Ministry of Public Health
Dominican Republic

National Plan for the Elimination of Cholera in the Dominican Republic

Proposed activities 2013-2015

Dominican Republic

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National Plan for the Elimination of Cholera in the Dominican Republic

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Introduction

The Island of Hispaniola was cholera-free for more than a century until it reappeared in Haiti in October 2010. The first case of cholera in the Dominican Republic was confirmed on November 15 2010, with a resident of Higuey, province of La Altagracia, who had returned from Haiti. In the first two years of the epidemic approximately 28,000 cases have been reported with more than 400 deaths. The country epidemic has been categorized as low density given that 0.2% of the total population has been affected.

In the Dominican Republic the epidemic has emerged with household or community outbreaks in rural areas and along the border. Control interventions have been effective; however, with the start of the rainy season, continuous upsurges occurred between May and July, particularly when marginal urban areas were impacted in the main cities such as Santo Domingo, the National District, Elías Piña, San Cristóbal and Santiago.

The cholera epidemic continues active, hence the same level of effort in all the strategic interventions must be maintained, particularly in the areas concentrating vulnerable populations (peri-urban areas, rural communities and bateyes), among others.

The intervention strategies being implemented have strengthened the epidemiologic and laboratory surveillance, the promotion of health and disease prevention at the community level, water quality monitoring and sanitary control, the health service network for case management and inter-institutional coordination.

We believe that the same efforts must be continued along the established strategic lines of action in order to ensure prevention, alertness and response, along with a reinforced coordination between the Ministry of Public Health of the Dominican Republic (MSP) and the Ministry of Public Health and Population of Haiti (MSPP) so that the sustained efforts in both nations may enable us to eliminate cholera in the medium term across the entire island.

Dr. Lorenzo Wilfredo Hidalgo
Minister of Public Health

1. Background

On Wednesday, October 20 2010, the Ministry of Public Health of the Dominican Republic was informed by the Pan-American Health Organization (PAHO) the confirmed presence in Haiti of the ***Vibrio Cholerae serogroup* 01** biotype El Tor serotype Ogawa, as etiologic agent of an outbreak of diarrhea and vomiting detected in the Center and Artibonite departments. By December 2012, Haiti had reported over a 600,000 cases of cholera and the death of more than 7,500 people. http://www.mspp.gouv.ht

In the decade of the 90s, Latin America was impacted by cholera, which spread to 21 countries. During the 10 years the epidemic lasted, over a million cases of cholera and ten thousand deaths were reported. However, the impact of the epidemic was very different in each country, based, among other factors, on the access to drinking water in the households and sewer connections. For example, Uruguay did not report a single case. United States and Canada reported some imported cases, without the occurrence of local transmission.

Cholera also spread through the many border crossing points throughout the continental territory –which host intense commercial activity- favoring its rapid dissemination. Mass media prevention campaigns were successful in changing water and food consumption habits, and new investments were made to bridge the gaps in the access to water and basic sanitation infrastructure, which contributed to the elimination of cholera in the Americas.

2. Scope of the risk in the Dominican Republic

According to the *Encuesta Nacional de Hogares (ENHOGAR 2009-2010)* (the National Household Survey), 40.7% of the homes have intra-household water connection; 31.6% has it outside the home and 2.7 % has water access through public water sources. 75.5% of the homes are provided with drinking water through the public network, as compared to 60.7% in 2002. In the rural sector, only 52.5% of the homes have access to drinking water, while in the urban sector the coverage of this service through networks, both in-house and outside, is 86.8%. In the poorest quintile, 48.9% have access to water versus 91.9% in the richest quintile.

The drinking water supply system consists of 640 aqueducts, 195 of which are urban and 445 rural; 69.5% have a chlorination system installed and 30.5% have a water quality inspection system. Only 11% of the urban population has a regular service of potable water. In 2009, the drinking water quality index (WQI) at national level during 2009 was 28.3%, the average chlorination percentage was 26.5 % and the average percentage of fecal coliforms was 48.1%. The final disposal of municipal solid waste is done through open sky dumps in 57% of the country's provinces. These are often located near the communities, rivers and streams, causing adverse environmental and health impact.

Although this data is not recent, it shows the differences in water and sewer system coverage by urban or rural region and based on the level of income. These are the gaps in the access to water and sanitation that represent critical social and economic decisive factors for the incidence of water and food transmitted diseases, such as the present cholera epidemic.

