

Water and Sanitation in the Time of Cholera

Sustaining Progress on Water, Sanitation, and Health in Haiti



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Katherine E. Bliss and Matt Fisher¹

Introduction

In October 2010, just nine months after a magnitude 7.0 earthquake devastated the capital city of Port-au-Prince and displaced an estimated 1.5 million people, Haiti's Ministry of Public Health and Population (Ministère de la Santé Publique et de la Population, MSPP) reported a cholera outbreak in two of the country's most impoverished regions, the Central Department and Artibonite.² It was the first time cholera—a diarrheal disease associated with the consumption of food and water contaminated by feces infected with the bacterium *vibrio cholerae*—had been identified in the country in at least 100 years.³ Within a month of the initial report, cholera had spread not only to all regions of Haiti but also to the neighboring Dominican Republic, with which Haiti shares the Caribbean island of Hispaniola.⁴

Safeguarding the population's health through improved access to safe drinking water and sanitation was a challenge in Haiti well before 2010, with the government struggling to meet the Millennium Development Goal targets related to enhanced water and sanitation access and mothers reporting high rates of diarrheal disease among children under the age of 5.⁵ But the destruction of buildings, displacement of people, and demands placed on public agencies, including the MSPP, in the aftermath of the January 2010 earthquake exacerbated ongoing challenges and created conditions propitious for the rapid spread of deadly cholera, once it was

¹ Katherine E. Bliss is a senior associate with the CSIS Global Health Policy Center, where Matt Fisher is program manager and coordinates the Project on Global Water Policy. We are grateful to the Wallace Genetic Foundation for supporting this work.

² International Organization for Migration (IOM), "Number of Haitians living in post-earthquake camps drops sharply," April 12, 2013, <http://www.iom.int/cms/en/sites/iom/home/news-and-views/press-briefing-notes/pbn-2013/pbn-listing/number-of-haitians-living-in-pos.html>.

³ Deborah Jenson et al., "Cholera in Haiti and Other Caribbean Regions, 19th century," *Emerging Infectious Diseases* 17, no. 11 (November 2011), http://wwwnc.cdc.gov/eid/article/17/11/11-0958_article.htm. Cholera may have been present but gone unreported in Haiti during the nineteenth century, when it swept over neighboring Caribbean islands in three successive waves of contagion.

⁴ Republic of Haiti, Ministry of Public Health and Population and National Directorate for Water Supply and Sanitation, "National Plan for the Elimination of Cholera in Haiti, 2013–2022," February 2013, 6, <http://reliefweb.int/sites/reliefweb.int/files/resources/National%20Plan%20for%20the%20Elimination%20of%20Cholera%20in%20Haiti%202013-2022.pdf>.

⁵ World Health Organization (WHO)/UN Children's Fund (UNICEF) Joint Monitoring Program, *Progress on Sanitation and Drinking-Water: 2010 Update* (Geneva: WHO/UNICEF, 2010), http://whqlibdoc.who.int/publications/2010/9789241563956_eng_full_text.pdf; Ministère de la Santé Publique et de la Population (MSPP), *Haïti: Enquête Mortalité, Morbidité et Utilisation des Services, 2005-2006: Rapport de synthèse*, 8, <http://www.measuredhs.com/pubs/pdf/SR124/SR124.pdf>. During the two weeks prior to the Demographic and Health Survey (DHS), mothers reported that 24 percent of infants had suffered at least one episode of diarrhea.

introduced, most likely by Nepalese troops stationed with the United Nations Stabilization Mission in Haiti (MINUSTAH), according to a recent study.⁶

Between October 2010 and August 2013, more than 670,000 people in Haiti were treated for cholera, with around 8,200 deaths attributed to the outbreak.⁷ Because of the close association between cholera, drinking water quality, and sanitation access, Haiti's National Directorate for Water Supply and Sanitation (Direction Nationale de l'Eau Potable et de l'Assainissement, DINEPA), along with the MSPP, has been at the forefront of the response.⁸ In February 2013 the two agencies released a 10-year National Plan for the Elimination of Cholera in Haiti.⁹ The plan has short-, medium-, and long-term components and presents a vision for enhanced cooperation between DINEPA, which is part of the Ministry of Public Works, and MSPP in addressing the cholera challenge. Taking a lesson from the experience of the Latin American countries in combating a cholera outbreak in the 1990s, the plan places a high priority on improving the population's access to an improved drinking water supply and sanitation facilities while emphasizing household water treatment options and improved hygiene practices, such as handwashing and safe removal of excreta (feces).¹⁰ Framing these water supply and sanitation efforts within a broad context of strengthening the health system—including improving epidemiological surveillance, modernizing health information systems, and building Haiti's human resources for health—the government of Haiti estimates that it will take \$2.2 billion over the next 10 years to eliminate cholera transmission from the island.¹¹

As the third anniversary of the cholera outbreak approaches, there is an important opportunity for the international community to support Haiti's efforts to realize a transition from an emergency response to the cholera outbreak to a sustained focus on reducing the country's historically high burden of diarrheal disease through improved water supply and sanitation services. In June 2012, the Pan American Health Organization (PAHO), UNICEF, the governments of Haiti and the Dominican Republic, and the U.S. Centers for Disease Control and Prevention (CDC) launched the Regional Coalition on Water and Sanitation to Eliminate Cholera in

⁶ Yale Law School Transnational Development Clinic et al., *Peacekeeping without Accountability: The United Nations' Responsibility for the Haiti Cholera Epidemic* (New Haven, CT: Yale Law School, 2013), http://www.law.yale.edu/documents/pdf/Clinics/Haiti_TDC_Final_Report.pdf.

