATION OF CHOLERA IN HAITI

(2013-2022)

Sphere of Activity: Water and Sanitation

Component: Potable Water Supply

Problem to Resolve	Relevance for the Program	Principal Measures or Activities Recommended	Estimation of Costs	Timeline		
No. 1: Sufficient quantity and quality of water not available in homes	Expected result: <i>The risk of transmission of Vibrio cholerae due to the use of water of insufficient quality and quantity is eliminated</i>	Performance indicator: <i>By approximately 2022, 85% of the population will be served by water that is sufficient in quality and quantity</i>	US\$	2013-14	2015-17	2018-22
	Access to water of sufficient quality and quantity is an essential condition for:	> Construction, repair, expansion, and maintenance of water supply systems in - the area of metropolitan Port-au-Prince - medium-sized cities and small urban centers - rural areas	654,612,000	63,000,000	423,000,000	168,612,500
	- Ensuring consumption of potable water - Applying principles of hygiene	>Development and implementation of a water quality program through: - Design of technical directives for water quality - Establishment of plans for major safe water supply systems - Training of local agents and program units for the control and treatment of water in the home (SISKLOR) - Provision of equipment for the production of chlorine - Facilitation of the distribution and sale of chlorine products at the national level	120,000,000	8,000,000	112,000,000	0
	These are the two conditions sine qua non to eliminate the transmission of cholera	>Development and implementation of an Emergency Response Plan	50,000 000	10,000,000	40,000,000	0
TOTAL			824,612,500	81,000,000	575, 000,000	168,612,500

Problem to Resolve	Relevance for the Program	Principal Measures or Activities Recommended	Estimation of Costs	Timeline		
No. 2: Excreta disposal	Expected result: Risk of transmission of Vibrio cholerae due to poor disposal and management of excreta	Performance indicator: By the end of 2022: - 90% of the population has access and uses a functional sanitary facility - 100% of drained excreta is treated before being discharged into the natural environment	US\$	2013-14	2015-17	2018-22
a. Discharge of excreta into the natural environment without prior treatment	Poor discharge practices contribute to the spread of Vibrio cholera in surface and subterranean water	>Construction of a semi-collective drainage system and wastewater treatment stations in the major cities in the country (25): study, construction, control and follow-up; environmental and social standards > Draining operations including operationalization, training, regulation, control, and follow-up	159,000,000 13,000,000	25,000,000 2,600,000	74,000,000 3,900,000	60,000,000 6,500,000
b. Bad defecation practices	Poor defecation and hygiene practices are major vectors for the spread of Vibrio cholerae	> Development of a National Plan for Communication and Awareness of Water Supply and Sanitation and dissemination of the national water supply and sanitation strategy > Development of educational materials, dissemination, and social awareness > Implementation of the Communication, Awareness and Education Plan for Water Supply, Sanitation, and Hygiene: - Awareness plan through the media and large-scale events - Awareness campaign in gathering places: Constant messages in markets - Bonuses for cleanliness in sanitation competitions between communities.	500,000 3,000,000 13,500,000 8,750,000	300,000 1,000,000 8,700,000	200,000 1,000,000 1,800,000 7,500,000	0 1,000,000 3,000,000 1,250,000

Problem to Resolve	Relevance for the Program	Principal Measures or Activities Recommended	Estimation of Costs	Timeline		
		<ul style="list-style-type: none"> > Construction, repair, management, and maintenance of public health facilities (protocols, reports, coercive measures): <ul style="list-style-type: none"> - in schools - in other public spaces > Sanitation programs for coastal and bathing areas, beaches; construction/repair of sanitary facilities; development of standards; advocacy > Follow-up of activities in sanitation and support to townships: Support the cost of employment and ongoing training for 300 municipal sanitation technicians > Microcredit funds to promote family sanitation facilities 	<p>50,000,000</p> <p>42,000,000</p> <p>40,000,000</p> <p>18,000,000</p> <p>120,000,000</p>	<p>10,000,000</p> <p>8,400,000</p> <p>0</p> <p>3,600,000</p> <p>0</p>	<p>15,000,000</p> <p>12,600,000</p> <p>20,000,000</p> <p>5,400,000</p> <p>40,000,000</p>	<p>25,000,000</p> <p>21,000,000</p> <p>20,000,000</p> <p>9,000,000</p> <p>80,000,000</p>
TOTAL			467,750,000	59,600,000	181,400,000	226,750,000

Problem to Resolve	Relevance for the Program	Principal Measures or Activities Recommended	Estimation of Costs	Timeline		
No. 3: Inadequate management and financing of the water and sanitation sector	Expected result: <i>Institutional capacity of DINEPA strengthened at the central level and in decentralized structures</i>	Performance indicator: <i>By approximately 2022, DINEPA and its decentralized structures will reach a level of financial autonomy of at least 90% of its operating budget and 50% of its investment budget based on revenues and the national budget</i>	US\$	2013-14	2015-17	2018-22
a. Sector completely dependent on external aid b. Capacity to support restoration of state authority c. Water and sanitation work teams nonexistent	DINEPA, being newly, established, is in the process of structuring its operations. The sector is characterized by a lack of investment to renovate infrastructure. There is still not satisfactory autonomy of decentralized structures to guarantee the sustainability of services.	<ul style="list-style-type: none"> > Organization of sectoral governance: <ul style="list-style-type: none"> - Capacity to put decrees, cadasters, etc. into practice - Strengthening of the OREPAs and definitive transfer of administrative services of OREPA to the OREPA bureaus - Implementation of technical standards, directives, and performance indicators - Implementation of a system for monitoring and evaluation of actions in the water and sanitation sector > Supporting those who operate in the sector > Implementing a national financing mechanism (Treasury budget and revenues). Establish integrated water and sanitation tariffs > Monitoring the evolution of the water and sanitation sector and making periodic adjustments 	125,000,000	40,000,000	80,000,000	5,000,000

Problem to Resolve	Relevance for the Program	Principal Measures or Activities Recommended	Estimation of Costs	Timeline		
	Without the confidence of the client and the ongoing payment for water through decentralized autonomous services, it is impossible to guarantee the sustainability of services	<ul style="list-style-type: none"> > Training and support for innovation: <ul style="list-style-type: none"> - ongoing training of personnel from DINEPA, OREPA, URD, CTE and municipal technicians in sanitation - school for water and sanitation skills - financing of scholarships for training and skill upgrading courses, - training and accompaniment of the CAEPA and professional operators (rural areas) > Training of agents involved with water and sanitation: community health agents, school inspectors, sanitary officers, etc. 	120,000,000	24,000,000	36,000,000	60,000,000
d. Incoherence and lack of coordination between the actors	The incoherence and lack of coordination of actions constrains efforts to eradicate cholera	<ul style="list-style-type: none"> > Development in the national context of tools for decision-making: <ul style="list-style-type: none"> - Regional Master Plans (updated and completed for the water and sanitation systems) and Master Plans for the most important cities - Other specific studies > Systematization of the framework agreement as well as the cooperation mechanism with NGOs wanting to work in the sector 	40,000,000	10,000,000	30,000,000	0
TOTAL			285,000,000	74,000,000	146,000,000	65,000,000

SUMMARY OF COSTS		TOTAL	2013-14	2015-17	2018-22
Component: Water Supply		824,612,500	81,000,000	575,000,000	168,612,500
Component:: Treatment of Wastewater and Excreta		467,750,000	59,600,000	181,400,000	226,750,000
Component: DINEPA Institutional Strengthening		285,000,000	74,000,000	146,000,000	65,000,000
TOTAL		1,577,362,500	214,600,000	902,400,000	460,362,500

PLAN OF ACTION FOR THE ELIMINATION OF CHOLERA IN HAITI

(2013-2022)