3. The cholera situation in the Dominican Republic after the first year of the epidemic

On November 15 2010, (Dirección General de Epidemiología (DIGEPI) [General Directory of Epidemiology] through the Laboratorio Nacional de Salud Pública Dr. Defilló [National Public Health Laboratory], confirmed the first imported case of cholera in a 32 year old male, resident

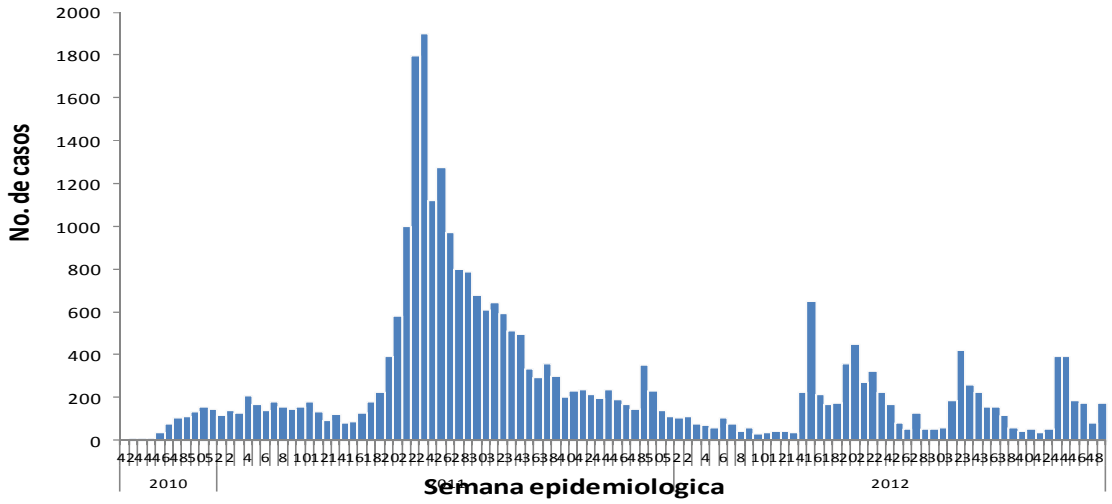
in the county of Higuey, province of La Altagracia. Three days later, the first outbreak with indigenous transmission was reported in a family living in the neighborhood of El Dique, in East Santo Domingo, close to the Ozama river.

During epidemic weeks 47 and 49 of 2010, between 11 and 13 cases of cholera were confirmed per week, a figure that quadrupled by mid December 2010, when household and community cases were reported in various provinces across the country such as: Santo Domingo, Santiago, Elías Piña, San Juan, Dajabón, Azua and Independencia, among others.

At year one of the epidemic, 21,592 suspected cases of cholera were registered at national level, with an attack rate of 0.22 cases for every 100 residents. 86% of the cases were among the population over 5 years. 371 deaths were registered, 156 of which confirmed with the bacteria. Microbiologic surveillance data reported *Vibrium cholerae* in 40% to 50% of the samples tested by the Laboratorio Nacional Dr. Defilló. The cumulative number of cases as of December 2012 is 29,433 cases and 422 deaths. In 2012 the mortality rate was reduced to 0.8% versus 1.7% in 2011.

Epidemic Curve of Cholera

Figure No. 1: Epidemic Curve of Cholera. Dominican Republic, November 2010 to December 2012 (SE 51-2012)



Source: Boletín Epidemiológico Semanal N51-2012. Dirección General de Epidemiología. (Weekly Epidemiologic Bulletin N51-2012)

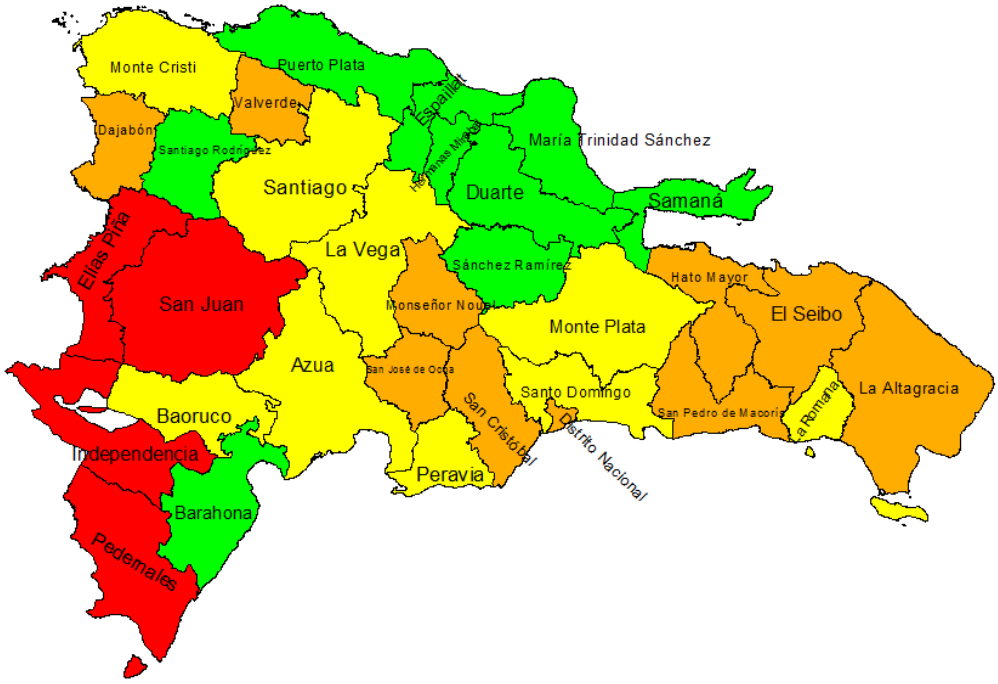
During 2012, most of these cases occurred in the province of Santiago, specifically the outbreak in the county of Tamboril, which started in EW15-2012. This outbreak in Tamboril coincided with the heavy rains that caused floods and damages to human excreta disposal systems, contaminating the drinking water supply. In some neighborhoods of the county of Tamboril the water supply is not regular and is limited to only a few hours a day, for which reason people must store water. This county has more than 60,000 residents and in 2011 only reported 24 cases of cholera, being considered a low risk site. A second outbreak affected the city of Moca, province of Espaillat, through contaminated water in rural locations.

