



Emergency Response for the Containment of Cholera

HA-L1062 & HA-G1021
(2503/GR-HA)

Project Completion Report (PCR)

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Acronyms and Abbreviations

CDC	U.S. Centers for Disease Control and Prevention
CTC	Cholera Treatment Center
CTU	Cholera Treatment Unit
DAB	Direction d'Administration et de Budget
DINEPA	National Agency for Potable Water and Sanitation
EMMUS	Household survey (Enquête Mortalité, Morbidité et Utilisation des Services)
HTH	High Test Hypochlorite (calcium hypochlorite, chlorine used for water treatment)
IDB	Inter-American Development Bank (“The Bank”)
IDP	Internally Displaced People
IEC	Information, Education and Communication
IMR	Infant Mortality Rate
MSF	Doctors Without Borders (Médecins Sans Frontières)
MSP	Ministry of Health (Ministère de la Santé Publique et de la Population)
MTPTEC	Haiti Ministry of Public Works, Transport, Energy and Communications
NGO	Non-governmental organization
ORP	Oral Rehydration Post
ORS	Oral Rehydration Salts solution
PMR	Project Monitoring Report
SPH	Social Protection and Health Division of the IDB
UNICEF	United Nations Children's Fund
URD	Unites Rurales Departamenteaux
WHO	World Health Organization
WSA	Water and Sanitation Division of the IDB

BASIC INFORMATION (US\$20,000,000.00)

PROJECT NUMBER (S): HA-L1062, HA-G1021
TITLE: EMERGENCY RESPONSE FOR THE CONTAINMENT OF CHOLERA
LENDING INSTRUMENT: GRANT
COUNTRY: HAITI
BORROWER: REPUBLIC OF HAITI
LOAN (S): 2503/GR-HA, GRT/WS-12619-HA
SECTOR/SUBSECTOR: SOCIAL PROTECTION AND HEALTH (SPH) / WATER AND SANITATION (WSA)

DATE OF BOARD APPROVAL: DECEMBER 15, 2010
DATE OF LOAN CONTRACT EFFECTIVENESS: DECEMBER 21, 2010
DATE OF ELIGIBILITY FOR FIRST DISBURSEMENT: MAY 16, 2010 / **DATE OF FIRST ELIGIBILITY:** FEB 11

	2503/GR-HA	GRT/WS-12619-HA	TOTAL GRANT
<u>LOAN AMOUNT (S)</u>			
ORIGINAL AMOUNT:	15,000,000.00	5,000,000.00	20,000,000.00
CURRENT AMOUNT:	15,000,000.00	5,000,000.00	20,000,000.00
PARI PASSU:			100
TOTAL PROJECT COST:	15,000,000.00	5,000,000.00	20,000,000.00
<u>MONTHS IN EXECUTION</u>			
FROM APPROVAL:	32	36	
FROM CONTRACT EFFECTIVENESS:	32	36	
<u>DISBURSEMENTS PERIODS</u>			
ORIGINAL DATE OF FINAL DISBURSEMENT:	JUNE 21, 2012	JUNE 21, 2012	
CURRENT DATE OF FINAL DISBURSEMENT:	AUGUST 31, 2013	DECEMBER 31, 2013	
CUMULATIVE EXTENSION (MONTHS):	9	18	
SPECIAL EXTENSIONS (MONTHS):	5	0	
<u>DISBURSEMENTS</u>			
TOTAL AMOUNT OF DISBURSEMENTS TO DATE:	14,976,484.52	5,000,000.00	19,976,484.52
<u>REDIRECTIONING.</u>			
HAS THIS PROJECT?:			
RECEIVED FUNDS FROM ANOTHER PROJECT			No
SENT FUNDS TO ANOTHER PROJECT			No
EX POST ECONOMIC ANALYSIS METHODOLOGY:			N/A
EX POST EVALUATION METHODOLOGY:			N/A
DEVELOPMENT EFFECTIVENESS CLASSIFICATION:			

I. INTRODUCTION

- 1.1 At the time when the first cases of cholera were discovered in the lower Artibonite on October 19, 2010 there was an immediate recognition that the country could face yet another large scale humanitarian catastrophe. Cholera is known to be an extremely virulent diarrheal disease, which by causing extreme dehydration, is capable of killing a healthy adult within hours of infection. As a densely populated country with little sanitary infrastructure and limited access to potable water, an outbreak of a waterborne disease posed a high potential risk, particularly in rural Haiti. Despite what could be considered optimal circumstances for the spread of water-borne disease however, this particular bacterial disease had not been recorded in Haiti several decades. Within one month of the first diagnosis in mid-November there were already over 11,000 confirmed cases of cholera and more than 1,180 deaths according to the Ministry of Health's (MSPP) official figures. Additionally, compounding factors, such as the prevalence of malnutrition and HIV infection may have further contributed to the observed severity of the disease and the high mortality that started to be recorded early on during the epidemic.
- 1.2 The precarious sanitary circumstances that allowed the disease to spread so fast are best described by the household survey results¹ showing that: (i) only 11% of households have access to a private sanitation facility that safely separates fecal waste from the environment; (ii) 50% of the population defecates in the open; and (iii) that 76% of households in rural Haiti report that they do not treat their water at all. As the epidemic hit the country only ten months after the devastating earthquake, much of the health, roads and sanitation infrastructure around Port-au-Prince and Leogane remained damaged or destroyed. An estimated 810,000 people continued to live in spontaneously built settlements, so called Internally Displaced People (IDP) camps as the reconstruction of demolished neighborhoods was moving very slowly.
- 1.3 Amidst a fast spreading cholera epidemic, the most important aim of any intervention is to reduce mortality by timely case management and improved access to safe water. However, in Haiti even in normal circumstances basic health care only reaches 47% of the population, and in the case of cholera, its identification and treatment were new to the Haitian health personnel, leaving neither the public health nor the water and sanitation systems equipped to respond to a large scale emergency.
- 1.4 In November of 2010, the World Health Organization (WHO) estimated that based on the explosive manner the disease had started to spread, the number of infected people could reach 400,000 by May 2011. By mid-December, the disease was detected in all ten departments demonstrating the need for an urgent, locally adapted and effective national intervention. The National Agency for Potable Water and Sanitation (DINEPA) published their first strategy to combat cholera on November 16th 2010 shortly followed by the Cholera Inter-Sector Response Strategy (Annex I.) presenting the national plan for the next 12 months, with the objective of limiting the impact of the cholera outbreak by reducing avoidable mortality and morbidity. The strategy also outlined the necessity for rapid scale-up of all efforts to improve: (i) surveillance systems; (ii) integrated response

¹ Enquête Mortalité, Morbidité et Utilisation des Services (EMMUS) V HAÏTI, 2012 [IDBDOCS#38220338](#).

for case management including provision of supplies and equipment; (iii) social mobilization and health promotion; and (iv) safe water and sanitation in health facilities and communities. The request to the IDB from the government of Haiti to design a project to respond to these challenges came at the end of October and it was immediately recognized as a high priority project which would require a somewhat simplified approval process to allow for the project to be approved in the final board meeting of the calendar year. The IDB team responsible for the preparation delivered the project to the board on December 15, 2010 only five weeks after the decision was done to respond to the government's request.