Sphere of Activity: Solid Waste Management

Component: Institutional Strengthening

Problem to Resolve	Relevance for the Program	Principal Measures or Activities Recommended	Estimation of Costs	Timeline		
<p>No. 1:</p> <p>The solid waste sector has no institutional structure, no formal legal framework, and no mechanism for sustainable financing.</p> <p>Integrated and sustainable waste management is not assured in any city or town in the country.</p>	<p>Expected result: <i>Solid waste management structure established and operational in all of the country's large and medium-size cities</i></p>	<p>Performance indicator: <i>By approximately 2022, the solid waste sector reaches a level of financial autonomy of at least 90% of its operating budget.</i></p>	<p style="text-align: center;">US\$</p>	<p style="text-align: center;">2013-14</p>	<p style="text-align: center;">2015-17</p>	<p style="text-align: center;">2018-22</p>
	<p>Without a national waste management policy in place through a national administrative structure with the guarantee of stable financing, it is difficult to resolve the problem of collection and treatment of solid waste in the country.</p> <p>Solid waste, managed badly or not at all, is susceptible to be contaminated by and to transmit <i>Vibrio cholera</i>.</p>	<ul style="list-style-type: none"> > Continue with efforts to approve and validate the National Policy for the Management of Solid Wastes > Put in place institutional and financing structures called for in the Strategic Policy, i.e., the National Directorate for Solid Waste Management (<i>Direction Nationale de Gestion des Déchets Solides - DNGDS</i>), Regional Services for Solid Waste Management (<i>Services Régionaux de Gestion des Déchets Solides - SRGDS</i>), and funds for urban sanitation. This activity includes: <ol style="list-style-type: none"> 1. Implementation of a training system* for managers and technicians working or interested in the sector 2. Putting in place tools and mechanism for waste management at the national level, including implementation of an integrated national waste management plan; regional plans for solid waste management; studies of options adapted to Haiti for collection, handling, conservation, transport, treatment, and elimination of waste; and tools for supervision and control of activities in solid waste management 3. Establishment of a financing mechanism called for in Strategic Policy for Waste management; > Creation of intercommunity structures for waste management based on the willingness of the communities on the one hand and on a series of pre-established basic criteria on the other. 	<p style="text-align: center;">3,000,000</p>	<p style="text-align: center;">1,000,000</p>	<p style="text-align: center;">1,500,000</p>	<p style="text-align: center;">500,000</p>
Total			<p style="text-align: center;">3,000,000</p>	<p style="text-align: center;">1,000,000</p>	<p style="text-align: center;">1,500,000</p>	<p style="text-align: center;">500,000</p>

Problem to Resolve	Relevance for the Program	Principal Measures or Activities Recommended	Estimation of Costs	Timeline		
<p>No. 2:</p> <p>No collection and treatment systems in most of the large cities, and the systems are poor in cities where do they exist.</p> <p>The population, including the actors, are not aware of the importance of waste management on a personal level.</p>	<p>Expected result: Most household waste in large cities and small urban centers in the country is collected and treated according to established international standards.</p>	<p>Performance indicator: By approximately 2022, 90% of solid waste in urban areas will be collected and treated according to international health standards.</p>	US \$	2013-14	2015-17	2018-22
	<p>Solid waste contaminated by Vibrio cholera (when it comes in contact with medical waste, or waste from toilets diapers and others), becomes a vector for contamination through water taps and points, which in turn infects the population.</p>	<p>> Establish a structure to train and sensitize the population about waste management in their personal lives, including disposal and reduction, re-use, and recycling (the 3 Rs)</p> <p>> Through an established inter-community structure, implement a waste collection and treatment system by way of the following main actions:</p> <ol style="list-style-type: none"> 1. Acquisition and provision of cleaning materials for public areas 2. Acquisition** and operationalization of a fleet of collection equipment in each grouping of communes 3. Construction and equipping of Treatment and Transfer Centers (<i>Centres de Traitement et de Transfert - CTT</i>) and/or Centers for Landfill Techniques (<i>Centres d'Enfouissement Technique -CET</i>), by grouping. 	120,000,000	40,000,000	80,000,000	---
		<p>> Implement cleaning, collection, and treatment systems through the SRGDS under the direction of the inter-communal structures</p>	250,000,000	100,000,000	150,000,000	---
Total			370,000,000	140,000,000	230,000,000	---

SUMMARY OF COSTS		US \$	2013-14	2015-17	2018-22
Institutional strengthening of solid waste management		3,000,000	1,000,000	1,500,000	500,000
Waste Collection and Treatment		370,000,000	140,000,000	230,000,000	
Total		373,000,000	141,000,000	231,500,000	500,000

*Studies, training, research and development.

**Basic investments and awareness.

***Urban cleaning funds

Source: 2011, MTPTC, DAA, LGL, and BURGEAP, Policy Strategy for Solid Waste Management (*Strategic Policy de Gestion des Déchets Solides*); and 2011, MTPTC, MPCE, Strategic Plan for the Long-Term Development of Haiti: Large Projects for the Reconstruction and Development of Haiti (*Plan stratégique de développement à long terme d'Haïti: les grands chantiers pour le relèvement et le développement d'Haïti*).

**PLAN OF ACTION FOR THE ELIMINATION OF CHOLERA IN HAITI
(2013-2022)**

Sphere of Activity: Health Care

Component: Management

Problem to Resolve	Relevance for the Program	Principal Measures or Activities Recommended	Estimation of Costs	Timeline		
<p>No. 1: Weakness in management of cholera cases</p>	<p>Expected result: Management of diarrheal diseases significantly improved and fully adequate while specifically assuring as well that:</p> <ul style="list-style-type: none"> • Rules of hygiene and prevention measures are understood and applied in the institutions • Each structure has a unit dedicated to the treatment of patients with acute diarrhea • A single and standard protocol for the treatment of diseases and disinfection is defined and implemented throughout the health system • An appropriate transition process is in place for when NGOs depart • Communities have easy and permanent access to chlorine products (aquatabs, chlorine) 	<p>Performance indicator: In 2022, there are no more deaths from cholera in public and private establishments, with the exception of associated illnesses.</p>	<p align="center">US \$</p>	<p align="center">2013-14</p>	<p align="center">2015-17</p>	<p align="center">2018-22</p>
	<p>Weak application of hygiene rules and prevention measures (hand washing not systematic, treatment of water is inadequate, meals are not reheated and dishes not well washed, clothing of those who are sick with diarrhea is not decontaminated, weak understanding of preparation of the oral solution at home)</p>	<ul style="list-style-type: none"> > Participation in community gatherings for the transfer of knowledge about practices to community leaders > Organization of home visits with health agents > Basic training on preparation of the oral rehydration solution in the home > Training on the preparation of disinfection solutions > Training of agents in the field on prevention and management of diarrheal diseases; > Preparation of a contingency plan by commune (cartography, made available from an emergency fund at the departmental level, Health Committees, etc.); > Inventory and mobilization of existing resources 	<p align="center">2,000,000</p>	<p align="center">1,000,000</p>	<p align="center">500,000</p>	<p align="center">500,000</p>

Problem to Resolve	Relevance for the Program	Principal Measures or Activities Recommended	Estimation of Costs	Timeline		
	Dependence of the patient on products that are not available in the locality (aquatabs, chlorine)	<ul style="list-style-type: none"> > Support for the training and organization of the community for surveillance, and the permanent availability of inputs at the local level > Identification and surveillance of the placement of inputs in appropriate storage areas at the departmental and communal levels 	500,000	200,000	100,000	200,000
	<p>Certain centers do not have the space necessary to isolate cholera patients.</p> <p>When NGOs depart from these centers, management is not well assumed by the MSPP.</p>	<ul style="list-style-type: none"> > Implementation of the PROs (PRO+) in areas that have no health structures and are difficult to access > Construction /Operation of spaces in health facilities for handling patients with diarrhea > Strengthening the maintenance and servicing of management and storage areas, including technical training > Preparation of a chronogram for standard procurement > Establishment of emergency funds at the departmental level 	3,360,000	3,360,000	0	0
			5,000,000	5,000,000	0	0
			6,650,000	6,650,000	0	0