The cholera epidemic has impacted equally men and women, children and adults of all age groups. Initially, the adult population was affected followed by children through household transmission. A higher attack rate was observed in men - 0.23% versus 0.17% in women- associated with a greater labor-related exposure.

The global mortality rate registered was 1.7%, with deaths in every age and sex group. Mortality is observed to increase after 45 and higher among men than women.

Both the attack and mortality rates show considerable variations in all the provinces, the highest incidence being in the province of Elías Piña with 3.36%, but with a mortality rate of 0.54% lower than the national average.

Figure No.2: Provinces by attack rate after the first year of the cholera epidemic in the Dominican Republic



Source: Boletín Epidemiológico Semanal SE52 - 2011 DIGEPI-MSP (Weekly Epidemiologic Bulletin EW52-211)

	Very high risk	AR: > de 0.5
	High risk	AR: 0.2 a 0.49
	Moderate risk	AR: 0.1 a 0.19
	Low risk	AR: < 0.1

The four very high risk provinces are located near the border, while other high risk provinces are on the Eastern region of the country; consequently, being bordering provinces does not represent a higher risk but rather due to increased vulnerability and poverty, which are in turn associated with poor access to water, sewer connections and basic sanitation infrastructure.

Cholera in the country has been a low density epidemic, since it has affected only 0.22% of the general population, although it has been concentrated in populations of greater social vulnerability: rural areas, marginal urban areas, migrants and agricultural workers.

Of 8,829 nationality-linked cases registered by the National Epidemiologic Surveillance System, 8.8% were foreigners (779 cases). Of these, 97% were Haitian citizens and the remaining 3% of different nationalities, most of them associated with a wedding reception held in the province of La Romana. Other isolated cases were registered among tourists in the Eastern part of the country. Important to note is the fact that no secondary cases occurred in their country of origin and there was no an adverse impact on international tourism. This is a commendable achievement that proves the organization, monitoring and response capacity of the Ministry of Public Health (MSP) and its compliance with International Sanitary Regulations (ISR). The information provided by the European countries, United States and Canada on their web sites regarding the cholera situation in the Hispaniola indicated a low risk for the Dominican Republic, with no travel restrictions and only general recommendations on safe water and food consumption.

4. Elimination of the cholera epidemic in the Dominican Republic

On January 11 2012 the Pan-American Health Organization (PAHO/WHO), the United Nations Children's Fund (UNICEF) and the Centers for Disease Control and Prevention (CDC)-Atlanta, convened various donors to make a ***call to action for a cholera-free Hispaniola***. The presidents of Haiti and the Dominican Republic participated through a videoconference and pledged their support to fight together against the cholera epidemic that impacts both nations since 2010. Similar meetings took place in Port-au-Prince and in Santo Domingo with the participation of the highest health authorities, members of the diplomatic corps, international and non-governmental organizations.

This call to action focuses its efforts on basic interventions in water supply, sanitation and hygiene infrastructure, as well as supporting the different health interventions implemented since the epidemic emerged in the country.

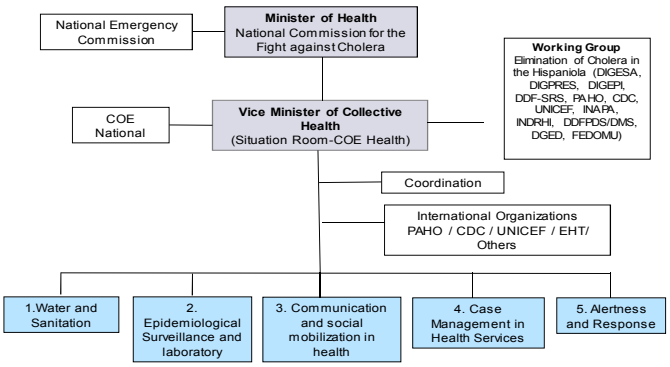
The initiative of elimination seeks to establish coordination between the Ministries of Health and the water and sanitation sector in both countries, as well as with donors, international organizations and non-governmental organizations present on the island.