⁷ Ministère de la Santé Publique et de la Population (MSPP), "Rapport de cas," August 26, 2013, <http://mspp.gouv.ht/site/downloads/Rapport%20journalier%20MSPP%20du%2026%20aout%202013.pdf>.

⁸ Government of the Republic of Haiti, "Action Plan for National Recovery and Development of Haiti: Immediate key initiatives for the future, March 2010," 37, <http://www.ipred-iisee.org/gtfbc/Action%20Plan,%20ENG.pdf>. When the government of Haiti released its Action Plan for National Recovery and Development of Haiti shortly after the earthquake, it signaled the importance it attached to "recovery and reconstruction for drinking water and sanitation," with DINEPA and MSPP expected to play key roles.

⁹ Republic of Haiti, Ministry of Public Health and Population and National Directorate for Water Supply and Sanitation, "National Plan for the Elimination of Cholera in Haiti, 2013–2022," February 2013, 40, <http://reliefweb.int/sites/reliefweb.int/files/resources/National%20Plan%20for%20the%20Elimination%20of%20Cholera%20in%20Haiti%202013-2022.pdf>.

¹⁰ Republic of Haiti, Ministry of Public Health and Population and National Directorate for Water Supply and Sanitation, "National Plan for the Elimination of Cholera in Haiti, 2013–2022: Short Term Plan 2013–2015," 11,

http://www.paho.org/hq/index.php?option=com_docman&task=doc_view&gid=20578&Itemid=270&lang=en.

¹¹ Republic of Haiti, Ministry of Public Health and Population and National Directorate for Water Supply and Sanitation, "National Plan for the Elimination of Cholera in Haiti, 2013–2022," 4–5, <http://reliefweb.int/sites/reliefweb.int/files/resources/National%20Plan%20for%20the%20Elimination%20of%20Cholera%20in%20Haiti%202013-2022.pdf>.

Hispaniola. The regional coalition now has more than 20 institutional members, including public, multilateral, nongovernmental, and private-sector organizations, all of which have pledged to contribute to Haiti's water supply and sanitation improvement efforts.¹² In October 2013, the members of the regional coalition will convene at the World Bank headquarters in Washington, D.C., to assess progress in meeting Haiti's goals and to articulate plans and pledge funding for continued support for Haiti's efforts to prevent cholera transmission through improved water and sanitation services.

The United States' response to the cholera crisis in Haiti has been characterized by offers of funding, the provision of technical assistance, and diplomatic support. In July 2013, the U.S. Department of State reported that the United States had provided "expertise and more than \$95 million during the emergency phase of the cholera response" alone.¹³ Activities executed by U.S. agencies have ranged from epidemiology and outbreak surveillance training and setting up cholera treatment units (CTUs) to helping train provincial water technicians on a range of community outreach activities.

In this report we focus on opportunities for the United States to enhance its support for Haiti's water supply and sanitation services improvements and contribute to both the elimination of the transmission of cholera and the reduction of diarrheal disease in the country. We understand that there are many aspects of the cholera response in Haiti that are not directly related to water and sanitation, including the application of vaccines, the provision of oral rehydration therapy (ORT), and the distribution of antibiotics to those who become ill. However, in this report we argue that there are real opportunities—and good reasons—for the U.S. government to strengthen its commitment to Haiti through the provision of safe drinking water and improved sanitation facilities. Taking the needs outlined in the national plan and the vision presented by the regional coalition as a point of departure, we identify several concrete ways the United States can build its support for Haiti's cholera control activities through water and sanitation efforts. We also suggest that failing to adequately support Haiti's water and sanitation activities threatens the sustainability of other U.S. development investments in the country, including improved population health, economic development, the empowerment of women, and progress toward democratic governance and political participation.¹⁴

¹² See Pan American Health Organization, "One Team Against Cholera: Regional Coalition for Water and Sanitation to Eliminate Cholera in Hispaniola," <http://www.paho.org/colera/>.