II. PROJECT PERFORMANCE (TO BE RATED)

A. Effectiveness

- 2.1 The objective of the project was to contribute to the Government's Cholera Inter-Sector Response Strategy aimed at reducing cholera-related morbidity and mortality. The project sought to build capacity at the MSPP and the Ministry of Public Works, Transport, Energy and Communications (MTPTC) through DINEPA in cholera response, by strengthening their stewardship role and response capacity. Improving the surveillance of both water quality and cholera incidence was also prioritized. During the design phase the Northern departments were deemed particularly vulnerable to the epidemic both due to their proximity to Artibonite and by the apparent absence of international emergency response organizations in that region at the beginning of the outbreak. Because of these considerations, it was agreed that the health response would concentrate primarily, but not exclusively, in the North, North-East North-West and West departments.
- 2.2 There was an important recognition that MSPP's stewardship could only be strengthened if it would assume the overall role of an execution agency for all health activities under the project and increasing Governmental oversight in the sector was a priority as hundreds of well-meaning organizations were providing emergency care in a somewhat uncoordinated fashion. At the same time, for the MSPP, the burden of managing a complex externally financed project for a rapid response operation with significant emergency supply demands could have been overwhelming during the emergency phase. Based on these considerations, it was agreed that United Nations Children's Fund (UNICEF) would act as the implementation agency for Component II, taking advantage of their existing position as the largest provider of medical supplies for the emergency.
- 2.3 The project was executed via three components with the following objectives:
- 2.4 **Component I (US\$1 million): Strengthening MSPP's stewardship in the cholera outbreak response.** The objective of this component was to strengthen the MSPP's capacity at the central as well as at the departmental level to lead, in coordination with DINEPA, the Government's overall response of the cholera outbreak. More specifically the aim was to finance technical assistance related to surveillance systems, medical waste management and finance specialized human resources at the central and departmental levels.

- 2.5 **Component II (US\$14 million): Scaling-up cholera prevention, emergency treatment and outreach.** The objective of this component was to rapidly increase the delivery of medical services by scaling-up the first level response (Oral Rehydration Post - ORP), including outreach and community mobilization activities for the control and prevention of cholera. The component also supported second and third levels of response, the Cholera Treatment Units (CTU) and Cholera Treatment Centers (CTC) envisioned in the Cholera Inter-Sector Response Strategy. More specifically the component was to finance medical supplies and the logistics to get them to their designated point of use, operational costs of the treatment units, transportation costs of referred patients, training and waste management and infection control. Additionally this component aimed to support the development and implementation of Community Information, Education and Communication (IEC) activities aligned with the Cholera Inter-Sector Response Strategy.
- 2.6 **Component III: (US\$5 million) Strengthening DINEPA's Cholera Response.** This component aimed to support the MTPTC through DINEPA to strengthen DINEPA's response capability as envisioned in the Cholera Inter-Sector Response Strategy and DINEPA's National Strategy Response to the Cholera Epidemic. The specific activities to be supported by the project included: (i) purchase and distribution of cholera prevention kits, to include water purification tablets (also known as aqua tabs), chlorine and soap; (ii) hiring sanitary agents to monitor the quality of water at the municipal level; (iii) inputs, equipment and operational costs to ensure the safe disposal of wastewater and excreta; (iv) ensure safe water supply and sanitation infrastructure at CTUs and CTCs; and (v) monitoring and tracking system.

a. Results Achieved

- 2.7 The project was designed to respond to an epidemic of cholera which at the time of project design was spreading in an explosive manner throughout Haiti. Many uncertainties affected the planning; only rough estimates could be made regarding the prospective number and severity of infected people, their geographic locations, and the amount of resources that would be made available by the international community. Furthermore, it was not clear which approaches would work in the local context, and what would be the impact of the rising political instability and approaching hurricane season. Given this reality, it was critical that the overall development objective was defined as *a contribution* to the Government's Cholera Inter-Sector Response Strategy rather than having a more restricted scope in the response. This allowed the project to stay attuned to the changing face of the epidemic and stay relevant at each stage, with continuous small adjustments in its activities.

b. Impacts

- 2.8 No impact indicators were selected at the time of project preparation nor added later during execution.

c. Outcomes

- 2.9 The results matrix at the time of approval identified one outcome indicator and five intermediate outcome indicators which were all considered as outcomes:
- In-facility cholera fatality rate in > five year olds (%) by department
 - Cholera fatality rate in project supported CTUs and CTCs (%)
 - Surveillance system properly processing and collecting reliable data (0/1)
 - Cholera cases treated with ORS at ORPs (%)
 - CTU and CTC with wastes collection and disposal (%)
 - Households in intervened areas with water that contains residual chlorine >0.2 mg/l (%)
- 2.10 **In-facility cholera fatality rate:** This indicator measures the ability of the health facility to effectively treat cholera patients of varying severity and is one of the national indicators which are published daily via the MSPP website. In addition to the national figure, the project team decided to include another aggregate fatality rate indicator to reflect the development in specifically in the four departments which were targeted by Component II: *Fatality rate reduced in targeted departments (N, NE, NW, W)*. During the first 10 months of execution, the fatality rate fell (in over five year olds) momentarily to the targeted 1% in these four departments, yet once the emergency phase was over and the number of dedicated emergency facilities was reduced, the fatality rate started to increase again. At the height of the epidemic there were close to a thousand cases reported daily and during this peak era the project was supporting 1,008 ORPs. Yet, by the fall of 2012, there were only 100 cases reported daily and by that time all project-supported ORPs had been dismantled as the services had been incorporated to the existing health facilities. This however meant that the patients needed to come from further away and once arrived, their condition could have worsened to severe dehydration with critical complications. With regards to the two indicators for fatality, the project team decided somewhat arbitrarily that the value for *case fatality* would be taken on December 31, 2012 when all directly supported project contracts for health personnel would have come to end. At this point in time the fatality rates were 1.3% at the national level and 1.4% on average in the four targeted departments in over five year olds. At this time, approximately 300 cases per day were being reported, in contrast to 4000 cases per day at the peak of the epidemic. In the PMR the first outcome is worded as: (i) *Cholera fatality rate reduced (global)* with the indicator *Fatality rate (national)* and the second as (ii) *Fatality rate reduced in project supported departments (N, NE, NW, W)* with the indicator *Cholera fatality rate*.
- 2.11 **Cholera fatality rate in project supported CTUs and CTCs:** The project was not able to measure this indicator due to the administrative challenges in setting-up a system that would monitor only the case-fatality of those facilities that received some support from the project. At the time of the emergency response the project team decided to monitor the national fatality rate in over five year olds as well as the fatality rate in the targeted four departments to report on progress as explained above.