Problem to Resolve	Relevance for the Program	Principal Measures or Activities Recommended	Estimation of Costs	Timeline		
	<ul style="list-style-type: none"> - Existence of different protocols for the treatment of diseases and for disinfection. - Failure to follow discharge criteria - No protocol for sanitation in general in health institutions - Management standards still not integrated in Minimum Package of Services - There is often no file for the sick person; mixing of patients in different stages of illnesses 	<ul style="list-style-type: none"> > Development of standards for the construction of cholera treatment centers in health centers and hospitals > Revision, standardization, integration, and dissemination of standards for the handling of diarrheal illnesses (cholera) > Development, standardization, and dissemination of standards and procedures for prevention of infection in health institutions > Development, standardization, and dissemination of standards for the treatment of cadavers > Integration of the module for the handling of cases of acute diarrhea into the basic curriculum of health training and introduction of the alert for a cholera outbreak in emergency plans of health institutions > Establishment of standards for the construction of PROs and PRO+* > Technical assistance for the development of health care policies, regulations, and standards for cholera patients (with the manuals used taking into account the associated pathologies and co-morbidities) > Organization of a workshop for the standardization of the single protocol approved by the MSPP 	5,000,000	5,000,000	0	0
	<ul style="list-style-type: none"> > Expatriate and national staff in certain centers whose qualifications are unknown > Protocols not applied in many treatment centers 	<ul style="list-style-type: none"> > Strengthening of the service that oversee the qualifications (diplomas) of staff in health facilities > Hiring of necessary additional staff in the institutions: <ul style="list-style-type: none"> - Technical staff (266 nurses, 400 auxiliaries, 133 doctors, 20 laboratory technicians) 	50,000,000	10,000,000	15,000,000	25,000,000

Problem to Resolve	Relevance for the Program	Principal Measures or Activities Recommended	Estimation of Costs	Timeline		
	Insufficient human resources to organize processes according to standards	> Training of technical and support staff (health agents, etc.) and training of teams in the rapid assembly of tents following the standards of a Cholera Treatment Center	2,000,000	1,000,000	400,000	600,000
	Lack of adequate response to alerts, lack of involvement of local actors	> Supervision and application of standards for decontamination: <ul style="list-style-type: none"> o Rapid supervision and intervention o Supervision of the administration of treatment equipment and dissemination of protocols o Regulation of sites that are not functioning correctly: revision of the sanitary code 	6,600,000	1,320,000	1,980,000	3,300,000
	During the rainy season, it is a challenge to prevent cholera outbreaks in peri-urban areas that are densely populated by people without access to water and sanitation, as well as in remote and difficult-to-reach rural areas that have no access to water and	> Institutional support (support staff, transport and other staff) > Development and implementation of a communications campaign > Development of the management protocol for the vaccination campaign > Technical assistance to conduct the vaccination campaign	2,000,000	1,500,000	500,000	0
TOTAL			83,110,000	35,030,000	18,480,000	29,600,000

* Oral rehydration points (*points de réhydratation orale* - PRO) and other points having the capacity for intravenous application (PRO+)

Problem to Resolve	Relevance for the Program	Principal Measures or Activities Recommended	Estimation of Costs	Timeline		
				2013-14	2015-17	2018-22
No. 1: Inadequate access to medicines	Expected result: Improved logistical means to make available and accessible inputs and medicines essential to health care for timely management of cholera cases	Performance indicator: By 2022, all inputs are available in sufficient quantity and quality	US \$			
	<ul style="list-style-type: none"> - Weakness in the capacity of the ministry to take on a regulatory role - Lack of coordination between the actors - Lack of storage space for inputs - Insufficient infrastructure - Centers for the Distribution and Supply of Inputs do not receive supplies in a timely manner - Weakness in the supervision of inputs 	<ul style="list-style-type: none"> > Standardization of management tools for cholera inputs > Updating, disclosure, and application of standards (signing of a memorandum of understanding, an agreement) > Updating of the information database/making management tools uniform/ implementation of Channel software > Supervision and awareness-raising spots 	1,520,000	360,000	435,000	725,000
		<ul style="list-style-type: none"> > Purchase of medicines and inputs to support health institutions in emergency responses linked to cholera > Provision of vaccines, cold chains, equipment, and other supplies 	70,000,000 8,800,000	50,000,000 8,800,000	20,000,000 0	0 0

Problem to Resolve	Relevance for the Program	Principal Measures or Activities Recommended	Estimation of Costs	Timeline		
		<ul style="list-style-type: none"> > Human resource needs – recruiting of staff > Strengthening the ministry’s supervisory capacity of the CDAI (vehicles, trucks, etc.)* > Development of logistics and networks to link all of the stores > Training of staff in the use of supply management > Creation and implementation of a pharmacovigilance unit > Telephone networking from central and departmental focus points > Coordination meetings with partners 	4,200,000	1,500,000	1,000,000	1,700,000
		<ul style="list-style-type: none"> > Establish a depot for medicines at the commune level, facilitating the repair of existing CDAs or the construction of new CDAs 	10,000,000	3,000,000	3,000,000	4,000,000
TOTAL			94,520,000	63,660,000	24,435,000	6,425,000

*CDAI – Center for the Distribution and Supply of Inputs (*Centre de Distribution et d’Approvisionnement en Intrants*).

Problem to Resolve	Relevance for the Program	Principal Measures or Activities Recommended	Estimation of Costs	Timeline		
No.3: Significant lack of micronutrients in Haiti	Expected result: <i>Efforts to combat micronutrient deficiencies are strengthened in areas vulnerable to cholera</i>	Performance indicator: <i>By 2022, 95% of children with diarrhea will receive zinc and the oral rehydration solution</i>	US\$	2013-14	2015-17	2018-22
	Malnourished children with cholera are more likely to die than children in good health who have cholera. In addition, cholera can become an emergency in children with micronutrient deficiencies, particularly zinc.	<ul style="list-style-type: none"> > Review of the protocol for management of cholera and the introduction of zinc as well as oral rehydration solution > Integration of the addition of zinc as well as oral rehydration solution in manuals used for cholera awareness campaigns > Training of ministry staff at the departmental and commune level as well as NGOs involved in the management of cholera 	1,670,000	1,100,000	700,000	500,000
		<ul style="list-style-type: none"> > Provision of food rations to malnourished children with cholera > Supply of zinc among the inputs the ministry sends to oral rehydration points and for distribution to community health agents 	12,740,000	6,640,000	5,100,000	1,000,000
		<ul style="list-style-type: none"> > Strengthening staff in the nutrition unit at the central and departmental levels > Logistic support for the supervision of nutrition activities in the cholera program 	6,000,000	1,600,000	1,650,000	2,750,000
Total			20,340,000	9,340,000	6,750,000	4,250,000

SUMMARY OF COSTS		US \$	2013-14	2015-17	2018-22
Component: Implementation		83,110,000	35,030,000	18,480,000	29,600,000
Component: Medicines/Inputs		94,520,000	63,660,000	24,435,000	6,425,000
Component: Lack of Micronutrients		20,340,000	9,340,000	6,750,000	4,250,000
TOTAL		197,970,000	108,030,000	49,665,000	40,275,000

PLAN OF ACTION FOR THE ELIMINATION OF CHOLERA IN HAITI

(2013-2022)