¹³ U.S. Department of State, "Fast Facts on the U.S. Government's Work in Haiti: Cholera," July 19, 2013, <http://www.state.gov/s/hsc/factsheets/2013/212158.htm>. Reported activities include the dissemination of household water-treatment products, soap, and oral hydration solutions; assisting the Ministry of Health in setting up a cholera-surveillance system; supporting personnel and supplies for more than 40 cholera treatment units and more than 100 oral rehydration posts; producing and disseminating cholera education materials to train more than 6,000 community health workers; supporting the drilling and repair of wells; and assessing the efficacy of mass dissemination of hygiene products in cooperation with DINEPA [Haiti's National Directorate for Potable Water and Sanitation] and the U.N. Children's Fund (UNICEF).

¹⁴ Since the late 1960s, the U.S. Agency for International Development (USAID) has linked water-related projects to broader goals related to community development, curbing migration, democratic governance, women's empowerment, and political participation in Haiti. See the abstracts of projects from 1946 to 1996 described in the USAID Development Experience Clearinghouse database at [https://dec.usaid.gov/dec/\(F\(oBt-MEaenu922qojfEv9Qi99x4D1RlooftQ_i6oScPVSD95rq0vMJEaf3lki9kgelO_JbK0wqFkEjXVMpp0NBBXJy3CCSL-NRJ9-i_9X6w1\)\)/home/Default.aspx](https://dec.usaid.gov/dec/(F(oBt-MEaenu922qojfEv9Qi99x4D1RlooftQ_i6oScPVSD95rq0vMJEaf3lki9kgelO_JbK0wqFkEjXVMpp0NBBXJy3CCSL-NRJ9-i_9X6w1))/home/Default.aspx), as well as the USAID Strategy on Democracy, Human Rights, and Governance, June 2013, [http://www.usaid.gov/sites/default/files/documents/1866/USAID%20DRG_%20final%20final%206-24%203%20\(1\).pdf](http://www.usaid.gov/sites/default/files/documents/1866/USAID%20DRG_%20final%20final%206-24%203%20(1).pdf).

Water Supply and Sanitation Management in Haiti: Consolidation and Crisis

Recognizing the importance of improved water quality to population well-being in Haiti, in 1948 nationalist President Dumarsais Estimé requested that the new United Nations send a technical mission to his country to assess development challenges, including water management, and issue recommendations for the government to consider.¹⁵ In 1964 the Centrale Autonome Métropolitaine d'Eau Potable (CAMEP) was created to manage the water supply of Port-au-Prince, and in 1977 the Service National d'Eau Potable (SNEP) was launched in an effort to coordinate regional water activities. But by the early years of the twenty-first century many in Haiti became convinced these disparate agencies were failing to deliver adequate water and sanitation services to the Haitian people. To be sure, there had been progress in some areas. From 2000 to 2008 the percentage of the population having access to an improved drinking water source rose to 63 percent from 55 percent. However, the population's access to sanitation actually declined over the same period. According to the 2010 WHO/UNICEF Joint Monitoring Program update, in 2008 only 17 percent of the Haitian population had access to improved sanitation facilities. While both rural and urban populations faced challenges in accessing sanitation services, the situation in rural areas was particularly acute, with just 10 percent of the population reporting access to a basic toilet or common pit latrine.¹⁶ In many rural communities it was routine for women to expend energy collecting water and expected that girls would drop out of school at a certain point to help with family chores, including collecting and managing water for the household.¹⁷

Recognizing the continuing challenges that inadequate water and sanitation systems posed to Haiti's long-term development prospects, and desiring to better integrate the mandates of the nation's various water and sanitation authorities, in March 2009 the Haitian parliament passed framework law CL01-2009-011, authorizing the creation of a national-level water agency, the National Directorate for Water Supply and Sanitation (DINEPA). DINEPA's mandates are to develop the country's water and sanitation sectors; regulate the country's water and sanitation sectors; and monitor the activities of stakeholders. The agency is organized along regional lines and prioritizes efforts to rehabilitate the Port-au-Prince water network while piloting sanitation projects, establishing community-level water committees, and enhancing training for water and sanitation professionals across the country.¹⁸

During its first two years of operations DINEPA faced numerous unforeseen challenges. The agency was barely nine months old when the damage from the January 2010 earthquake sent it into crisis-management mode. In the aftermath of the earthquake DINEPA assumed responsibility for distributing water-treatment products to households that did not have access to an improved source; helped install latrines and maintain sanitary conditions in the camps for displaced people; and worked with the MSPP to spread educational messages about the importance of handwashing and water treatment. Barely nine months later, the start of the cholera outbreak in October 2010

¹⁵ Rayford W. Logan, "Mission to Haiti: Report of the United Nations Mission of Technical Assistance to the Republic of Haiti," *Hispanic American Historical Review* 30, no. 2 (May 1950): 242–44.

¹⁶ WHO/UNICEF Joint Monitoring Program, *Progress on Sanitation and Drinking Water: 2010 Update*, 43.

¹⁷ National Directorate for Water Supply and Sanitation, personal communications.