- 2.12 **Surveillance system properly processing and collecting reliable data:** The target for this indicator was reached but the indicator was placed under milestones as there were no costs attached to this result. The MSPP's Directorate for Surveillance and Epidemiology received very significant support from the Atlanta-based Centers for Disease Control (CDC) as a result of which the first version of the system which allowed for publishing of daily surveillance reports on MSPP's website became available already in December 2010. This nationwide surveillance system was designed to register all ambulatory patients, hospital admissions and deaths² and mandated all government and nongovernmental health facilities to respond to the Direction of Health in each department. The data was received at the departments via a mobile phone based text messaging system and was further aggregated before sending it to the central level. The continued support from the CDC obviated the need for the Directorate of Epidemiology at MSPP to undertake the activities planned to support the surveillance efforts with the IDB project funds which hence explains why the indicator was placed under milestones. In the PMR this outcome is placed under milestones as *Surveillance system properly processing and collecting data*.
- 2.13 **Cholera cases treated with ORS at ORPs:** This indicator was intended to measure the quality of care given in the dehydration tents and to monitor if the recommended treatment of ORS was given to all suspected cases. In order to monitor also the number of patients that received treatment in these facilities the indicator, *Cholera treatment provision expanded via Oral Rehydration Posts* was added to the results matrix which showed that 139,531 persons received oral rehydration treatment via these posts. In the PMR this indicator is worded as *Cholera cases treated at oral dehydration posts with oral dehydration salts*.
- 2.14 **CTU and CTC with waste collection and disposal:** In the original results matrix this indicator was intended to measure DINEPA's involvement in providing for the waste collection and disposal services and supplies to the temporary treatment units. In reality however, the task of setting-up a waste collection system for a CTU/CTC could not be separated from the overall task of setting up the facility per se. Therefore UNICEF provided these services to the project supported CTU/CTCs. The target level for this indicator was reached as waste collection and disposal units became integral elements in these temporary facilities and were installed at the sites before any patients would be admitted. In the PMR this outcome is worded as *Waste management in CTUs and CTCs improved* with the indicator *Cholera treatment centers with waste collection and disposal*.
- 2.15 **Households in intervened areas with water that contains residual chlorine (>0.2 mg/l):** Via Component III DINEPA provided chlorination to all of the 28 water networks in the country and the targeted level for this indicator was reached on the second year of execution. A monitoring tool called SISKLOR was installed to monitor the level of residual chlorine in the pipes and the system was programmed to send daily SMS messages to DINEPA's observatory center to report on the results. In the PMR this

² Centers for Disease Control and Prevention. Update: cholera outbreak, Haiti 2010. MMWR Morb Mortal Wkly Rep. 2010;59:1473-9.

outcome is worded as *Household water quality improved* with the indicator *Households in intervened areas with water that contains residual chlorine (higher than 0,2 mg/L)*.

d. Outputs

2.16 The original results matrix identified the following four output indicators:

- Newly hired personnel to the MSPP (#)
- Bed occupancy rate in CTUs and CTCs (%)
- Newly hired sanitary agents (#)
- Cholera prevention kits distributed (#)

2.17 **Newly hired personnel:** This indicator intended to measure how the project would strengthen the MSPP in terms of key human resources and as such on the first year of implantation the Directorate of Pharmacy was supported by four pharmacists. However, once the most acute phase of the epidemic was over, it was recognized that it is critically important to incorporate the know-how developed at the ORP, CTU, and CTC into the regular health facilities so that the response capacity would be sustained beyond the life of the temporary tent facilities. At that time the MSPP requested that the project increase its support to hire cholera trained personnel with project support with the mutual agreement that these personnel would subsequently be offered staff contracts within the MSPP. However, because the chosen output indicator only reflected the centrally hired staff, the project team included milestones in the PMR under the same output to take note of the other types of personnel categories such as physicians, nurses and auxiliary nurses hired to the departments. Whereas Component I included the incorporation of MSPP personnel costs both at the central as well as departmental levels, it was not foreseen at the time of preparation that such integration of cholera services to mainstream service provision would be done during the lifetime of the project. At the end the project, 80 physicians and 130 nurses trained in cholera care were incorporated to the MSPP's payroll across the ten departments after an initial eight month contract supported by the project. This output indicator is worded in the PMR as *Central level staff (pharmacists and logistician)*. There are also two related milestones: (i) *Physicians hired to integrate cholera services to health facilities* and (ii) *Nurses and auxiliary nurses hired to integrate cholera services to health facilities in 10 departments*.

2.18 **Bed occupancy rate:** This indicator in the original results matrix intended to measure the effective use of resources in CTUs and CTCs turned out to be an unsuitable indicator in this type of an operation due to very high turn-over of patients in these temporary tent facilities which were continuously dismantled and moved to other areas experiencing peaks. In addition, the added cost of an empty bed in a tent facility or the cost of leaving an empty tent for an additional week in a given area to assure that the peak is over, can be considered marginal. Based on these considerations the project team removed the indicator for the PMR.

2.19 **Newly hired Sanitary Agents:** The target level set for this component was reached albeit it was supported via a different component than originally planned. At project preparation it was thought that the employment of sanitary agents would be done under

Component III by DINEPA. However, as there was an urgent need to educate and inform the communities of the necessary hygiene behavior, the MSPP's sanitary departments proposed in their action plans to start as of immediately using the project funds to train and deploy sanitary agents. Because of the latter, the sanitary agents were delivered (hired and trained) under Component II as at that point in time, Component III had not yet reached eligibility for disbursements.³ During the following months a high number of families were reached via this strategy also in the hard to reach zones and, as a result, the departments decided to further increase the number of agents in their plans. Consequently the new target number for sanitary agents increased from the originally planned 270 to 2,600 agents. This network of sanitary agents was only maintained until mid-2012, until the time when the infection rate had dropped significantly. At this time however, DINEPA was ready to launch their medium term strategy on a national network of *local water and sanitation technicians* deploying two technicians in each commune. While funds from Component III were used to supply and equip this network, no additional indicators were added to the results matrix to reflect this change. In the PMR the indicator is *Community agents trained*.