Duration of the project: Although the target for elimination has been set in 10 years, the initial activities are expected to have a first two-year plan after which the project will be reviewed and evaluated.

Organization chart

The following organization chart shows the levels of management and intervention of the project to eliminate cholera in the Dominican Republic. The national commission to fight against cholera is convened directly by the office of the Minister of Health and is comprised of the health vice ministers, the Dominican Medical Association, the Dominican Epidemiologic Society, PAHO/WHO, CDC, the water and sanitation sector, tourism and others. The health situation room for the cholera response is convened by the Vice minister of Collective Health, usually on a weekly basis, with the participation of all the general directorates conducting interventions, international organizations such as PAHO/WHO, UNICEF, CDC and civil society sectors.

Organization Chart



General objective
To eliminate the presence of cholera from the Island of Hispaniola in a maximum period of ten years, through bi-national coordination and the technical and financial support from international cooperation agencies.

Medium-term general objective
To maintain the efforts for the cholera response in the Dominican Republic, reinforcing interventions in water and sanitation to help reduce social vulnerability and continuously decrease the number of cases until total elimination.

5. **Project components**:

A. Management, coordination and follow up of the project activities

1. At national level

The national group leading the project will meet regularly and will report on each strategic line for follow up in the health situation room of the Vice Minister of Collective Health.

In the event of a threat or emergency, the Emergency Operations Center (COE) will be activated through the Emergency and Disaster Directorate of the MSP for intersectoral coordination. Within the context of the epidemic, the COE has defined roles and activities among the various government institutions, international and non-governmental organizations.

Responsible: General Coordinator. Vice Minister of Collective Health

Working Group: Ministry of Health (DIGESA, DIGPRES, DIGEPI, DNED, DDF-SRS DDFPDS/DMS), PAHO, CDC, UNICEF, INAPA, INDRHI, FEDOMU

Specific objective:
To follow up and monitor the activities of each strategic component of the cholera response and elimination in the country.

Lines of action:

a) Coordination and follow up of the strategic lines of intervention with the task force.
b) Situation analysis and trends of the national epidemic.
c) Coordinate activities with the Emergency Operations Center (COE) in situations of threat.

2. At bi-national level

The group leading the project in each country, and in collaboration with the international agencies, will make a schedule of meetings for coordination and exchange of information, both virtual and in person, to follow up on the activities for the elimination of cholera from the Island of Hispaniola. This technical activity may be financed by a technical cooperation project between both countries (TCC).

Responsible: Ministers of Health from Haiti and the Dominican Republic

Working groups: Task forces from Haiti and the Dominican Republic

Specific objective:
To follow up on the activities in each strategic line of the cholera elimination project.

Lines of action:

a) Bi-national coordination to follow up on all the strategic components to address the epidemic response and the actions towards elimination.
b) Situation analysis and trends of the epidemic on the Hispaniola.

B. Strategic lines of intervention

1. Environmental health: Bridging the gaps in the access to safe drinking water and elimination of excreta.

This involves the development of infrastructure projects for basic water supply and sanitation, with a special emphasis on the provinces or locations of higher impact based on the country risk map. The Instituto Nacional de Agua Potable y Alcantarillados (INAPA) [*National Institute for Drinking Water and Sewer Systems*] and the Vice Ministry of Environmental Health are responsible for the development and inter-institutional coordination of these projects.

Responsible: INAPA /Vice Ministry of Environmental Health, VMSA

Working group: Instituto Nacional de Recursos Hidráulicos (INDRHI) [*National Institute of Water Resources*], Ministry of Education, Corporaciones de agua y alcantarillados (CORAAS) [*Water and Sewer Systems Corporations*], PAHO, UNICEF, Federación Dominicana de Municipios (FEDOMU) [*Dominican Federation of Municipalities*].

Specific Objective:
Build and restore water and sanitation systems in the municipalities at higher risk of cholera and other water and food transmitted diseases. These projects must indicate the amount of funding required and define the financing source.

Lines of action:

a) Develop projects to improve the quality and coverage of drinking water services across the Dominican Republic, prioritizing on municipalities at high and medium risk levels.
b) Develop basic sanitation projects and implement them across the Dominican Republic, prioritizing on municipalities at high and medium risk levels (management and elimination of excreta, sewages, vector control and household hygiene).
c) Develop projects for good practices in food preparation and handling to minimize the risks of microbiological contamination along the food chain, prioritizing on municipalities at high and medium risk levels.
d) Develop projects to improve sanitary control of water, sanitation and hygiene in priority centers and institutions (health centers, schools, child and adolescent care centers, prisons and others).