¹⁸ National Water and Sanitation Directorate, "Challenges and Progress on Water and Sanitation Issues in Haiti," June 1, 2012, <http://onetable.crs.org/wp-content/uploads/2012/07/pres-water-toussaint.pdf>.

again tested the new organization's emergency-response capabilities. Since late 2010 DINEPA has focused on repairs and maintenance for existing water systems; the delivery of water and water treatment products to vulnerable households; chlorination of small water systems, including in camps for displaced people; and hygiene-promotion activities, all while elaborating plans for extending new water and sanitation systems into various underserved areas.¹⁹

The international community has supported Haiti's efforts on water and sanitation in the context of the cholera outbreak. Between October 2010 and December 2012, the government of Haiti, along with organizations working on cholera in Haiti, had received \$125 million to address a broad range of cholera prevention and control activities. Among multilateral organizations, the World Bank, the Inter-American Development Bank, and the Caribbean Development Bank, which is part of Caribbean Community (CARICOM), have provided funding and technical support to DINEPA and other agencies, while UNICEF and PAHO have played important roles in bridging the health and water/sanitation sectors through technical assistance and administrative support. The United States, the European Union, Brazil, France, Cuba, Sweden, and the United Kingdom, among other bilateral partners, have offered programmatic support and technical assistance focused on a range of activities.²⁰ The Inter-American Development Bank partnership with the Spanish Agency for International Development Cooperation (Agencia Española de Cooperación Internacional para el Desarrollo, AECID) finances the most significant external support for DINEPA, with \$176 million already committed, some of which was in the pipeline before the outbreak. The IDB recently announced an additional \$35.5 million in co-financed activities for the purpose of institutional strengthening of DINEPA and enhancement to the water system of Port-au-Prince.²¹

Beyond the multilateral agencies and bilateral organizations, numerous NGOs, faith-based organizations, and private-sector groups have flooded Haiti with offers of WASH (water, sanitation, and hygiene)-related assistance since 2010. To manage the well-intentioned, yet often disparate, efforts of these groups, DINEPA has now developed an agreement for use with NGOs focused on "ethics and good practices," "information sharing," and "prior approval by DINEPA for WatSan activities."²²

¹⁹ Republic of Haiti, Ministry of Public Health and Population and National Directorate for Water Supply and Sanitation, "National Plan for the Elimination of Cholera in Haiti, 2013–2022," 33.

²⁰ Randal C. Archibold, "Cuba Takes Lead Role in Haiti's Cholera Fight," *New York Times*, November 7, 2011, http://www.nytimes.com/2011/11/08/world/americas/in-haitis-cholera-fight-cuba-takes-lead-role.html?pagewanted=all&_r=0; see also Agência Brasileira de Cooperação, "Pesquisa de Projetos," <http://www.abc.gov.br/projetos/pesquisa?intIdTipCooperacao=1&intIdPais=124>, and Inter-American Development Bank, "Haiti: Country Strategy," 9.

²¹ "Haiti gets \$35.5 m to upgrade water systems," *Jamaica Observer*, June 26, 2013, http://www.jamaicaobserver.com/news/Haiti-gets-US-35-5-m-to-upgrade-water-systems_14576042.

²² National Water and Sanitation Directorate, "Challenges and Progress on Water and Sanitation Issues in Haiti," June 1, 2012, <http://onetable.crs.org/wp-content/uploads/2012/07/pres-water-toussaint.pdf>.

U.S. Engagement on Water and Sanitation in Haiti

The United States' work on water and sanitation in Haiti began long before the 2010 earthquake and subsequent cholera outbreak. During the first half of the twentieth century the United States supported the construction of water and sanitation infrastructure during its military occupation of Haiti (1915–1934).²³ Beginning in the late 1960s and continuing through the early 1990s, USAID funded numerous projects designed to provide potable water to Haitian communities in different regions. Most of this funding appears to have been channeled through U.S.-based implementers, including CARE, Catholic Relief Services, and Church World Services, but some project funds were directed toward Haitian nongovernmental organizations, as well as government agencies and international organizations, such as PAHO and UNICEF.²⁴ In the years just prior to 2010 the United States had used the platforms of the President's Emergency Plan for AIDS Relief (PEPFAR) to distribute water-treatment supplies and to promote hygienic practices, including handwashing and safe disposal of excreta, for Haitian citizens living with HIV/AIDS, along with their families.²⁵ A number of USAID-supported programs initiated prior to the cholera outbreak also included WASH components: Health Program for the Development and Stability of Haiti (August 2007–September 2012)²⁶; Community Health and AIDS Mitigation Project (April 2009–December 2014)²⁷; PROMARK (April 2009–April 2012, extended until April 2014)²⁸; Supply Chain Management System (June 2009–September 2013)²⁹; and Haiti Neglected Tropical Disease (NTD) Control Program (2008–2016).³⁰ According to the 2011 *Post-Earthquake USG Haiti Strategy*, U.S. government “work on safe water systems [over the past decade] has provided more than 400,000 Haitians access to clean water.”³¹

The U.S. government responded to the earthquake and subsequent cholera outbreak through three principal units—the CDC, PEPFAR, and USAID, including the Office of U.S. Foreign Disaster Assistance (USAID/OFDA), the Office of Transition Initiatives (USAID/OTI), and the USAID Mission

²³ Hans Schmidt, *The United States Occupation of Haiti, 1915–1934*. (New Brunswick, NJ: Rutgers University Press, 1971), 197, 121–22.