- 2.20 **Cholera prevention kits:** This indicator was intended to measure the amount of water purification supplies that would be distributed to the households under Component III. However, at the beginning of the epidemic, many organizations donated large amounts of prevention kits to DINEPA for distribution. The kits included a five gallon water bucket with an inbuilt water purification system and a spigot, water purification tablets (aqua tabs), chlorine and soap. Rather than purchasing more prevention kits, the project team decided to increase the quantity of aqua tabs for water purification at the point of consumption. While this is a more expensive method than liquid chlorine, it is the preferred method for most households.⁴ In the end however as no prevention kits were purchased with project funds, the indicator was changed to measure the number of treatment kits purchased under Component II. In retrospect, rather than replacing the prevention kit indicator with the treatment kit indicator, the number of aqua tabs, spare hydraulic parts or the amount hypochlorate of calcium (HTH) that the DINEPA invested in through Component III would have provided a better indicator of the originally intended purpose. In the PMR the indicator is *Cholera treatment kits distributed*.

e. Discussion on selected indicators

On hindsight the possibility to measure *behavior change* of the population would have provided an important indicator to know if the project could expect to have a sustained impact on cholera incidence in the future. The most critical behaviors that the project could have intended to measure would have related to: (i) household water treatment; (ii) hand-washing; (iii) home treatment of diarrhea; and (iv) latrine use as opposed to open defecation. A study supported by CDC conducted at the end of 2010 in Port-au-Prince confirmed that the knowledge of cholera was high four months in to the epidemic and that self-reported household water treatment had increased from 10 month prior from

³ Component III reached eligibility 4 months later on May 16, 2011.

⁴ Post-earthquake, Haitian infrastructure reconstruction, a focus on water and sanitation in the town of Leogane. Montalto et al. Drexel University 2013.

30% to 74%⁵ in the surveyed 405 households. Also other institutions reported that the fear of cholera emerged as a major motivator for uptake of water treatment in the community.⁶ However, no such data exists after 2012 or from the other departments that benefited from the project.

⁵ Knowledge, attitudes, and practices related to treatment and prevention of cholera, Haiti, 2010. De Rochards B et al. *Emerg Infect Dis.* 2011;17:2158-61.

⁶ A qualitative Knowledge, Attitudes, and Practices Related to Treatment and Prevention of Cholera, Haiti, 2010. V. Beau De Rochars et al. *Emerging Infectious Diseases* 17 (11), 2158-61, 2011.

Table 1

RESULTS ACHIEVED MATRIX

OUTCOMES									
Results	Indicators	Units	Baseline Value	Date	Original Target Value	Formally Revised Target Value	Actual Values Achieved	Date	Means of Verification
Outcome #1: Cholera fatality rate reduced	Outcome Indicator #1: Fatality rate reduced at the national level	%	4	2011	1		1.3	2012	MSPP surveillance data
	Outcome Indicator #2: Fatality rate reduced in targeted departments (N,NE,NW,E)	%	4	2011	1		1.4	2012	MSPP surveillance data
Outcome #2: Treatment at Oral Dehydration Posts improved	Indicator #1: Cholera cases treated at Oral Rehydration Posts with ORSs	%	0	2011	100		100	2011	UNICEF Report
Outcome #3: Waste management in CTUs and CTCs improved	Indicator #1: CTUs and CTCs with waste collection and disposal	%	0	2011	80		100	2011	UNICEF Report
Outcome #4: Household water quality improved	Indicator #1: Households in intervened areas with water that contains residual chlorine (higher than 0.2 mg/l)	%	0	2011	80		100	2012	DINEPA Report
Outcome #5:	Indicator #1: Suspected cholera cases treated in Oral Rehydration Posts	Individual	0	2011	125,000		139531	2012	UNICEF report (data compiled from health facility reports)

OUTPUTS								
Outputs & Milestones	Units	Baseline Value	Date	Original Target Value	Formally Revised Target Value	Actual Values Achieved	Date	Means of Verification
Component #1: Strengthening MSPP's stewardship in the cholera response								
Output Indicator #1: Number of central level staff increased	Staff	0	2010	6	10	19	2012	MSPP report
Milestone Indicator #1: Surveillance system properly processing and collecting data	System	1	2010	1		1	2011	CDC report
Milestone Indicator #2: Physicians hired to integrate cholera services to health facilities	Staff	0	2010	0	80	80	2012	MSPP report
Milestone Indicator #3: Nurses and auxiliary nurses hired to integrate cholera services to health facilities	Staff	0	2010	0	130	130	2012	MSPP report
Component #2: Scaling-up cholera prevention, emergency treatment and outreach								
Output Indicator #1: Cholera treatment kits distributed	Treatment kit	0	2011	20,000	500	625	2012	UNICEF report
Output Indicator #2: Community agents trained	Agent	0	2011	270	2600	2696	2012	UNICEF report
Component #3: Strengthening DINEPA's cholera response								
Output Indicator #1: Assessment of water and sanitation systems in priority health facilities	Assessment	0	2011	1		1	2012	DINEPA report

f. An analysis of the Vertical Logic

- 2.21 Outcomes: The original results matrix of the project identified only a single outcome indicator, *in-facility cholera fatality rate in >5 year olds*. In addition it listed five *intermediate outcomes*, which were placed as outcomes in the PMR system.
- 2.22 **For Component I**, the objective was to strengthen MSPP stewardship capacity to manage the cholera response. The outputs and milestones such as *personnel hired*, and a *functioning surveillance system* are both indicators that are clearly linked to this objective, which contributes to reducing national fatality rate. For example, having sufficient personnel at the central pharmacy to respond to increased volume of drug demands from the departments is an important marker of institutional capacity; likewise, a well-functioning surveillance system provides the foundation for effective decision-making to respond to the emergency. These functions clearly contribute essential elements to reducing fatality.
- 2.23 **Component II** focused on scaling-up prevention and treatment. There is a direct relationship between procurement of treatment kits, improved quality of treatment, and training of community agents with the potential reduction in fatality rate. In short, effective treatment would not be possible without appropriate medical supplies (treatment kits), and basic quality of care and the trained community agents are the foundation of the prevention strategy.
- 2.24 **For Component III**, the objective was to strengthen DINEPA's response capacity to the epidemic. The principle outcome indicator is the *percentage of residual chlorine* in the targeted water networks, a critical measure for preventing the spread of the epidemic, thereby reducing incidence, severity and fatality. The output indicator linked to *residual chlorine* is *assessment of water and sanitation systems at priority health facilities*, the results of which allowed for the water and sanitary systems of 60 priority health facilities be upgraded. This output indicator on its own can be expected to directly reduce facility level fatality rates as well as prevent future contamination.
- 2.25 It must be noted however that many of the chosen indicators were not sensitive to measuring more qualitative aspects of the program. For example the competence of the community agents and the capacity of the health workers at the public and Non-Governmental Organization (NGO) run facilities are critical factors in defining the quality of care and hence the potential that the given treatment could have on the fatality rate. Especially at the professional levels closest to communities, continuous training was provided to address persistent knowledge gaps.