2. Epidemiologic and laboratory surveillance: Risk research and monitoring

Continue the epidemiologic surveillance of cholera at national level through timely case and outbreak detection, as well as conducting research on the outbreaks, the participation of alert and rapid response groups and the dissemination of information in compliance with International Sanitation Regulations (ISR-2005)

In addition, sentinel surveillance will be established for cases of acute diarrheal disease in selected hospitals throughout the country, and monitoring of the presence of ***vibrio cholerae*** in surface and underground waters.

Responsible: Dirección General de Epidemiologia (DIGEPI) and the Laboratorio Nacional de Salud Publica Dr. Defillo (LNSPDD).

Working group: DIGEPI, LNSPDD, PAHO, CDC

Specific objectives

Monitor the trends of the cholera epidemic in the country.

Timely detection of *Vibrio choleare* in the population and in aquatic environments for an alert and rapid response.

Lines of action:

a) Strengthen the National Epidemiologic Surveillance System, updating and implementing the cholera surveillance protocol.
b) Implement the monitoring of surface waters and drinking water quality supervision.

3. Health promotion: Health communication and social mobilization.

Health education and social communication is a permanent activity to encourage behavior changes in the population at community level, in schools and households. With the use of mass media, radio, television, telephones, social networks, and through community training, we expect to continue promoting health and prevention of water and food transmitted diseases.

Responsible: Dirección General de Promoción Educación para la Salud (DIGPRES) [*General Directorate for Health Promotion and Education*]

Working group: DDF/DPS/DMS**,** Ministry of Education, UNICEF, PAHO, NGOs, Communication Sub-commission, and other partners

Specific objective:
Generate behavior changes at individual, family and community levels, through social communication and health education in order to reduce the risks of water and food transmitted diseases, with a special focus on most vulnerable populations.

Lines of action:

a) Strengthen community action through social mobilization and action strategies to allow for a needs assessment, self-organization and community planning for their overall satisfaction.
b) Develop personal skills through Information, Education and Communication strategies as well as training for the promotion of best practices in safe water and food handling and excreta disposal, prioritizing on the families (in communities or neighborhoods through the community and neighborhood coordination structures), schools, prisons, health centers and children care centers.
c) Develop healthy policies by making partnerships, the exchange of experiences and investing in monitoring and evaluation systems that provide evidence to promote efficient health promotion models and that take into account ways to address the social decisive factors in health.

4. Case Management through the national health service network

Continue with the activities that allow a rapid and timely Management of suspected cholera cases in the country's health service network.

Responsible: Dirección de Desarrollo y Fortalecimiento de los Servicios Regionales de Salud (DDF-SRS)

Working group: DSRS, DFDPS/DAS, PAHO, UNICEF, CDC, NGOs.

Specific objective:
Timely management of cases with Acute Diarrheal Disease (ADD), according to the guidelines and national protocols.

Lines of action:
a) Supervision and training of the health staff on quality care for cases of ADD (cholera)
b) Supply the equipment, goods and drugs required to care for the cholera cases in the Rehydration Units (RU) and the Primary Care Units (PCU).
c) Reinforce the biosafety measures for infection control.

5. Alertness and Response: Coordination, intervention, logistics and supply actions

The coordination, alert and response system implemented by the Dirección Nacional de Emergencias y Desastres (DNED) [*National Emergency and Disaster Directorate]*, ensures the development of sequential activities that involve system activation through

different integrated information sources, official or extra official, community or multisectoral, generating immediate interventions of the different components (Water and Sanitation, Epidemiology, Promotion and Education and Health Services) as well as the rapid response teams; coordination by activating the Health Emergency Operations Centers at the different levels, as needed, and the management of supplies and goods through the established emergency response warehouses.

Responsible: Dirección Nacional de Emergencias y Desastres (DNED) [*National Emergency and Disaster Directorate]*,

Working group: DDFSRS, DFDPS/DAS, VMSA, DIGPRES, PAHO, UNICEF, NGOs

Specific objective:

Activate the alert and response system as the mechanisms to reduce the morbidity and mortality due to cholera outbreaks.

Lines of action:

a) Implementation of the Emergency and Disaster Alert and Response System.
b) Strengthen the rapid response teams to a timely intervention in cholera outbreaks.
c) Activate the Emergency Operations Centers based on the level of impact/alertness of the emergency.
d) Immediate logistics for the distribution of supplies and goods in response to cholera outbreaks at national level, through the cholera warehouses.