²⁴ See the database of projects from 1946 to 1994 in the USAID Development Experience Clearinghouse at [https://dec.usaid.gov/dec/\(F\(oBt-MEaenu922qojfEv9Qi99x4D1RlooeftQ_i6oScPVSD95rq0vMJfEaf3lki9kgeLO_jbK0wqFkEjXVMpp0NBBXjy3CCSL-NRJ9-i_9X6w1\)\)/home/Default.aspx](https://dec.usaid.gov/dec/(F(oBt-MEaenu922qojfEv9Qi99x4D1RlooeftQ_i6oScPVSD95rq0vMJfEaf3lki9kgeLO_jbK0wqFkEjXVMpp0NBBXjy3CCSL-NRJ9-i_9X6w1))/home/Default.aspx).

²⁵ Embassy of the United States of America in Haiti, *Partnership Framework to Support Haiti's Health Strategy 2012–2017*, June 2012, <http://www.pepfar.gov/documents/organization/197762.pdf>. The current strategy emphasizes the importance of continued U.S. government WASH investments to reduce incidences of cholera and other diarrheal diseases, as well as to advance HIV/AIDS treatment.

²⁶ U.S. Agency for International Development, “Fact Sheet: Health Program for the Development and Stability of Haiti,” June 2012, http://haiti.usaid.gov/work/docs/health/120613_SDSH_fs.pdf.

²⁷ U.S. Agency for International Development, “Fact Sheet: Community Health and AIDS Mitigation Project (CHAMP),” January 2012, http://haiti.usaid.gov/work/docs/health/120628_CHAMP_fs.pdf.

²⁸ U.S. Agency for International Development, “PROMARK Haiti: Strengthening and Expanding Social Marketing in Haiti,” June 2011, http://haiti.usaid.gov/work/docs/health/110801_promark_fs_draft.pdf. Also Population Services International (PSI) Haiti, personal communications.

²⁹ U.S. Agency for International Development, “Supply Chain Management System (SCMS),” June 2011, http://haiti.usaid.gov/work/docs/health/110801_scms_fs.pdf.

³⁰ U.S. Agency for International Development, “Fact Sheet: Neglected Tropical Diseases,” October 2012, http://haiti.usaid.gov/work/docs/health/121018_NTD_fs.pdf.

³¹ U.S. Department of State, *Post-Earthquake USG Haiti Strategy: Toward Renewal and Economic Opportunity*, January 3, 2011, <http://www.state.gov/documents/organization/156448.pdf>.

in Haiti.³² USAID reports that its emergency response to cholera revolved around four core components: providing chlorine for water treatment, hygiene outreach, the distribution of medical supplies and oral rehydration salts, and helping to establish cholera treatment facilities (CTFs) within the communities at greatest risk.³³ The agency estimates that during the most acute phase of the crisis its activities reached approximately 98,000 people per day with hygiene promotion and cholera prevention activities.³⁴ Beyond distributing materials for treating and storing water at the household level; demonstrating proper handwashing techniques; and instructing people in how to prepare oral rehydration solutions at home, USAID and partners also “chlorinated public water supplies and trained community decontamination teams.... [These activities] complemented USAID/OFDA funding for medical treatment—including establishment and operation of cholera treatment facilities (CTFs) and oral rehydration points—and for procurement and delivery of WASH supplies.”³⁵

Like USAID, the CDC responded to the cholera outbreak through several different mechanisms. A priority was working with MSPP to establish a national disease surveillance system for cholera cases. CDC also worked with in-country PEPFAR programs to use existing logistics platforms to quickly disburse aid to local NGOs and build cholera treatment centers at existing PEPFAR sites. CDC deployed technical staff to assist Haitian caregivers in improving care and treatment at hospitals for cholera patients, strengthening supply chain management, and training Haitian personnel.³⁶ Technical assistance, including testing water samples, inspecting hospitals and clinics, and carrying out laboratory testing of samples from patients suspected of having contracted cholera, also characterized CDC’s work.³⁷

Following the earthquake, some PEPFAR sites provided water and water treatment supplies to disaster victims and other displaced populations. In addition, many PEPFAR sites supported the response to the cholera outbreak by providing “cholera treatment, healthcare worker education, and commodities and logistics.”³⁸

With the passing of the emergency phase of the cholera response, U.S. activities have shifted; while the U.S. government, as a whole, seems to lack a coordinated, interagency long-term vision

³² U.S. Department of State, “Fast Facts on the U.S. Government’s Work in Haiti: Cholera,” January 16, 2013, <http://www.state.gov/s/hsc/factsheets/2013/206882.htm>.