g. An analysis of the Results Attribution

- 2.26 Conducting an impact evaluation of the effectiveness of the interventions would not have been feasible, neither operationally nor ethically as this would have required denying care to a selected control group. In this context, the activities supported by the project cannot be shown to independently contribute to the achieved outcomes such as the reduction of

fatality, yet ample evidence exists on the cost-effectiveness of the treatment interventions (Annex III). Nonetheless one could argue that in the case of the North department, in which the project financed the installation and operation of 327 ORPs and 18 NGO service contracts, the project would have contributed to the decline of case fatality from 2.5% (Jan 2011) to 1.6% (Jan 2012). Furthermore, as of the 55,000 cholera cases that the department had reported until the end of 2012, over half (29,015 persons in total) had received either intravenous solution and/or ORS via the project supported facilities. It is hence very likely that the project contributed directly to the decline of mortality at least in this department.⁷

h. Unanticipated outcomes

- 2.27 An important, yet unexpected outcome of the project was MSPP's decision in June 2013 to request UNICEF to host a fund for pooled donor funds towards cholera elimination, which essentially follows the same execution design and logic that Component II in this project. This is a clear indication of the strong governmental buy-in that the project managed to generate, acknowledging the way in which national capacity was built under its activities.
- 2.28 Another unexpected outcome of the cholera response were the results of a study indicating that the cholera bacterium in Haiti was evolving and had increased virulence as survivors were acquiring some immunity towards the original strain first announced by the CDC in May of 2012. This altered strain in Haiti is linked to increased production of cholera toxin and more severely dehydrating diarrheal disease. The study showed that the median time from illness onset to death was only 12 hours, ranging from 2 hours to 8 days.⁸ While this development of the epidemic cannot be considered fully unexpected as the cholera bacterium is known to be capable of such changes, this does mean that size of the population at risk of infection has increased from 2011.
- 2.29 Component III contributed to DINEPA achieving significant strengthening of their regional network, which was not initially foreseen as an objective of an emergency project. Two areas in particular should be mentioned in this regard: (i) Communal water and sanitation technicians (TEPAC network); and (ii) Rural regional units (URD).⁹ The TEPAC network which was supplied and equipped with the project funds now forms a new permanent structure in the communes. These professionals are capable of quickly informing authorities of a potential outbreak of water contamination as they perform routine analyses of water quality both at the water posts and in homes. With regards to the URD, they are considered to have gained very important experience in supervising engineering works though the water and sanitation system up-grades that were performed in the 60 health facilities. Furthermore the project also strengthened URD's analytical capacity via the portable laboratories that are used monitor water quality.

⁷ Health Authorities' leadership reduces cholera deaths in Haiti. Ayoya et al. The Lancet 380:472-3, 2012 [IDBDOCS#38218428](#).

⁸ Rapid assessment of cholera-related deaths, Artibonite Department, Haiti 2010. Routh et al. Emerg Infect Dis.

⁹ Unite Rural Departementaux (URD).

B. Relevance

- 2.30 While the *health sector* is not included in the current IDB's Haiti Country Strategy 2011-2015, a primary aim of the strategy is to address the lack of basic services in the country in order to improve the living conditions of the population as whole, and in particular those of the poorest communities. Consequently, as cholera is in essence a disease of poverty, affecting primarily those with no access to safe water and proper sanitation, the project is aligned with this vision. Furthermore, the project responded to a request from the government of Haiti to attend an emergency situation, to which the IDB responded with well-known cost-effective interventions. The project's activities were complimentary to the interventions in the Water and Sanitation Sector, which remains as one of the core pillars of the IDB country strategy agreed with the government.
- 2.31 During the 27 months of project execution, the cholera epidemic evolved from a national emergency to an endemic yet controlled situation. At the beginning of the rainy season in 2011 on week 21 there were close to 6,000 new cases; in the following two years at the same time of the year, there were fewer than 3,000 (in 2012) and 700 (in 2013) reported cases respectively¹⁰. These figures are another demonstration that the response as a whole has been effective in curbing the epidemic. As the amount of rain is a defining factor in predicting new cases, the fluctuations in incidence rates continue to be significant throughout the year. For example while in January of 2013 there were 9,300 new cases reported, in April the monthly incidence had dropped to down to 1,300 cases only to increase again to 4,700 in September of 2013.
- 2.32 The capacity built under the project remains critical in the new phase where the country is moving from curbing the epidemic to eliminating cholera. The infrastructure investments to the water systems and sanitation areas in the health centers, schools and other public areas not only impact the quality of service provided via the public institutions but also guarantee that these facilities will not be contaminated by future outbreaks. Equally, the investments in capacity building such as MSPP's ability to organize and deliver emergency cholera care can be considered pivotal milestones on the path towards eliminating cholera which speaks to the relevance and importance of the project results close to three years after approval.
- 2.33 Efforts to contain the epidemic also bear significance at the regional level, as the pathogen has repeatedly demonstrated the ability to spread both regionally and internationally. In addition to the human suffering, the economic consequences of a cholera epidemic for a country economy based on tourism (such as that of the Dominican Republic), can be devastating. Unjustified panic-induced reactions are not rare and curtailing or restricting travel from countries where a cholera outbreak is occurring as well as import restrictions on certain foods are a commonly reported reaction from surrounding countries. In Peru, the cholera outbreak in 1991 is estimated to have cost the

¹⁰ Analysis of the the situation of cholera outbreak.
http://reliefweb.int/sites/reliefweb.int/files/resources/hti_cholera_Snapshot_June%202013.pdf
<http://idbdocs.iadb.org/WSDocs/getdocument.aspx?DOCNUM=38231085>

country US\$770 million due to food trade embargoes, and adverse effects on tourism. In this context, efforts to curb spread of cholera can be considered a regional public good.