LIST OF ABBREVIATIONS

CAASD: Corporación de Acueducto y alcantarillado de Santo Domingo [*Aqueduct and Sewage System Corporation of Santo Domingo]*

CDC: Centers for Disease Control and Prevention (CDC)-Atlanta,

COE: Centro Operaciones de Emergencias [*Emergency Operations Center*]

CONSATUR: Comisión Nacional de Salud y Turismo [*National Health and Tourism Commission]*

CORAAS: Corporaciones de agua y alcantarillados [*Water and Sewage Systems Corporations]*

DDFDPS/DMS: Dirección de Desarrollo y Fortalecimiento de las Direcciones Provinciales de Salud y Direcciones Municipales de Salud [*Directorate for the Development and Strengthening of the Provincial Health Departments and the Municipal Health Departments]*

DDF-SRS: Dirección de Desarrollo y Fortalecimiento de los Servicios Regionales de Salud *[Directorate for the Development and Strengthening of Regional Health Services]*

DSRS: Dirección de los Servicios Regionales de Salud [*Regional Health Service Directorate]*

DGPSS: Dirección General de Planificación y Sistemas de Salud [*General Directorate for Planning and Health Systems*]

DIGEPI: Dirección General de Epidemiologia [*General Directorate of Epidemiology*]

VMSA: Viceministerio de Salud Ambiental [*Vice Ministry of Environmental Health*]

DIGESA: Dirección General de Saneamiento Ambiental [*General Directorate for Environmental Health]*

DIGPRES: Dirección General de Promoción y Educación para la Salud [*General Directorate for Health Promotion and Education]*

DNED: Dirección Nacional de Emergencias y Desastres [*National Emergency and Disaster Directorate]*

ADD: Acute Diarrheal Disease

KAP: Knowledge, Attitudes and Practices

FEDUMU: Federación Dominicana de Municipios [*Dominican Federation of Municipalities*]

RRG: Rapid Response Group

INAPA: Instituto Nacional de Agua Potable y Alcantarillados [*National Drinking Water and Sewage Systems Institute]*

INDRHI: Instituto Nacional de Recursos Hidráulicos [*National Institute of Water Resources]*

WQI: Water Quality Index

LNSPDD: Laboratorio Nacional de Salud Publica Dr. Defillo [*National Public Health Laboratory]*

MINERD: Ministry of Education of the Dominican Republic

MSP: Ministry of Public Health

MSPP: Ministry of Public Health and Population of Haiti

ONE: Oficina Nacional de Estadística [*National Statistical Office*]

NGOs: Non-governmental organizations
PAHO/WHO: Pan-American Health Organization/World Health Organization
PIBW: Potentially Infectious Biological Waste
ISR: International Sanitary Regulations
TCA: Technical Cooperation Agreement
PCU: Primary Care Units
UNICEF: United Nations Children's Fund
RU: Rehydration Units
VMSC: Vice Ministerio de Salud Colectiva [*Vice Ministry of Collective Health*]

ACTION PLAN FOR THE ELIMINATION OF CHOLERA FROM THE ISLAND OF HISPANIOLA
(2013-2015)

Consolidated

	Strategic Focus	TOTAL		
		RD$	US $ (40pesos)	%
A	Management, coordination and follow up of the project activities	19,500,000.00	487,500.00	1.45
1	Environmental health: bridging the gaps in the access to safe water and elimination of excreta	1,170,320,000.00	29,258,000.00	86.88
2	Epidemiologic surveillance and laboratory: Risk research and monitoring	27,220,000.00	680,500.00	2.02
3	Health communication and social mobilization	41,680,000.00	1,042,000.00	3.09
4	Case Management through the national health service network	64,300,000.00	1,607,500.00	4.77
5	Alertness and Response: Coordination, intervention, logistics and supply actions	24,000,000.00	600,000.00	1.78
	TOTAL	1,347,020,000.00	33,675,500.00	100.00

ACTION PLAN FOR THE ELIMINATION OF CHOLERA FROM THE ISLAND OF HISPANIOLA
DOMINICAN REPUBLIC (2013-2015)

A: Management, coordination and follow up of the project activities

Lines of action A	Relevance for the elimination	Key actions recommended	Cost estimate
No. 1 Coordination and follow up of the strategic lines of intervention with the task force.	Expected outcome: Monitoring of project activities by the Implementation Unit of the project for the elimination of cholera from the Hispaniola	Performance Indicator: • # of commissions and sub-commissions established and operational • Implementation Unit of the Project for the elimination of cholera in the Dominican Republic established and operational • Management reports	RD$ 2013-2014
	• Effective coordination of the leading group for the issuing, development and follow up of the plan for the elimination of cholera • Implementation Unit of the Plan for the Elimination of Cholera in the Dominican Republic established and operational • Development and distribution of the situation analysis of the cholera epidemic • National meeting for follow up and evaluation of the interventions to address the cholera epidemic • Data processing of the plan monitoring reports and share them with cooperation agencies • Emergency response plans completed • Support in infrastructure and equipment for the COE • Convene the COE when the emergency situation requires it		500,000.00 5,000,000.00 2,000,000.00 10,000,000.00 500,000.00 1,000,000.00 2,000,000,00 500,000.00
TOTAL			**19,500,000.00**