³³ U.S. Agency for International Development, “Haiti—Earthquake and Cholera,” Fact Sheet #3, Fiscal Year (FY) 2012, December 12, 2011, <http://reliefweb.int/sites/reliefweb.int/files/resources/12.12.11%20-%20USAID-DCHA%20Haiti%20Earthquake%20and%20Cholera%20Fact%20Sheet%20%233.pdf>.

³⁴ U.S. Agency for International Development, “USAID/OFDA Water, Sanitation, and Hygiene Sector Update—October 2011,” October 2011, http://reliefweb.int/sites/reliefweb.int/files/resources/Full_Report_2771.pdf.

³⁵ Ibid.

³⁶ U.S. Centers for Disease Control and Prevention, Office of the Associate Director for Communication, Division of News and Electronic Media, “Haiti Earthquake: One-Year Anniversary,” January 12, 2011, <http://www.cdc.gov/features/HaitiEarthquake/>. U.S. Centers for Disease Control and Prevention, “CDC Responds to the Haiti Earthquake,” December 29, 2010, http://emergency.cdc.gov/disasters/earthquakes/haiti/cdc_earthquake_response.asp. Also U.S. Centers for Disease Control and Prevention, personal communications.

³⁷ U.S. Centers for Disease Control and Prevention, “Public Health in Haiti: Saving Lives, Controlling the Spread of Cholera,” January 31, 2010, <http://www.cdc.gov/haiticholera/update/index2.htm>.

³⁸ Eric Goosby, “Building on What Works: U.S. HIV/AIDS Programs Forge Haiti Earthquake Response,” DipNote: U.S. Department of State Official Blog, January 11, 2011, <https://blogs.state.gov/stories/2011/01/11/building-what-works-us-hiv-aids-programs-forge-haiti-earthquake-response>.

for support, various agencies continue to identify opportunities to support Haiti's water and sanitation improvement efforts. USAID works on water and sanitation in Haiti through a variety of different programs. The agency continues to carry out some work on household water treatment and safe storage. In response to a recent Government Accountability Office (GAO) report criticizing USAID and the Department of State for failing to adequately spend and account for the \$651 million funds in the 2010 supplemental appropriation, the agency noted that it is providing WASH (water, sanitation, and hygiene) training as part of its community development partnership with the United Methodist Committee on Relief and the International Federation of Red Cross.³⁹ In June 2013 USAID also joined the Regional Coalition on Water and Sanitation to Eliminate Cholera in Hispaniola and has indicated support for the coalition's mapping exercise to determine which bilateral and multilateral agencies are supporting what aspects of Haiti's national plan.⁴⁰ Beyond projects directly related to water supply and sanitation, USAID reports that its WINNER project (Watershed Initiative for National Natural Environmental Resources), which is focused on managing water for agricultural productivity, will also have a positive impact on local water quality.⁴¹

CDC remains active in promoting work on water in Haiti. It currently funds salaries and commodities for 54 (of 256) Potable Water and Sanitation Technicians for the Communes (referred to by their French acronym as TEPACs), which are provincial-level staff employed by DINEPA; CDC was also responsible for designing the curriculum for training these technicians. The technicians are primarily responsible for testing the level of chlorination at specified water sources throughout the country.⁴² CDC continues to supply chlorine to some communities for household water treatment, in addition to helping train community health workers and providing technical support for the National Public Health Laboratory. CDC staff and associates have also provided DINEPA and MSPP with technical assistance regarding how to integrate household water treatment practices into the national cholera elimination strategy and are assisting Haitian public health officials with the creation of a cholera incidence database through geographic mapping.⁴³

Challenges and Opportunities

Despite a bold national plan to eliminate the transmission of cholera within the next 10 years, the government of Haiti faces a number of challenges it must overcome if it is to be successful in

³⁹ U.S. Government Accountability Office, Report to Congressional Requesters. Haiti Reconstruction: USAID Infrastructure Programs Have Had Mixed Results, Face Sustainability Challenges, 2013, http://foreignaffairs.house.gov/sites/republicans.foreignaffairs.house.gov/files/zkVt_d13558_Restricted.pdf.

⁴⁰ Pan American Health Organization and World Health Organization, "USAID and World Vision join coalition to eliminate cholera from Haiti and the Dominican Republic," June 28, 2013, http://new.paho.org/hq/index.php?option=com_content&view=article&id=8832%3Ausaid-and-world-vision-join-coalition-to-eliminate-cholera-from-haiti-and-the-dominican-republic&catid=1443%3Anews-front-page-items&lang=en.

⁴¹ USAID Haiti, "Watershed Initiative for National Natural Environmental Resources," http://haiti.usaid.gov/work/docs/food/111214_winner_fs.pdf.