Sphere of Activity: Epidemiological Surveillance

Component: Quality of Information

Problem to Resolve	Relevance for the Program	Principal Measures or Activities Recommended	Total Cost	Timeline		
No. 1: Weakness in information management to guide decision-making	Expected result: <i>Strengthening of integrated epidemiological surveillance (including microbiological and environmental surveillance with DINEPA) as a result of adequate information, early detection of cases, and timely alerts at the departmental and national levels, with a view toward concerted and rapid action</i>	Performance indicator: <i>Epidemiological surveillance, including microbiological and environmental surveillance, is conducted at the national level in 100% of targeted areas by 2014</i>	US\$	2013-14	2015-17	2018-22
Quality information not available	<ul style="list-style-type: none"> - Lack of reliable information for timely decision-making. Reports are incomplete and late in being delivered. - Under-notification at the community level. 	<ul style="list-style-type: none"> > Advocate for a better understanding of the importance of epidemiological surveillance among policy entities in order to have better intersectoral collaboration > Management of rumors and other informal source of information > Establishment of a communication network, and rapid transmission and analysis of alerts in real time, accessible for decision-making at all levels > Drawing up of a list of diseases under surveillance > Daily verification and weekly analysis of alerts and review of the departmental situation at the situation room level > Development of tools for community surveillance > Analysis of data in order to identify at-risk areas where cholera is most likely to break out > Revised training manual for agents available > Review of cholera surveillance tools > Extension of the surveillance system at the level of the national Ministry of Education > Technical assistance for the study and updating of a new surveillance system 	1,000,000	500,000	300,000	200,000

Problem to Resolve	Relevance for the Program	Principal Measures or Activities Recommended	Total Cost	Timeline		
		<ul style="list-style-type: none"> > Provision of financial, human, and logistical resources <ul style="list-style-type: none"> - Information technology equipment and materials - Support for the communications management system - (telephone, Internet) 	2,100,000	850,000	1,100,000	150,000
Existing documents on standards not adapted to the context of the elimination of cholera	Lack of documents outlining standards and regulations for the control of private operators and NGOs prevents having functional epidemiological surveillance at the national level	<ul style="list-style-type: none"> > Promote and prepare the development of a legal framework for compulsory notification of diseases during significant public health events > Training of epidemiologists in the “spatial epidemiology” geographic information system > Updating of standards and procedures > Reproduction and dissemination of documents prepared > Updating of laboratory diagnostic protocols > Technical assistance for preparation of the legal framework, updating of standards and procedures, and facilitation of training workshops 	1,000,000	300,000	500,000	200,000
Analysis of information and training of personnel is limited at all levels	Lack of training for staff results in a lack of analysis of information and alerts in the effort to combat cholera	<ul style="list-style-type: none"> > Training of community health agents about community surveillance tools > Training of service providers (doctors, nurses, auxiliaries, and health officers) > Training of laboratory technicians (departmental and regional) > Training/retraining of departmental and central epidemiologists > Ongoing training in the analysis and preparation of reports > Training in team research and departmental response 	700,000	300,000	200,000	200,000

Problem to Resolve	Relevance for the Program	Principal Measures or Activities Recommended	Total Cost	Timeline		
Lack of follow-up and feedback evaluation	The lack of follow-up, evaluation, and feedback affects the performance of the surveillance system	<ul style="list-style-type: none"> > Updating the dissemination of performance indicators prepared > Updating supervision tools > Carry out control and supervision of departmental and regional laboratories regularly. > Functional situation room at the departmental and central level > Regular dissemination of an epidemiological bulletin about the cholera situation 	250,000	150,000	100,000	250,000
SUBTOTAL			5,300,000	2,100,000	2,200,000	1,000,000

Problem to Resolve	Relevance for the Program	Principal Measures or Activities Recommended	Estimation of Costs	Timeline		
No. 2: Deficient epidemiological surveillance because of a lack of research and laboratories at the departmental level	Expected result: Epidemiological surveillance is effective, with microbiological and environmental surveillance, establishment of a laboratory network for the decentralization of biological capacity, and the integration or research, surveys, and analysis samples to better characterize the evolution of disease	Performance indicator: 100% of alerts verified and investigated, and research reports available	US\$	2013-14	2015-17	2018-22
a. Disease case studies not effective	Limited availability of epidemiological research about events for rapid dissemination, which constrains a timely response to moderate and serious cases	<ul style="list-style-type: none"> > Local response organized in all targeted areas and at all levels > Acquisition of inputs and reagents > Acquisition and availability of rapid tests and other tests > Establishment of a chain of command (to be created following established standards) > Training of human resources > Constitution of multidisciplinary alert and response teams > Management of the availability and communication of reports > Increased capacity in the pre-positioning of supplies 	1,000,000	500,000	250,000	250,000

Problem to Resolve	Relevance for the Program	Principal Measures or Activities Recommended	Estimation of Costs	Timeline		
b. Biological diagnostic capacity centralized	Detection and notification of events is weak, often due to the lack of laboratory capacity at the departmental level and/or the lack of reagents or inputs in decentralized laboratory centers	> Construction of laboratories at the regional level	4,100,000	---	4,100,000	---
		> Strengthening of hospital laboratories				
		> Provision of equipment, accessories, and reagents				
		> Institutional support (specialized transport services)	1,500,000	1,500,000	--	--
		> Permanent availability of a service to receive specimens at a laboratory that functions 7 days a week, 24 hours a day	1,820,000	780,000	390,000	650,000
		> Integration cholera diagnostics in hospital laboratories				
		> Availability of space in laboratories to be equipped for water-quality surveillance	1,600,000	320,000	480,000	800,000
c. Research and Publications - Structural unit nonfunctional	Public health research unit nonfunctional, limiting the performance of epidemiological surveillance at all levels	> Development of a research program applied in a hospital setting > Follow-up on Vibrio cholerae resistance to antibiotics > Implementation of research of Vibrio cholerae in the environment (environmental surveillance). > Development of a national, microbiological, immunological, environmental, and socio-anthropological research agenda > Proposal for appropriate protocols > Necessary technical assistance	1,000,000	200,000	500,000	300,000
TOTAL			11,020,000	3,300,000	5,720,000	2,000,000

SUMMARY OF COSTS		Total Costs	2013-14	2015-17	2018-22
Component: Quality of Information		5,300,000	2,100,000	2,200,000	1,000,000
Component: Research Capacity		11,020,000	3,300,000	5,720,000	2,000,000
GRAND TOTAL		16,320,000	5,400,000	7,920,000	3,000,000

**PLAN OF ACTION FOR THE ELIMINATION OF CHOLERA IN HAITI
(2013-2022)**

Sphere of Activity: Health Promotion

Component: Hygiene Practices

Problem to Resolve	Relevance for the Program	Principal Measures or Activities Recommended	Estimation of Costs	Timeline		
No.1: Inadequate hygiene practices	Expected result: The population adopts hygiene practices favorable to health.	Performance indicator: By 2022, 70% of the population will have an understanding of the prevention measures for cholera and other diarrheal diseases	US\$	2013-14	2015-17	2018-22
	Cholera is transmitted by suspect water and foods (which have been contaminated with <i>Vibrio cholerae</i> and consumed by the population).	> Intensification of interpersonal communication through: - Household visits - Community meetings	2,400,000	480,000	720,000	1,200,000
	Safe water and sanitary methods of defecation are not always available in households.	> Mass communications campaign - Production and dissemination of radio and TV spots - Support for interventions in the media and in community media broadcasts - Evaluation of the campaign	2,500,000	1,500,000	500,000	500,000
	The lack of hygiene habits, above all hand washing, favors contamination with bacteria and the rapid spread of the epidemic.	> Development/production of educational and entertainment materials - Cartoons (Tijoe), Sketch/mimes - Preparation, distribution: leaflets and posters - Songs, popular/participatory theater - Jingles (hand washing)	1,000,000	600,000	200,000	200,000
		> Equipment and communication	1,000,000	1,000,000	0	0
		> Implementation of an evaluation tool measuring the impact of cholera activities: water-borne diseases and socioeconomic indicators				
TOTAL			6,900,000	3,580,000	1,420,000	1,900,000