Strategic Line 1: Environmental health: bridging the gaps in the access to safe water and elimination of excreta

Lines of action 1	Expected Result	Performance Indicator	Output	Cost
Develop projects to improve the quality and coverage of drinking water services across the Dominican Republic, prioritizing on municipalities at high and medium risk levels	Medium and high risk municipalities have access to improved drinking waters systems	% of georeferenced aqueducts across the country % of aqueducts monitored based on daily residual chlorine Increased percentage of urban households with adequate excreta and sewerage disposal	• Georeference information system of water supply systems • Water Quality Monitoring System for the water supplied to the population through rural and urban aqueducts • Expansion and improvement of the water supply Systems in prioritized municipalities • Water Quality Monitoring System for the water supplied to the population through cistern trucks in the prioritized municipalities	1,500,000.00 7,000,000.00 708,000,000.00 300,000.00
Develop basic sanitation projects and implement them across the Dominican Republic, prioritizing on municipalities at high and medium risk levels (management and elimination of excreta, sewages, vector control and household hygiene).	Medium and high risk municipalities have improved systems for the elimination of excreta	% of prioritized municipalities with improved or increased drinking water supply % of water bottling plants with sanitary registration permits Number of cistern trucks monitored for daily residual chlorine	• Public and private water treatment plants operating in adequate conditions • Bottled water in the prioritized municipalities is safe for human consumption (Law 42-01) • Prioritized municipalities have a chlorination system in use • Updated map of the sewage disposal systems. • Improved private systems for excreta elimination • Implementation of the program to expand the rainwater drainage systems.	79,000,000.00 600,000.00 1,800,000.00 100,000.00 195,000,000.00 128,000,000.00
Develop projects for good practices in food preparation and handling to minimize the risks of microbiological contamination	Preparation and distribution of food using adequate hygiene practices	% of street vendors and food handlers in the tourism sector trained % of imported raw food that undergo	• Foods sold in the street and public markets under sanitary control • Industries generating large amounts of sewage waters have	4,000,000.00 90,000.00

along the food chain, prioritizing on municipalities at high and medium risk levels		laboratory testing before going to national markets	operational water treatment plants • Imported raw food under sanitary control	330,000.00
Develop projects to improve sanitary control of water, sanitation and hygiene in priority centers and institutions (health centers, schools, child and adolescent care centers, prisons and others).	Health centers have improved water quality systems and elimination of excreta without biological risk	% of health facilities that have adequate hazardous waste management systems % of centers with improved water and sanitation infrastructure % of centers with improved water and sanitation infrastructure	• Tourist establishments with sanitary supervision system implemented • 1st, 2nd. and 3rd. health care level centers with bio-safety systems implemented • Sanitary safety in schools • Sanitary safety in prisons and correctional facilities • Sanitary safety in child and adolescent care centers.	7,000,000.00 21,000,000.00 11,000,000.00 1,600,000.00 4,000,000.00
Total				**1,170,320,000.00**

Strategic Line 2: Epidemiologic and laboratory surveillance: Risk research and monitoring

Lines of Action	Relevance for the elimination	Key actions recommended	Cost estimate
No. 1 Strengthen the National Epidemiologic Surveillance System, updating and implementing the cholera surveillance protocol	**Expected outcome:** • Strengthened national epidemiologic surveillance system • Strengthened national network of the Public Health National Laboratory for monitoring and research of cholera	**Performance Indicator:** • % of isolated cases and outbreaks with processed samples and available results • % of water or food samples processed with available results • % of laboratories from the cholera surveillance sub-network doing timely reporting	**RD$** **2013-2015**
Implement the monitoring of surface waters and drinking water quality supervision.	• Evaluations of the ADD/cholera surveillance system • Cholera surveillance protocol considering island standardization developed and uploaded on the Websites of the DIGEPI and the MSP • Training of the rapid response teams on research of identified ADD outbreaks • Updated generic protocol for research of ADD outbreaks • Research and control of outbreaks with unknown infection source • Samples of isolated suspected cases and outbreaks processed for identification of *Vibrio choleare* • Samples of water or food involved in outbreaks processed for identification of *Vibrio choleare* • Surveillance of *Vibrio cholerae* and other pathogens based on the established laboratory network • Training for the health personnel on the surveillance of FTD cases • Training of the laboratory personnel on surveillance of etiologic agents of FTD		700,000.00 1,000,000.00 1,800,000.00 460,000.00 460,000.00 7,900,000.00 14,000,000.00 100,000.00 600,000.00 200,000.00
TOTAL			**27,220,000.00**