⁴² Kathy Middleton, "Water Is Life: Combatting Cholera in Haiti," U.S. Centers for Disease Control and Prevention, April 8, 2013, <http://blogs.cdc.gov/global/2013/04/08/water-is-life-combatting-cholera-in-haiti/>.

⁴³ U.S. Centers for Disease Control and Prevention, personal communications.

eliminating the transmission of cholera and building sustainable adequate water and sanitation facilities for its citizens. Support to help Haiti overcome these shortcomings is critical.

DINEPA's ability to manage and spend funds received is one major challenge. In the national plan the government of Haiti estimates that "the financial needs for the development and institutional strengthening of DINEPA are covered in part for the next four years, with an estimated \$134.5 million in funding, including USD 5 million dedicated exclusively to cholera."⁴⁴ While the plan estimates needs for additional funds to cover cholera activities, some observers suggest that DINEPA has had trouble spending the funds it already has because of a lack of managerial capacity. Since DINEPA was a relatively young agency prior to the cholera outbreak, DINEPA never had the chance to build up a robust, skilled workforce before shifting into crisis-management mode.⁴⁵ It has had trouble convincing skilled expatriate Haitians to return to work in the nation and convincing Haitians to accept the government's salary scale.⁴⁶

A second challenge DINEPA faces is generating funds and long-term support for extending—and sustaining—water and sanitation services to rural areas, a priority within the national plan. Even before the earthquake and cholera outbreak, rural areas suffered the greatest neglect in terms of services. The initial outbreak and ongoing spread of cholera in rural areas brings fresh urgency to the rationale for increasing attention to water and sanitation in rural regions. Beyond needing to generate funding for the construction and repair of water systems in rural areas, the government has also signaled the development of microcredit programs to encourage investment in rural sanitation schemes to be a goal. Yet in the current context sustaining programs in rural areas, while implementing new initiatives, may be difficult. DINEPA has also faced challenges maintaining the continuous employment of the provincial-level personnel—the TEPACs—who have been trained (many by CDC) but whose salaries have thus far been project-based and are thus not guaranteed.⁴⁷

The nature of the emergency response to both the earthquake and the cholera outbreak also created challenges in establishing functional markets for water and sanitation products in Haiti, something many observers note is a key aspect to their long-term sustainability.⁴⁸ USAID has a long history of investing in social marketing of water treatment products in the country. Working with Proctor and Gamble and the United Kingdom's Department for International Development (DFID) starting in 2004, USAID supported a campaign to market the Proctor and Gamble water treatment product, PUR, to mothers of children under the age of 5. Post-project assessments determined that while introducing new products can be challenging, consumers were willing to pay for water treatment goods when they wanted to protect their own health or the health of their children.⁴⁹ But the distribution of certain water treatment products at no cost (as opposed to low cost) following the earthquake and cholera outbreak conflicted with earlier efforts to create a

⁴⁴ Republic of Haiti, Ministry of Public Health and Population and National Directorate for Water Supply and Sanitation, "National Plan for the Elimination of Cholera in Haiti, 2013–2022," 21.

⁴⁵ International Federation of Red Cross and Red Crescent Societies, "Emergency appeal operation update: Haiti: Earthquake," November 2, 2011, <http://www.ifrc.org/docs/appeals/10/MDRHT00828.pdf>.

⁴⁶ U.S. Centers for Disease Control and Prevention, personal communications.

⁴⁷ U.S. Centers for Disease Control and Prevention, personal communications. Also National Directorate for Water Supply and Sanitation, personal communications.

⁴⁸ National Directorate for Water Supply and Sanitation, personal communications.

⁴⁹ Global Development Alliance and Safe Drinking Water Alliance, "Experiences in Haiti, Ethiopia, and Pakistan: Lessons for future water treatment programs," December 2008, 56.

functioning private market for household water treatment products, sending consumers mixed messages about the value of the products. Some observers report that Haitians now appear less receptive to the idea of having to pay for water treatment commodities or to pay user fees to use public water utilities.⁵⁰

Finally, in planning for the elimination of cholera transmission and longer-term development of the water and sanitation sectors, the government of Haiti appears uncertain about the extent to which it should focus on extending and chlorinating piped water systems versus promoting household water treatment and safe storage (HWTS) for those who cannot count on access to safe drinking water.⁵¹ Despite the fact that Latin American countries developed a wealth of experience eliminating disease transmission and improving water supply and sanitation schemes during the 1990s cholera outbreak, sharing lessons learned about or materials developed to respond to cholera from other nations in the region has been a challenge in Haiti, due to language differences.