- 2.34 The the While cholera cases have been detected in the Dominican Republic, there are many conditions that have helped to prevent a large scale epidemic such as the fact that 86% of the population has access to improved sanitation. Transmission was limited but sustained and during the first year in the epidemic a total of 14,598 suspected cases were reported and 256 persons died. There are many unique circumstances that make Haiti so susceptible to cholera (such as limited access to safe water and sanitation). For this reason, it is unlikely that this epidemic would spread beyond Hispaniola and cause significant outbreaks in other countries.

C. Efficiency

- 2.35 The project design was based on well-known cost-effective interventions. For this reason the project team did not prepare additional analysis to assess cost-effectiveness. However, the core activity financed via Component II, e.g. administration of Oral Rehydration Salts (ORS) at the community level, relies on sound and consistent research demonstrating that with this intervention, cholera case-fatality can fall from 50% to 1%¹¹ in a matter of weeks. More recent evidence also shows that the cost-effectiveness of treating an acute diarrheal infection with oral dehydration salts is close to US\$1,062/Disability Adjusted Life Year depending on the price of the ORS.^{12,13,14} Similarly there is ample evidence on other key water and sanitation interventions, proving them to be highly cost-effective in reducing the incidence of cholera.^{15,16} Under Component II, over 26,000 severe cholera cases and 105,000 moderate cases were treated via US\$14 million investment to staff, supplies and capacity building. This means that even when taking into account all overhead and administrative costs of the implementing agency, the project was able to save a person from an imminent death with an investment of US\$107.

¹¹ Cost-effectiveness and cost-benefit in cholera control. Abel-Smith B. at all. WHO Chronicle 27:407-9, 1973.

¹² Cost effectiveness analysis of strategies for child health in developing countries. Edejer TT et al. BMJ 19;331:1177, 2005.

¹³ Interventions to address deaths from childhood pneumonia and diarrhoea equitably: what works and at what cost? Lancet 38:1417-29, 2013.

¹⁴ Effectiveness and cost-effectiveness of interventions for cholera control Emergency Response Annex III.

¹⁵ Cost-benefit comparisons of investments in improved water supply and cholera vaccination programs. Jeuland M et al. Vaccine 27:3109-20, 2009.

¹⁶ A reassessment of the cost-effectiveness of water and sanitation interventions in programmes for controlling childhood diarrhoea. Varley R.C. et al. Bull World Health Organ. 76: 617–631, 1998.

Table 2

TOTAL COST OF THE PROGRAM

Component	Outcome	Total Cost of the Project Originally planned (US\$)				Total Cost of the Project Revised (US\$) July 26, 2013				Executed Values Current (US\$) (up to August 31,2013)			
		IDB	Local	Total	%	IDB	Local	Total	%	IDB	Local	Total	%
Strengthening MSPP's stewardship in the cholera outbreak response	Central level staff hired (pharmacists and logistician)	810,000.00		810,000.00	100%	954,001.00		954,001.00	100.00%	954,001.00		954,001.00	100.00%
	<i>Total</i>	810,000.00		810,000.00	100%	954,001.00		954,001.00	100.00%	954,001.00		954,001.00	100.00%
Scaling/up cholera prevention,emergency treatment and outreach	Cholera treatment kits distributed	3,000,000.00		3,000,000.00	22%	3,083,199.00		3,083,199.00	21.99%	3,060,800.00		3,060,800.00	21.86%
	Community agents trained	10,939,200.00		10,939,200.00	78%	10,939,800.00		10,939,800.00	78.01%	10,938,683.52		10,938,683.52	78.14%
	<i>Total</i>	13,939,200.00		13,939,200.00	100%	14,022,999.00		14,022,999.00	100.00%	13,999,483.52		13,999,483.52	100.00%
Strengthening DINEPA's cholera response	Assessment of water and sanitation systems in priority health facilities	5,000,000.00		5,000,000.00	100%	5,000,000.00		5,000,000.00	100.00%	4,850,000.00		4,850,000.00	100.00%
	<i>Total</i>	5,000,000.00		5,000,000.00	100%	5,000,000.00		5,000,000.00	100.00%	4,850,000.00		4,850,000.00	100.00%
Administration	Evaluation and Audit	250,800.00		250,800.00	100%	23,000.00		23,000.00	100.00%	23,000.00		23,000.00	100.00%
	<i>Total</i>	250,800.00		250,800.00	100%	23,000.00		23,000.00	100.00%	23,000.00		23,000.00	100.00%
Program Total		20,000,000.00		20,000,000.00	100%	20,000,000.00		20,000,000.00	100.00%	19,826,484.52		19,826,484.52	100.00%
%													

D. Sustainability

- 2.36 It is important to note that the project responded to an emergency and hence made investments towards temporary facilities and services which are not supposed to be sustained once the emergency phase is over. Despite of this premises, the project endorsed several execution mechanisms that are likely to have a sustained impact on the capacity of the country to address future outbreaks of cholera. First of all, project activities were executed by government entities, MSPP and DINEPA and the public health facilities were the most important recipients of the technical assistance and resources provided by the project. This means that majority of health personnel trained in all aspects of case management and emergency response are public servants, who can be expected to remain in their positions in the medium term. The strengthened capacity of the sanitary departments was evidenced in a case-study describing the North-West Department's emergency responses towards a major out-break in Port-au-Paix in July 2011.¹⁷ Essentially it was reported that at five months into the project execution, the department had developed an in-built capacity to deliver a successful intervention against a cholera out-break.
- 2.37 Once emergency phase was over in the country, the project financed the integration of the cholera treatment services (initially provided via temporary facilities) to the publicly managed facilities that did not have prior experience or facilities to provide such care. This integration was further supported by 210 health professionals who were incorporated to the MSPP's pay roll after their salaries were paid for six months with project resources. The MSPP acknowledged this in the *borrower's evaluation* taking note of IDB's preference to support sustainable arrangements in order to build lasting capacity even during an emergency.
- 2.38 The infrastructure built via the water and sanitation activities can be considered investments over the medium-term rather than of emergency nature and hence e.g. the investments towards assuring the level of residual chlorine and functioning of the water networks, up-graded health centers' water and sanitation systems and provision of sanitary blocks to schools are all investments which can be expected be sustained with appropriate maintenance.

i. Potential Risks

- 2.39 There exists a medium level risk to sustaining the low case-fatality rates achieved during the months of intense interventions. As cholera continues to be endemic in Haiti, without sustained external financing towards maintaining and improving cholera care, case-fatality in the country is likely to increase. Especially during the ongoing rainy season, occasional peaks are unlikely to be avoided during which the response capacity at the local levels will be challenged. In terms of the infrastructure investments, any facility requires care and maintenance to retain their value and even then ensuring a high level of

¹⁷ Health Authorities' leadership reduces cholera deaths in Haiti. Ayoya et al. The Lancet 380:472-3, 2012 [IDBDOCS#38218428](#).

hygiene cannot be taken for granted. Another potential risk relates to the appropriate management of the stock created for hydraulic parts and equipment.