Strategic Line 3: Health communication and social mobilization

Lines of Action	Relevance for the elimination	Key actions recommended	Cost estimate
Develop **Information, Education and Communication** strategies for behavior changes in safe Management of water, food and excreta	**Expected outcome:** • Training on the community/social mobilization approach • Promote the approach with stakeholders and sectors involved in the elimination of cholera	**Performance indicator:** • Communities and neighborhoods of the priority municipalities improve their practices in hygiene and cholera control • Schools in the priority municipalities improve their knowledge, attitudes and practices in hygiene and cholera control	RD $ 2013-2015
Implementation of **the community social mobilization approach** model Implementation of a **monitoring and evaluation system** for the communication and social mobilization Health promotion in **health centers** and child and adolescent care centers (service health promotion)	• Workshops on the approach model with the PHDs and the HCDs. Working table sessions with key actors (Cooperation agencies, decision makers in the Health System) • Workshops on the approach model with partners; signing agreements with partners; meeting to share the research results and recommendations with PHDs/partners • Develop a study for the response and audiovisual materials for the elimination of cholera. Communications media plan; placement and broadcasting of radio and television spots, billboards on streets and highways • Workshops with technical staff at regional level, educational district, directors and teachers (School Sanitation Plan); health promotion activities in the schools with the students • Health promotion activities and cholera control. Community training (families, neighborhood and community coordinators). Workshops with young peer educators (in coordination with the PHD)		1,980,000.00 1,800,000.00 28,000,000.00 5,900,000.00 4,000,000.00
TOTAL			**41,680,000.00**

Strategic Line 4: Case management through the national health service network

Lines of Action	Relevance for the elimination	Key actions recommended	Cost estimate
Supervision and training of the health staff on quality care for cases of ADD (cholera) Supply the equipment, goods and drugs required to care for the cholera cases in the Rehydration Units (RU) and the Primary Care Units (PCU). Reinforce the bio-safety measures for infection control.	**Expected outcome:** • Improved quality of care in the Oral Rehydration Units • Rehydration Units equipped and have the required goods and inputs to address the ADD/cholera cases • Hospital bio-safety strengthened	**Performance indicator:** • Percentage of patients with Acute Diarrheal Disease admitted in the Rehydration Units receiving timely and adequate treatment • Number of Rehydration Units with available resources to care for patients with Acute Diarrheal Disease / Total of Rehydration Units times 100	**RD $** **2013-15**
	• Guide for Quality Auditing of Clinical Management • Training for health managers (technical staff at central and regional levels) on use of the Guide for Quality Auditing of Clinical Management • Training program on use of the Guide for Diagnosis and Treatment of Cholera • Plan for Drug and Goods Management for an effective operation of the Rehydration Units (security stock) • Rehydration Units equipped at the national level • Training for health personnel on bio-safety measures • Updated Guide for Cleaning and Disinfecting Cholera Treatment Units. • Operational evaluations and KAP Studies for the health staff in the Rehydration Unit on diagnosis, treatment and bio-safety of the health staff		1,300,000.00 4,800,000.00 1,400,000.00 30,000,000.00 20,000,000.00 1,200,000.00 600,000.00 5,000,000.00
TOTAL			64,300,000.00

Strategic Line 5: Alertness and Response: Coordination, Intervention, Logistics and Supply Actions

Lines of Action	Relevance for the elimination	Key actions recommended	Cost estimate
No. 1 Implementation of the Emergency and Disaster Alert and Response System. Strengthen the rapid response teams for a timely intervention in cholera outbreaks. Activate the Emergency Operations Centers based on the level of impact/alertness of the emergency. Immediate logistics for the distribution of supplies and goods in response to cholera outbreaks at national level, through the cholera warehouses.	**Expected outcome:** • Alert and response system implemented and operational • Reactive capacity of the rapid response teams achieved in all the provinces • Emergency Operations Center ready and operational • Regional warehouses stocked and distributing goods required to care for cholera cases	**Performance indicator:** • Reports from the alert and response groups in emergency situations • # of provincial rapid response groups established • Cholera outbreak reports addressed • # of active provincial emergency centers and regional coordination centers	**RD$** **2013-15**
	• Coordination meetings with INDOTEL to establish a single alert and emergency number • Development of alert and response protocol in cases of outbreaks. Training of data management personnel • Coordination meetings with DDFDPS/DMS to set up the groups. Revision, validation and printing of the guide for the GRR. Training workshops on the guide. Equipment for the rapid response groups. Monitoring of the rapid response groups. • Data Collection of emergency groups in the PHDs. Coordination meetings with the members of the provincial centers and the regional coordinators • Training on use of the alert and response protocol • Management of goods and needs based on projections and follow up of the trend of the epidemic conducted in coordination with the General Directorate of Epidemiology (DIGEPI).Inventory of the cholera warehouses. Coordination for supply stocks in the cholera warehouses		2,000,000.00 20,000,000.00 1,900,000.00 100,000.00
TOTAL			**24,000,000.00**