* * *

As the third anniversary of the cholera outbreak in Haiti nears, it is essential to maintain the attention and commitment of the international community for Haiti's efforts to address water and sanitation challenges in the time of cholera.⁵² Although the outbreak may appear increasingly distant for donors and other development partners contending with post-recession financial challenges and austerity measures, with more cholera cases reported in the first half of 2013 than during the same period in 2012, it is clear the risk of disease transmission is not over.⁵³

There is an important opportunity for the United States, in supporting Haiti's efforts to eliminate the transmission of cholera, to broaden its focus from a short-term, crisis response to a sustainable approach to health promotion through improved drinking water and sanitation quality and access. Significantly reducing the burden of diarrheal disease associated with poor water and sanitation access in Haiti over the next 10 years would strengthen the nation's prospects for economic development, help empower women by freeing women and girls from the labor of collecting water and caring for sick family members, and enhance prospects for improved governance and participation at the community level, with participation in

⁵⁰ National Directorate for Water Supply and Sanitation, personal communications. Also Population Services International (PSI)/Haiti, personal communications. See also Daniele S. Lantagne and Thomas F. Clasen, "Use of Household Water Treatment and Safe Storage Methods in Acute Emergency Response: Case Study Results from Nepal, Indonesia, Kenya, and Haiti," *Environmental Science and Technology*, vol. 46, issue 20 (September 10, 2012): 11352–60. David Brown, "In rural Haiti, looking for a way to make clean water sustainable," *Washington Post*, October 9, 2012, http://articles.washingtonpost.com/2012-10-09/world/35498296_1_rural-water-water-system-clean-water. Also, instructions for some water treatment products that were distributed following the earthquake were not in Haitian Creole, which created additional confusion for the Haitian people. Also National Directorate for Water Supply and Sanitation, personal communications.

⁵¹ Some contend that "this is not an either/or scenario: both improved purification technologies within households and strengthening municipal water systems are essential components of water treatment." See Paul Farmer et al., "Meeting Cholera's Challenge to Haiti and the World: A Joint Statement on Cholera Prevention and Care," *PLoS Neglected Tropical Diseases* 5, no. 5, (May 31, 2011): e1145, <http://www.plosntds.org/article/info%253Adoi%252F10.1371%252Fjournal.pntd.0001145>.

⁵² National Directorate for Water Supply and Sanitation, personal communications.

⁵³ Patrick Adams, "Cholera in Haiti takes a turn for the worse," *The Lancet* 381, issue 9874 (April 13, 2013): 1264, [http://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(13\)60827-2/fulltext](http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(13)60827-2/fulltext); see also *The Economist*, "Still waiting for recovery," January 5, 2013, <http://www.economist.com/news/americas/21569026-three-years-after-devastating-earthquake-republic-ngos-has-become-country>.

decisionmaking about water and sanitation at the local level a critical step. We recommend that the U.S. government consider taking the following actions:

- Invest greater resources in the institutional strengthening of DINEPA so that it can effectively move from emergency response to its intended labor of not only providing water and sanitation services but also carrying out regulatory work, including monitoring and evaluating operators and implementers in the water and sanitation sectors. This would entail helping to strengthen recruitment processes and human resources management at headquarters and at the regional level as well as supporting DINEPA in determining how it can best work with the private-sector utilities and nonprofit entities to set up water supply and sanitation systems in areas that need them.
- Reinforce support for the national plan's emphasis on improving rural water supply and sanitation services. This can be done by strengthening the United States' ongoing commitment to the rural TEPAC program, which is vital to the extension of water and sanitation services at the provincial—and rural—levels. It can also be done through support for the government's proposed microcredit schemes to encourage investments in rural sanitation projects. Supporting projects to help develop DINEPA's capacity to work with the private sector to encourage investments in small water systems could also support the national plan's efforts to improve rural water and sanitation access.
- Strengthen and scale up projects to enhance market incentives for household water treatment solutions and identify ways to stimulate entrepreneurship and investment in the sanitation sector, including supporting projects related to microcredit for sanitation in rural areas, as outlined in the national plan. Given the sense that the population's confusion over whether or not to pay for water treatment products arose through the mixed messages sent by NGOs during the earthquake and cholera crises, USAID could also support DINEPA's capacity to manage its relationship with the diversity of NGOs working on water and sanitation projects to ensure their efforts are coordinated, focused on helping Haiti to achieve its goals, and designed and implemented for sustainability.
- To help Haitian officials determine when and where it makes sense to invest in piped systems and where it is more appropriate to implement and strengthen household water treatment and storage programs, USAID and other U.S. agencies that were involved in supporting the cholera control efforts in Latin America and the Caribbean in the 1990s should link the regional organizations with which they worked with their Haitian counterparts so that they can share lessons and experience. If necessary, the U.S. should fund the translation of relevant materials into French and Creole to enhance their accessibility
- Support economic analysis to better understand the economic impact of cholera, diarrheal disease, and long-term impacts of the failure to remedy Haiti's water, sanitation and hygiene challenges. Including estimates of the costs to U.S. taxpayers of failure to include more comprehensive approaches to water and sanitation into development programming in Haiti will bolster the case to Congress that U.S. investments in Haiti's water and sanitation future are essential.



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Cover photo: A man gets drinking water from a pump in Port-au-Prince, Haiti,
on Nov. 6, 2010. Photo copyright Kendra Helmer/USAID.