Problem to Resolve	Relevance for the Program	Principal Measures or Activities Recommended	Estimation of Costs	Timeline		
<p>No. 2: No organizational structure for the population to facilitate a change in behavior.</p> <p>Lack of means for surveillance of water quality.</p>	<p>Expected result: Strengthened vigilance of the population in the face of the threat of cholera in the country</p>	<p>Performance indicator: By 2022, all communal sections have Multipurpose Community Health Agents</p>	<p>US\$</p>	<p>2013-14</p>	<p>2015-17</p>	<p>2018-22</p>
	<p>Primary care institutions are not structured to promote interpersonal communication about the health of the population and the management of cholera cases.</p>	<p>> Functional network of community health agents in communes at risk of cholera:</p> <ul style="list-style-type: none"> - Salary for community health agents recruited for communes at risk of cholera - Preparation and facilitation of training sessions for community health agents - Preparation of a work guide for community health agents - Equipment for the work of community health agents - Supervision and follow-up of the agent network 	<p>24,280,000</p>	<p>5,080,000</p>	<p>7,200,000</p>	<p>12,000,000</p>
	<p>Surveillance of drinking water quality is critical to ensure that the potable water supply is not the source of contamination by <i>Vibrio cholerae</i>.</p>	<p>> Strengthening the network of sanitary agents and health inspectors</p> <ul style="list-style-type: none"> - Training of 1,200 health inspectors (\$6,000/scholarship) - Adaptation of a training curriculum - Adaptation/design of the work guide for inspectors in terms of the new Haitian context 	<p>7,250,000</p>	<p>1,490,000</p>	<p>2,160,000</p>	<p>3,600,000</p>

Problem to Resolve	Relevance for the Program	Principal Measures or Activities Recommended	Estimation of Costs	Timeline		
		<ul style="list-style-type: none"> > Training of technical staff from DPSPE and other governmental institutions involved > Central and departmental coordination meeting > Intersectoral collaboration meetings 	1,900,000	620,000	530,000	750,000
		<ul style="list-style-type: none"> > Logistics support and staff <ul style="list-style-type: none"> - Vehicles, maintenance and other costs - Project personnel recruited at the central, departmental, and communal levels > Provision of field equipment in order to control the quality of drinking water of water systems and water > Technical assistance 	2,280,000	820,000	560,000	900,000
TOTAL			35,710,000	8,010,000	10,450,000	17,250,000

Problem to Resolve	Relevance for the Program	Principal Measures or Activities Recommended	Estimation of Costs	Timeline		
No. 3: Inadequate food hygiene	Expected result: Improved food hygiene practices at the level of families and the formal and informal restaurant sectors	Performance indicator: By 2022, 70% of households and the formal and informal restaurant sectors adopt adequate food hygiene practices	US\$	2013-14	2015-17	2018-22
		<ul style="list-style-type: none"> > Development/dissemination of a communications plan for food hygiene and its integration in the DPSPE program > Development of a public awareness guide about food hygiene > Preparation of tools for awareness programs (brochures, posters, etc.) > Integration of awareness activities about food hygiene with 	1,500,000	800,000	500,000	200,000
		<ul style="list-style-type: none"> > Training and retraining of health inspectors who carry out food inspections > Training of street vendors and hotel and restaurant staff 	1,200,000	240,000	360,000	600,000
		<ul style="list-style-type: none"> > Technical assistance for one year 	200,000	200,000		
TOTAL			2,900,000	1,240,000	860,000	800,000

Problem to Resolve	Relevance for the Program	Principal Measures or Activities Recommended	Estimation of Costs	Timeline		
No. 4: Poor conditions in health institutions	Expected result: (a) Health institutions apply national standards for hygiene environmental protection; (b) Management of cadavers conforms to standards recommended by the MSPP	Performance indicator: (a) By 2022, 80% of health institutions apply hygiene standards; (b) 80% of hospitals and 70% of funeral homes handle cadavers according to national standards.	US \$	2013-14	2015-17	2018-22
a) Hospital-acquired infections	Prevention and control of hospital infections is in line with activities to prevent accidental cholera infections in health institutions	<ul style="list-style-type: none"> > Updating of hospital hygiene standards and procedures > Design of a surveillance and prevention plan for hospital infections > Development of tools for the management of hospital hygiene in order to combat hospital infections > Establishment of a supervision plan for hygiene behaviors in health facilities > Training session on hospital hygiene for responsible departmental and communal staff (doctors, nurses, sanitary officials) 	1,000,000	200,000	300,000	500,000
b) Untreated wastewater discharged into public spaces	Wastewater used by health is discharged directly into the natural environment without prior treatment	<ul style="list-style-type: none"> > Identification of institutions and space available for the construction of wastewater treatment plants > Construction of 15 wastewater treatment stations > Retraining of relevant technical staff at hospitals > Logistic support (two vehicles, motorcycles, motorized pumps and accessories, chemical products, and protective materials) 	3,860,000	2,260,000	900,000	900,000

Problem to Resolve	Relevance for the Program	Principal Measures or Activities Recommended	Estimation of Costs	Timeline		
Drinking water of doubtful quality	Some health facilities have running water, but it is not of adequate quality for the services of a health institution	<ul style="list-style-type: none"> > Reevaluation of water storage structures at the institutional level > Training of staff charged with the disinfection of water and the control of chlorine residue > Supply of materials for quality control (purchase of control kits, disinfectants) 	490,000	230,000	130,000	130,000
Poor management of medical waste	Medical waste is disposed of in haphazard fashion by health institutions and poses a risk to health providers and patients in terms of infection by the Vibrio cholera bacteria	<ul style="list-style-type: none"> > Retraining of care providers and support personnel > Treatment equipment for hospital waste (50 incinerators) and installation > Supplies (garbage cans, bags, blouses, boots, tools and implements, etc.) and consumable items 	3,050,000	1,420,000	880,000	750,000
c) Management of cadavers	<p>There is a lack of information and training on the handling of cadavers of cholera victims.</p> <p>From funeral homes to the national level, good practices are not followed in the handling of cadavers.</p> <p>The water used in the work room is discharged into the</p>	<ul style="list-style-type: none"> > Review and publication of standards and procedures regarding the handling of cadavers of cholera victims > Training of staff in funeral homes and hospital morgues on the handling of cadavers of cholera victims > Supervision of funeral homes > Support for periodic surveillance of funeral homes and of morgues in health facilities 	230,000	50,000	70,000	110,000
TOTAL			8,830,000	4,160,000	2,280,000	2,390,000

SUMMARY OF COSTS		TOTAL (US\$)	2013-14	2015-17	2018-22
Component: Hygiene Practices		6,900,000	3,580,000	1,420,000	1,900,000
Component: Institutional Strengthening		35,710,000	8,010,000	10,450,000	17,250,000
Component: Food Hygiene		2,900,000	1,240,000	860,000	800,000
Component: Hospital Hygiene		8,830,000	4,160,000	2,280,000	2,390,000
TOTAL		54,340,000	16,990,000	15,010,000	22,340,000