E. Environmental and Social Safeguards

- 2.40 Given the poor environmental conditions related to safe water in Haiti such as lack of waste and sewage management systems (with the exception of Port-au-Prince), many of the activities related to chlorination were expected to improve the environmental health in terms of cholera bacteria of the impacted zones. There was an important recognition that the medical waste from the treatment centres could entail a source of environmental hazard, and that even in the case of waste incineration, if not carried out at high temperature, it could produce toxins that are released into the atmosphere. Potential risk of having bacteria released to surface and groundwater was also considered (Environmental and Social Management Report Annex II). Because of the emergency nature of the operation, no ex-ante environmental or social assessment was carried out. Due to the potential environmental hazards associated with contamination from cholera and chlorination, the project was classified as Category B under the IDB's Environmental Policy (OP-703). During execution the Environmental and Safeguards division provided technical assistance to assure that the cholera treatment facilities supported by the project were processing their residual waste correctly. In addition, UNICEF's WASH team provided continuous quality-assurance to the treatment facilities supported by the project in order to guarantee the compliance with environmental safeguards in terms of waste management.
- 2.41 For the works under Component III conducted by DINEPA, the MSPP prioritized sixty facilities to benefit from up-grades in their sanitary system in order to integrate cholera services to their functions. These facilities were different from those who received direct support from the project under Component II and a diagnostic study was carried out to assess their existing systems for water, sanitation and solid waste water and sanitation systems¹⁸. As expected the assessment revealed wide discrepancies among different health centers in wastewater and solid waste management. It noted e.g. that while 95% of sites had latrines, many of these (42%) were unsanitary, and many of which were locked or otherwise inaccessible, making open defecation the only solution available. In most facilities, sewage is routed to underground septic tanks (sealed) and cesspits (unsealed), and pumped out at regular intervals by pump trucks. Emptying is done in municipal wastewater sites in the three locations where this is an option (Port-au-Prince, Les Cayes and Cap Haitien). For solid waste it was noted that while 93% of the facilities had a reliable waste management plan, its implementation was usually poor. In particular, only some sites were: (i) adequately fenced off (restricting access by people and animals); (ii) capable of separating medical waste from household waste; and (iii) equipped to crush and incinerate glassware and needles. The assessment concluded that improvements in the water and sanitation systems in these health facilities were urgently

¹⁸ Pageaud, B, Joseph, F.R. and Peguy, F.A., 2011. Diagnostic Eau Potable et Assainissement des Structures sanitaires prioritaires du pays. Ministère de la Sante Publique et de la Population. DINEPA [IDBDOCS#38210079](#).

needed. These works in the selected health facilities were completed in May 2013 by DINEPA.

III. CONTRIBUTION TO THE BANK'S STRATEGIC DEVELOPMENT OBJECTIVES

- 3.1 The correlation between cholera and poverty is well established as the disease plagues populations with no access to safe water and those who are exposed to a living environment contaminated with feces in a way or another. More specifically the activities financed under this operation are by default targeting populations who would not otherwise have access to emergency health care nor safe water and hence the project can assume to have had a contribution towards both poverty reduction as well as equity enhancement in the this population segment.

IV. MONITORING AND EVALUATION

- 4.1 Monitoring of the project advancement followed the monitoring and evaluation plan (Annex IV). Most inputs were based on progress reports from MSPP, DINEPA and UNICEF. The progress in Component II was reviewed against MSPP's daily epidemiological incidence reports and frequent site visits were carried out to supervise the activities and their perceived quality. While it could have been beneficial to have external parties to validate the reported results, the emergency nature of the operation and the extremely dynamic situation on the ground would have significantly complicated an external validation. It is hence concluded that the monitoring was adequate to supervise the activities and follow the progress in the selected indicators. The monitoring data of the incidence levels together with admission data from the ORPs allowed also for some key decisions to be done in a timely manner. For example data informed the decision to reduce the number of project supported stand-alone ORP from 2000 to 1,200 in December of 2011 in order to increase the investments in public facilities that would integrate cholera care to their routine services.

V. USE OF COUNTRY SYSTEMS

- 5.1 Components I and III (30% of project budget) were executed directly by the MSPP and DINEPA respectively, conforming to IDB required fiduciary policies. Both entities opened individual bank accounts to manage the grant resources. For Component II (70% of project budget) UNICEF was the implementation agency and at approval was authorized to follow its own fiduciary policies and procedures, which were assessed to be acceptable to the IDB. Disbursements were made via advance of funds based on approved budget prepared by the different entities (MSPP, UNICEF and DINEPA) and approved by bank. Justification of 80% of advance received was required prior to receiving subsequent advances. Bank support was provided to MSPP and DINEPA in preparing the justification request for submission to the bank.
- 5.2 A key challenge that the project design tried to address was how to assure rapid, effective and transparent execution while at the same time using, to the extent possible, the

country's own planning, project financial management and procurement capabilities. This issue was addressed via the Activity Agreement signed by the MSPP and UNICEF, through which MSPP maintained the authority to approve UNICEF's regularly up-dated implementation plans. This arrangement further assured the government's buy-in to the operation and that the majority of supported services would be delivered via the public facilities and allowed for the MSPP's sanitary departments to gradually increase their share of the budget by successfully implementing the agreed execution plans. UNICEF's role was to facilitate the planning process with each department and monitor the outcomes as well as to procure and deliver medical equipment and supplies to support the plans. Over 50% (7,962,000US\$) of the funds disbursed via UNICEF went directly to pay for the operational costs of the department's response plans executed by the four targeted sanitary departments themselves as well as to finance five NGO contracts geared towards emergency service delivery in hard to reach areas. The implementation and reporting capacity of the sanitary departments increased gradually and hence the reliance on country's own planning and financial management capacity grew higher than initially expected. Yet, as Bank fiduciary polies were applied, the project was not executed using *country systems* as such. It is also important to note that the four departments that received overall planning and supervision support from UNICEF, were the only sanitary departments that managed to both compile and execute their own departmental cholera response plan.