Table 4. Investment Plan in Infrastructure (Works) – Phase 1

OREPA / Villes	Disponibles (MUSD)					Total Dispo	A négocier		TOTAL PLAN MUSD	
	Eau Potable		Assainiss.		Eau & Assainiss.		Montant	Bailleur		
RMPP - Trav. Urgence	21.00	BID-2351					21.00	30.00	BID	51.00
Systeme Petion-Ville							0.00	50.00	BEI	50.00
St. Titanyen			2.40	F. Bilat.			2.40			2.40
Systeme Condomin. Carrefour Léogane	10.00	JICA					10.00	10.00		20.00
Gressier	1.00	F. Bilat.					1.00	3.00		4.00
Petit Goave	2.00	F. Bilat.					2.00	3.50		5.50
Grand Goave	2.00	F. Bilat.					2.00	3.50		5.50
Anse a Galets (AIR)	1.50	F. Bilat.					1.50			1.50
Cabaret (AIR)							0.00	1.50		1.50
Archaie							0.00	2.00		2.00
Kenscoff (AIR)	0.70	F. Bilat.					0.70	2.00		2.70
Reparations d'urgence OUEST	0.50	F. Bilat.					0.50			0.50
EPA centres de sante Ouest					0.25	BID-12619	0.25	0.25		0.50
EPA ecoles et marchés Ouest					0.25	F. Bilat.	0.25			0.25
Milieu rural Ile de la Gonave							0.00	1.50	BID/BM	1.50
TOTAL OREPA OUEST	38.70		2.4		0.5		41.60	111.25		152.85
Jacmel	14.20	BID-2190	0.43	BID-2190			14.63			14.63
Cayes	7.60	BID-2381	0.43	BID-2190			8.03			8.03
Miragoane (AIR + RER)	0.50	F. Bilat.	0.40	F. Bilat.	3.50		4.40			4.40
Jeremie (AIR + RER)	0.50	F. Bilat.	0.40	F. Bilat.	3.50		4.40			4.40
Aquin (AIR)	1.50	F. Bilat.	0.00				1.50			1.50
Port Salut							0.00	1.00		1.00
Rural - Dept. Grand-Anse					2.50	EPAR I	2.50			2.50
Rural - Dept. Sud					2.50	EPAR I	2.50			2.50
Rural - Dept. Nippes					3.00	EPAR I	3.00			3.00
Réparations d'urgence SUD	1.10	F. Bilat.					1.10			1.10
EPA centres de sante Sud					0.25	BID-12619	0.25	0.25		0.50
EPA ecoles et marchés Sud					0.30	F. Bilat.	0.30			0.30
Milieu rural Sud-Est					0.30	AECID	0.30			0.30
Milieu rural Sud					0.25	F. Bilat.	0.25			0.25
TOTAL OREPA SUD	25.40		1.66		16.1		43.16	1.25		44.11
Saint Marc	3.00	BID-2190	0.43	BID-2190			3.43			3.43
Hinche (AIR + RER)	0.50	F. Bilat.			2.50	F. Bilat.	3.00			3.00
Saint Michel de l'Attalaye (AIR)	1.50	F. Bilat.					1.50			1.50
Desdunes (AIR)	0.75	F. Bilat.					0.75	0.25		1.00
Mirebalais (AIR)	0.50	F. Bilat.					0.50	0.50		1.00
Reparations d'urgence CENTRE	1.15	F. Bilat.					1.15			1.15
EPA centres de sante Centre					0.25	BID-12619	0.25	0.25		0.50
EPA écoles et marchés Centre					0.40	F. Bilat.	0.40			0.40
Milieu rural Dept. Artibonite					6.60	BID-Artib.	6.60			6.60
Milieu rural Dept. Centre					5.02	F. Bilat.	5.02			5.02
TOTAL OREPA CENTRE	7.40		0.43		14.77		22.60	1		23.60
Cap Haitien	10.00	F. Bilat.					10.00	35.00		45.00
Ouanaminthe	5.00	BID-2381	4.00	F. Bilat.			9.00			9.00
Ouanaminthe - Décharge			0.43	BID-2190			0.43			0.43
Port de Paix	0.15	BID-2190	0.43	BID-2190			0.58	0.50		1.08
Fort-Liberté (AIM + RER)	0.50	F. Bilat.			2.50	F. Bilat.	3.00			3.00
Jean Rabel (AIR)	0.50	F. Bilat.	0.20	F. Bilat.			0.70	0.20		0.90
Reparations d'urgence NORD	1.25	F. Bilat.					1.25			1.25
EPA centres de sante Nord					0.25	BID-12619	0.25	0.25		0.50
EPA écoles et marchés Nord					0.35	F. Bilat.	0.35			0.35
Milieu rural NORD					2.64	F. Bilat.	2.64			2.64
TOTAL OREPA NORD	17.40		5.06		5.74		28.20	35.95		64.15
TOTAL MUSD	88.90		9.55		37.11		135.56	149.45		285.01
								Souhaité a exécuter/an		95.00

Note: OREPA = Regional Water Supply and Sanitation Office (Office Régionaux d'Eau Potable et d'Assainissement).

10. Annex 1: Analysis of the Management of Cholera in Haiti

This analysis draws a picture that is closest to the situation on the ground in terms of health care management of cholera. It was prepared by an ad hoc working group comprised of all types of professionals from the Ministry of Public Health.

10.1. Community Level

Recognition of the disease

Strengths:

- Understanding of the disease and its systems by a large portion of the population
- Public awareness activities carried out by:
 - Community health agents and different programs and NGOs
 - Community health staff
 - Community leaders, ASEC, CASEC,¹³ etc.
- Alerts when cases arise
- Availability of training material for the brigadiers, such as posters (Group Promotion)

Weaknesses:

- Weak application of hygiene rules and prevention measures:
 - Hand washing not systematic
 - Inadequate water treatment
 - Meals not reheated and dishes not well washed
 - No decontamination of clothes of patients with diarrhea
 - Weak understanding of how to prepare the oral rehydration solution at home.

¹³ Communal Section Administration (*Administration Section Communale* – ASEC); Administrative Council of the Communal Section (*Conseil Administratif de Section Communale* – CASEC).

- Lack of means for prevention (toilets, latrines, potable water, soap, chlorine)
- Training material of doubtful quality
- False alerts possibly due to lack of understanding or personal gain.

Initial actions at the community level

Strengths:

- Patients receive oral rehydration solution at the community level from brigadiers or volunteers
- Fewer patients are abandoned by the community
- Training of brigadiers and community health agents to handle tasks.

Weaknesses:

- Actions are not always followed through
- Lack of understanding of the importance of using oral rehydration solution
- Hygiene measures not used for contact with patients
- Insufficient information on the application of hygiene measures in the handling of cadavers
- Training material not adapted to the community level
- Lack of health agents and sanitary officers.

10.2. Patient Transport/Referral Level

Strengths:

- Those who handle transport now accept transporting cholera patients
- Certain communes have their own ambulances
- Political willingness to put in place a free transport system for patients.

Weaknesses:

- Weak presence of the ambulance system, lack of gas and funds to maintain the ambulances
- Disinfection not carried out in makeshift means of transport
- Lack of monitoring of hydration during transport
- Inaccessibility of health facilities and in certain cases no roads
- Insufficient notice provided in advance for immediate handling of cases
- Private transport expensive.

10.3. Implementation Level

Strengths:

- Existence of cholera treatment centers and health centers to handle cases
- Willingness to integrate cholera cases in the Minimum Package of Services and to put treatment units in all facilities
- Willingness of most public and private facilities to treat cholera
- Existence of training manuals and manuals on cholera treatment standards
- Training of staff to handle cholera.

Weaknesses:

- When NGOs leave, their activities are not well taken over in public facilities by MSPP
- Onerous functions for centers (trucking water, daily draining of latrines, generators)
- • Verticality in the handling of cholera cases in the centers
- Lack of integration into the provision of services
- Many health facilities refuse to handle cholera cases unless they receive a supplementary payment
- Treatment centers operated by unrecognized actors installed without following standards

- There are expatriate and national staff in some cases whose qualifications are not known
- Protocols are not applied in many treatment centers
- Insufficient dissemination of cholera protocols
- Some centers do not have the space necessary to isolate cholera patients
- Many centers do not have access to potable water or proper latrines
- Insufficient teams of human resources to organize the process according to standards and insufficient control measures
- Standards still not integrated into the Minimum Package of Services
- Some communities refuse to install cholera treatment centers.

Triage Area

Strengths:

- Many institutions have a system to isolate patients with diarrheal disease
- Many centers have spaces organized according to the seriousness of the disease
- Existence and application of algorithms for the classification and treatment of patients in some centers.

Weaknesses:

- Many centers do not do triage
- There is often no patient file
- Patients in different stages of illness are mixed together
- Drip used for all patients even if some do not need it
- Protocols are often not displayed
- There are often no registries
- There are often no morgues available.

Area of Hospitalization

Strengths:

- Availability of free inputs (input group)
- Reduction in deaths in hospitals
- Existence of referral and training centers
- Immediate response from the central level with nursing staff during outbreaks (recruitment blitz known as “Opération Coup de Poing”)
- Existence of algorithms for protocols to manage patients
- Existence of protocols for the decontamination of material, excreta, and cadavers.

Weaknesses:

- Management protocols not followed in some centers
- Existence of different protocols for the treatment of patients and disinfection:
 - For example, antibiotics for the family of the patient, 5% glucose infusion to “strengthen the patient,” intravenous antibiotics, maintaining a drip in a patient who is capable of eating
- Poorly kept patient files
- Oral rehydration for patients is neglected, leading to a relapse
- Hygiene measures neglected by staff and decontamination of the facility where needed is neglected
- Hygiene measures neglected for the family and friends of the patient:
 - Caregivers eat in the patient’s room
 - Many people crowding around the patient
 - Families bring numerous items into the treatment room
- Comings and goings of staff from many different services at the same time, with a risk of contamination and not following protocol
- Lack of an overall cleaning protocol in health institutions.

Discharge/Recover area

Strengths:

- Many centers use Information, Education and Communication to Change Behaviors for the patients and their families
- Some centers give hygiene kits to patients and their families
- Some centers arrange for follow-up in the home
- Some institutions (centers, NGOs, community offices) investigate the risk factors and identify the source of the contamination.

Weaknesses:

- Relapse of cases in some centers due to a lack of education about discharge
 - Discharge criteria not followed
 - Patients are not accompanied to their homes
 - No counter-referral for referred patients
 - Badly-kept hospitalization records
 - Data not communicated to the MSPP
- Dependence of patients on products that are not accessible in their localities (aquatabs, Clorox).

Coordination

Strengths:

- Existence of coordination fora at the national and departmental levels and in some Communal Health Units (UCS)
 - These fora are often intersectoral and involve private partners, humanitarian organizations, the public health sector, WASH, and political figures
- Improvement in the monitoring of alerts.

Weaknesses:

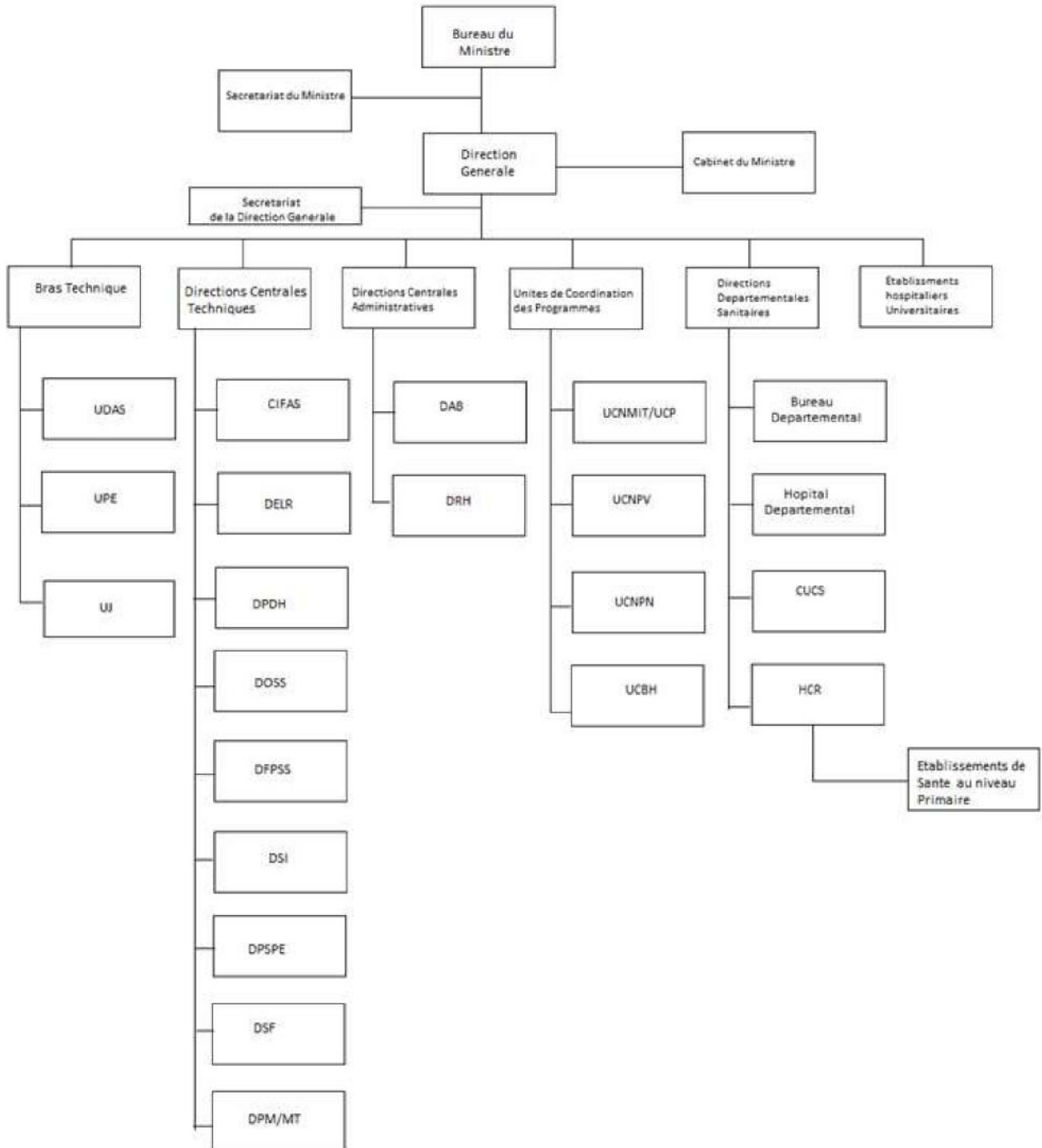
- Weakness in notification of cases by household, neighborhood, communal section locality, and commune
- Lack of adequate response to alerts, lack of involvement of local actors
- Some NGOs do not participate in meetings and intervene independently and without legal recognition
- Response time to following up on alerts is often too long.

Current threats

- Rainy seasons with major outbreaks, without real capacity to handle them
- Not enough access to safe drinking water and latrines
- Financing
- Cultural factors involved in getting the population to understand the disease
There are still NGOs, local community organizations, and religious groups that are not aware of coordination efforts currently under way.