- 5.3 The integration of the execution mechanism was also an important priority for the MSPP. The experience from the earthquake demonstrated the need for strong stewardship in the face of a large number of well-meaning organizations providing services with limited coordination. MSPP's Directorate for Decentralization Support Unite (l'Unité d'Appui à la Décentralisation Sanitaire) was assigned the responsibility for coordinating the national cholera response for the health sector and the same unit absorbed all execution responsibilities with important support from the Direction d'Administration et de Budget (DAB) for financial management of Component I. Only one person at DAB had prior experience with IDB financed projects, requiring this team to receive technical assistance from the IDB in order to fullfill all fiduciary responsibilities for this component.
- 5.4 In the *borrowers evaluation* (Annex IV.) MSPP applauds the IDB for having provided uninterrupted support throughout implementation, and recognizes the project as a flagship project for the MSPP by which sanitary departments receive funds for their regularly updated implementation plans. This exercise was perceived by the MSPP as a step towards implementing management agreements, in which the MSPP would contract the departments for services. The MSPP has presented this mechanism as an effective future alternative for executing external financing.
- 5.5 Component III was fully executed by DINEPA, a semi-autonomous governmental execution agency operation under the premises of the Ministry of Public Works (MPTPC). DINEPA has performed as an IDB execution agency since 2007 with annual execution of 25M US\$ from the IDB projects.

VI. FINDINGS AND RECOMMENDATION

- 6.1 Overall the project managed to deliver an effective and dynamic response to the epidemic, fully supporting the Government's Cholera inter-Sector Response Strategy. The success of the project lay in its ability to build on the strengths of its implementing partners; a) MSPP for stewardship and leading the health response, and b) UNICEF to carry-out efficient procurement/supply delivery, and provide technical assistance to the sanitary departments. At approval UNICEF was granted an exception to use their own procurement guidelines and processes for Component II, and this resulted in very significant time-savings for delivering the emergency care. In general, it should be recognized that the IDB's *ex-ante* review process for procurement do not lend themselves to facilitating rapid emergency procurement transactions; in this case, it is recommended that *ex-post* procurement review should be considered also in future operations. The quick approval process of the operation also demonstrated the capacity of the IDB to provide reasonably timely assistance during a time of an emergency. The project reached *first eligibility* in record time despite the holiday season between approval and eligibility, and the first US\$9 million disbursement was made directly to UNICEF eight weeks after board approval, on February 11, 2011.
- 6.2 The MSPP's unit team in charge of executing Component I at the Directorate for Decentralization Support Unite was at the same time responsible for coordinating the entire national response in the country on behalf of MSPP. Despite this significant challenge, there was no desire on behalf of the MSPP to hire consultants to support the execution in order to fully integrate the implementation tasks related to the project execution to the directorate's functions with support from the Directorate of Budget and Administration. The team remained in close dialogue with the Bank throughout execution and received support in activity planning and fiduciary procedures yet execution delays were not avoided. In June 2012 the 2503/GR-HA was extended for an additional nine months which allowed the MSPP to fully disburse the US\$1 million under Component I. The delay however proved to be useful, as it enabled the opportune support to the sanitary departments at the time when the public health facilities were under pressure to integrate cholera care into their services in the spring of 2012. The necessity for the integration of services derived in part from the substantial decrease in external support that the country was receiving towards cholera response. Thus, the project support towards the public facilities was well-timed to meet this need.
- 6.3 Allowing for certain flexibility to be built into the design of the project was important so that activities could adjust and remain relevant in the face of an evolving epidemic. The project was therefore able to adjust and changes were made to the number and type of treatment centers supported, to the targeting strategy to tackle occasional peak break-outs and eventually to support the integration of the cholera care into the routine services.
- 6.4 The project contributed to the establishment of a permanent committee between the MSPP and DINEPA, which was initially launched to develop the Cholera Inter-Sector Response Strategy. However, apart from delivering the water and sanitary upgrades for the 60 priority health facilities which was carried out jointly by MSPP and DINEPA,

most investments of the DINEPA executed component did not target the same departments as did the health interventions. Also as DINEPA had initiated its emergency response already via their existing projects before the given project became eligible, this so called emergency operation did not take full priority over the other projects already in execution which resulted in delays in the planned execution schedule for Component III. As such, it can be concluded that should full synchronicity and complementarity of interventions be a priority, the loan contract should clearly spell out the sequence of planning and the related decision making process.

- 6.5 It is critically important to acknowledge that cholera will ultimately be controlled only when municipal and rural water systems separate drinking water from fecal contamination and poor families gain access to safe water. However chlorination of water represents a high cost for many families and many perceive that getting to a health facility on time in case of explosive diarrhea is a better option than the everyday cost of chlorination. Most people are unaware of the health hazard they cause to others; they do not know that 70% of infected people may not display any symptoms, and yet can infect others. While public awareness campaigns have been successful in changing behavior related to hand-washing and household chlorination of water in some areas, similar advancements have not taken place with regards to sanitation and open defecation remains common. Increasing transmission barriers e.g. though latrine construction and instilling a stronger notion on of hygiene at the individual, family and community level continue to be key priorities to control and eventually eliminate cholera in Haiti.

Table 3

FINDINGS AND RECOMMENDATIONS

Findings	Recommendations
# 1: Initiating project preparation only at a time of an ongoing emergency is unlikely to result in a well-timed response but this, in an exceptional case nonetheless possible.	# 1: Projects in sectors such as water and sanitation, health, transport and housing could allocate 5-10% of the total budget under contingency for a potential emergency response in order to be able to respond quickly in case of an emergency. # 2: Allowing for significant exceptions in the project approval process is an option that can address the critical delays getting help on the ground in an emergency.
# 2: Capacity can be built even during an emergency response with development oriented partners.	# 3: Creating country-wide ownership by investing in coherent sub-regional planning (e.g. by department) can multiply the impact of the project. With financial and technical support from the project, the sanitary departments were better able to assess their needs for punctual support and hence strategically strengthen the under financed areas in the response plans. # 4: Emergency situation calls for the strengthening of existing capabilities of the counterpart. Yet, creating completely new capacities and defining new roles during an emergency response is hard to achieve.
# 3: Keeping the project relevant in an evolving situation requires flexibility and vision from all concerned.	# 5: Restrictive use of the project monitoring report can hamper the ability of an emergency project to adjust its course to allow necessary changes in planning and implementation. This deserves to be recognized at design when targets are defined.