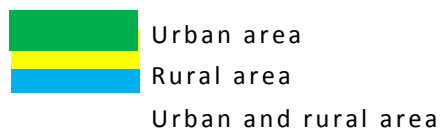
11. Annex 2: Organizational Structure of the MSPP

Structure Organisationnelle du MSPP - Loi Organique novembre 2005



12. Annex 3: NGOs Registered with DINEPA and Working in Development Activities

Organization	North	Northeast	Northwest	Central	Artibonite	West	South	Southeast	Grand-Anse	Nippes
ACF			Urban and rural area			Urban and rural area				
ACTED				Urban area	Urban area					
AVSI							Urban area			
CARE						Urban and rural area			Urban area	
CARITAS				Urban area						
CONCERN						Urban area				
CPH				Urban area						
French Red Cross					Urban and rural area	Urban and rural area				
CRS							Urban and rural area			
FICR						Urban and rural area				
GRET						Urban and rural area	Urban and rural area			
Haiti Outreach	Urban area	Urban area		Urban and rural area						
Helvetas				Urban and rural area	Urban and rural area					
IMC							Urban area			
Inter Aide					Urban area	Urban and rural area				
JEN						Urban and rural area				
OXFAM	Urban area				Urban area	Urban and rural area		Urban area		
Plan International		Urban area								
PROTOS							Urban area			
Save the Children								Urban and rural area		
Solidarites										Urban area
Terre des Hommes						Urban and rural area		Urban and rural area		
World Vision				Urban area		Urban and rural area				



13. Acronyms

ACTED	Agence d'Aide à la Coopération et au Développement (Agency for Aid for Development Cooperation)
AECID	L'Agence Espagnole de Coopération Internationale pour le Développement (Spanish Agency for International Cooperation for Development)
ADF	Agence Française de Développement (French Development Agency)
AMI	Aide Médicale Internationale (International Medical Aid)
ASCP	Agent de Santé Communautaire Polyvalent (Multipurpose Community Health Agent)
ASEC	Administration de Section Communale (Communal Section Administration)
CAEPA	Comités d'Approvisionnement en Eau Potable et d'Assainissement (Water Supply and Sanitation Committees)
CAMEP	Centrale Autonome Métropolitaine d'Eau Potable (Autonomous Central Metropolitan Water Supply Bureau)
CASEC	Conseil Administratif de Section Communale (Communal Section Administrative Council)
CDAI	Centre de Distribution et d'Approvisionnement en Intrants (Center for the Distribution and Supply of Inputs)
CDC	U.S. Centers for Diseases Control and Prevention
CET	Centre d'Enfouissement Technique (Center for Landfill Techniques)
CEFREPADE	Centre Francophone de Recherche Partenariale sur l'Assainissement, les Déchets et l'Environnement (Francophone Center for Research Partnership on Sanitation and Waste Management)

CIT	Centres de Traitement et de Transfert (Centers for Treatment and Transfer)
COOPI	Cooperazione Internazionale (International Cooperation)
CPE	Comité de Point d'Eau (Water Point Committee)
CRF	Croix Rouge Française (French Red Cross)
CTC	Centre de Traitement de Choléra (Cholera Treatment Center)
DELR	Direction d'Epidémiologie, de Laboratoires et Recherches (Directorate for Epidemiology, Laboratories and Research)
DINEPA	Direction Nationale de l'Eau Potable et de l'Assainissement (National Directorate for Water Supply and Sanitation)
DNGDS	Direction Nationale de Gestion des Déchets Solides (National Directorate for Solid Waste Management)
DPSPE	Direction de la Promotion de la Santé et de Protection de l'Environnement (Directorate for Health Promotion and Protection of the Environment)
DRU	Département de Réponse aux Urgences (Emergency Response Department)
EPI	Programme élargi de vaccination (Expanded Program on Immunization)
GIDS	Gestion Intégrée des Déchets Solides (Integrated Solid Waste Management)
GRET	Groupe de Recherche et d'Échanges Technologiques (Technological Exchange Research Group)
IDB	Inter-American Development Bank
IOM	Organisation Internationale pour les Migrations (International Organization for Migration)
LAC	Latin American and the Caribbean
DM-BE	Médecin du Monde Belgique (Doctors of the World – Belgium)

MDM-FRA	Médecin du Monde France (Doctors of the World – France)
MERLIN	Urgence Médicale Internationale de Secours (Medical Emergency Relief International)
MICT	Ministère de l'Intérieur et des Collectivités Territoriales (Ministry of the Interior and Local Communities)
MPS	Paquet Minimum de Service (Minimum Package of Health Services)
MSP	Ministère de la Santé Publique et de la Population (Ministry of Public Health and Population)
MTPTC	Ministère des Travaux Publics, Transports et Communications (Ministry of Public Works, Transport, and Communication)
NGO	Nongovernmental Organization
OCHA	Bureau des Nations Unies pour la Coordination des Affaires Humanitaires (UN Office for the Coordination of Humanitarian Affairs)
OREPA	Office Régionaux d'Eau Potable et d'Assainissement (Regional Office for Water Supply and Sanitation)
ORS	Oral Rehydration Solution
PAHO	Pan American Health Organization
PIP	Plan d'Investissement Prioritaire (Priority Investment Plan)
POCHEP	Postes Communautaires d'Hygiène et d'Eau Potable Community Hygiene and Water Supply Points)
PRO	Point de Réhydratation Orale (Oral Rehydration Point)
SAGDS	Services Régionaux de Gestion des Déchets Solides (Regional Solid Waste Management Services)
SMCRS	Service Métropolitain de Collecte des Résidus Solides (Metropolitan Service for the Collection of Solid Wastes)
SNEP	Service National d'Eau Potable (National Water Supply Service)
TEPAC	Techniciens Eau Potable et Assainissement Communaux (Community

	Water Supply and Sanitation Technicians)
UADS	Unité d'Appui à la Décentralisation Sanitaire (Support Unit for Health Decentralization)
UCS	Unités Communales de Santé (Community Health Units)
UNICEF	Fonds des Nations Unies pour l'Enfance (United Nations Children's Fund)
UPE	Unité de Planification et d'Évaluation (Planning and Evaluation Unit)
URD	Unité Départementale Rurale (Departmental Rural Unit)
USAID	Agence Américaine pour le Développement International(U.S. Agency for International Development)
UTC	Unité de Traitement de Choléra (Cholera Treatment Unit)
UTE	Unité Technique d'Exploitation (Technical Operation Unit)
WASH	Eau Potable, Assainissement et Hygiène (Water, Sanitation and Hygiene)
WB	World Bank
WHO	World Health Organization

14. References

- 1) **Pan American Health Organization/World Health Organization, 2007,** “Health in the Americas.”
- 2) **Ministry of Public Health and Population, March 2012,** “Réponse Nationale Face à l’Epidémie de Choléra.”
- 3) **Ministry of Public Health and Population, November 2010,** “Lutte contre le choléra, normes et procédures.”
- 4) **Ministry of Public Health and Population, December 2010,** “Gestion de l’épidémie du choléra.”
- 5) **Ministry of Planning and External Cooperation and United Nations System in Haiti February 2010,** “Cadre stratégique intégré des Nations Unies pour Haïti.”
- 6) **Inter-American Bank of Development, April 2011,** “Haiti Sector Note Water and Sanitation.”
- 7) **Jason Nickerson, International Medical Organization, January 2012,** “Haiti’s Health System, two Years after the Earthquake.”
- 8) **National Directorate for Water Supply and Sanitation (DINEPA), 2009,** “Réforme Institutionnelle de l’Eau Potable et de l’Assainissement en Haïti.”
- 9) **National Directorate for Water Supply and Sanitation (DINEPA), February**

2010, “Cadre Stratégique du Secteur EPA Suite au Tremblement de Terre du 12 janvier 2010.”

- 10) **Ministry of Public Health and Population, January 2010**, “Politique Nationale de Nutrition.”
- 11) **Metropolitan Service for the Collection of Solid Wastes (SMCRS), May 2012**, “Colloque Nationale Sur les Résidus Solides.”

- 12) **Ministry of Public Works, Transport, and Communications, December 2010,** “Elaboration d’une Strategic Policy de Gestion des Déchets Solides pour la Région Métropolitaine de Port-au-Prince.”

- 13) **Ministry of Public Works, Transport, and Communications (Olga Samper, Eric Chapal, Alexandre Braïlowsky), December 2006,** “Analyse de la Problématique des Gestion des Déchets dans la Zone Métropolitaine de Port-au-Prince.”

- 14) **Inter-American Bank of Development, April 2011, January 2011,** “Grant Proposal, Emergency Response For The Containment of Cholera.”

- 15) **National Directorate for Water Supply and Sanitation (DINEPA), November 2010,** “Stratégie Nationale de Lutte Contre le Choléra.”

