

Enhancing U.S. Leadership on Drinking Water and Sanitation

Opportunities within Global Health Programs

A Report of the CSIS Global Health Policy Center

AUTHOR
Katherine E. Bliss

September 2009



Enhancing U.S. Leadership on Drinking Water and Sanitation

Opportunities within Global Health Programs

A Report of the CSIS Global Health Policy Center

AUTHOR

Katherine E. Bliss

September 2009

About CSIS

In an era of ever-changing global opportunities and challenges, the Center for Strategic and International Studies (CSIS) provides strategic insights and practical policy solutions to decisionmakers. CSIS conducts research and analysis and develops policy initiatives that look into the future and anticipate change.

Founded by David M. Abshire and Admiral Arleigh Burke at the height of the Cold War, CSIS was dedicated to the simple but urgent goal of finding ways for America to survive as a nation and prosper as a people. Since 1962, CSIS has grown to become one of the world's preeminent public policy institutions.

Today, CSIS is a bipartisan, nonprofit organization headquartered in Washington, DC. More than 220 full-time staff and a large network of affiliated scholars focus their expertise on defense and security; on the world's regions and the unique challenges inherent to them; and on the issues that know no boundary in an increasingly connected world.

Former U.S. senator Sam Nunn became chairman of the CSIS Board of Trustees in 1999, and John J. Hamre has led CSIS as its president and chief executive officer since 2000.

CSIS does not take specific policy positions; accordingly, all views expressed herein should be understood to be solely those of the author(s).

© 2009 by the Center for Strategic and International Studies. All rights reserved.

Center for Strategic and International Studies
1800 K Street, NW, Washington, DC 20006
Tel: (202) 775-3119
Fax: (202) 775-3199
Web: www.csis.org



enhancing u.s. leadership on drinking water and sanitation: opportunities within global health programs

Katherine E. Bliss¹

In the United States, domestic support for greater investments in projects dedicated to improving global health through addressing water, sanitation, and hygiene issues has gathered momentum in recent years. In 2005 President George W. Bush signed into law the Senator Paul Simon Water for the Poor Act, making water, sanitation, and hygiene (WSH) activities a strategic focus of United States foreign assistance. In FY 2008 and FY 2009, Congress appropriated \$300 million to support international WSH activities for the poorest and most vulnerable populations. During a period of economic crisis in which some U.S. citizens have questioned the utility of overseas assistance programs and believe the government should focus more attention on domestic concerns, a poll released in May of 2009 showed that 61 percent put improving access to safe drinking water at the top of a list of issues Americans believe should be global health priorities for the United States government.

With the Obama administration's announcement of a new Global Health Initiative, the time is right for U.S. agencies to assert political leadership in addressing the persistent and significant global health challenges related to water and sanitation. This report focuses on the links among water, sanitation, and the health sector and identifies opportunities for greater U.S. engagement on water and sanitation as global health challenges.

Overview

Nearly 10 percent of the global burden of disease can be attributed to water.² The 884 million people worldwide who do not have access to improved drinking water sources and the 2.5 billion who do not have access to improved sanitation experience the greatest burden of water-related disease.³ The majority of people who lack access to safe drinking water and sanitation and who

¹ Katherine E. Bliss is a deputy director and senior fellow of the Americas Program and senior fellow of the Global Health Policy Center at CSIS.

² Annette Prüss-Üstün, Robert Bos, Fiona Gore, and Jamie Bartram, *Safer Water, Better Health: Costs, Benefits and Sustainability of Interventions to Protect and Promote Health* (Geneva: World Health Organization, 2008).

³ World Health Organization (WHO) and United Nations Children's Fund (UNICEF) Joint Monitoring Program for Water Supply and Sanitation, *Progress on Drinking Water and Sanitation: Special Focus on Sanitation* (New York: UNICEF, and Geneva: World Health Organization, 2008).

suffer from water-related disease live in developing countries, primarily in sub-Saharan Africa and Asia.⁴

In developed countries, water and sanitation systems have provided drinking water and protected health for populations since the beginning of the twentieth century. Although maintaining water and sanitation systems and extending services to new populations pose ongoing financial and management challenges in many of those countries, the difficulties associated with improving access to water and sanitation in the developing world are even more acute. In many of the least economically developed countries, high fertility rates, environmental degradation, and low levels of budget support for water supply lead growing populations to compete over limited access to water resources. Urbanization places particular stresses on existing water and sanitation systems, and the development of densely populated slum settlements poses yet more challenges for planners and engineers while creating conditions that facilitate the transmission of waterborne disease. With the majority of the world's population living in cities and with megacities in developing countries projected to grow in the coming decades, the health challenges associated with water and sanitation in urban centers will become more daunting over time if concerted action to improve access in congested metropolitan areas is not taken.⁵

Although significant program-level investments and policy initiatives have made the United States a major player on many global health issues, the United States is not an international leader where water and health intersect. It is not the major funder of water, sanitation, and hygiene programs, nor does it exercise leadership in advocating for attention to water, sanitation, and hygiene in health policy discussions. According to the Organization for Economic Cooperation and Development (OECD), in 2007 the United States committed \$432 million to the water sector, representing about 7 percent of developed donor country commitments. In 2007 Japan and Germany led the United States in committing funds for work on water, reporting commitments of \$1.9 billion and \$593.96 million, respectively. The 2007 U.S. figure was down from reported commitments between 2004 and 2006, but represented a fourfold increase over the \$105.88 million reported to have been committed in 2000.⁶ Health-focused programs represent a relatively small fraction of U.S. water-related foreign assistance activities. In FY 2008, of the total \$295 million of foreign assistance funds obligated for water, sanitation, and hygiene activities by the U.S. Agency for International Development (USAID), only \$33.9 million were channeled

⁴ Ibid.

⁵ Barbara Evans, "Understanding the Urban Poor's Vulnerabilities in Sanitation and Water Supply," *Financing Shelter, Water and Sanitation*, Center for Sustainable Urban Development, July 1–6, 2007.

⁶ Organization for Economic Cooperation and Development, Query Wizard for International Development Statistics, <http://stats.oecd.org/qwids>.

through the Child Survival and Health Account, including \$5.2 million to support central Global Health programs.⁷

The United States has not advocated for greater attention to drinking water and sanitation issues within high-level global health policy discussions. In part this is because in the United States, as in much of the world, efforts to regulate water quality or implement water supply and sanitation services are the responsibility of environmental protection agencies and not health agencies.⁸ Over the last 20 years, this division has segregated environmental health professionals from the rest of the health community and limits other health professionals' advocacy for work on water supply and sanitation. The social conventions that restrict open discussion of diarrheal disease, toilets, and personal hygiene in the United States and elsewhere have also limited international action on water and sanitation access.⁹ In addition, there is no prominent, multilateral institution through which the United States might channel funds or coordinate its international water and sanitation activities with donor countries, recipient governments, and nongovernmental organizations (NGOs), as it does in supporting global HIV/AIDS programs through UNAIDS and global HIV/AIDS, tuberculosis and malaria activities through the Global Fund to Fight AIDS, Tuberculosis and Malaria. Within the United Nations, water and sanitation activities are managed across 26 different technical agencies and coordinated through the inter-agency UN-Water office, which has no implementation authority.¹⁰

Over the last decade, a number of factors have raised the profile of international drinking water and sanitation access issues and generated a new sense of commitment on the part of the health sector to address them. In September of 2000 the international community agreed to the Millennium Development Goals (MDGs), including to “halve by 2015 the proportion of the population without sustainable access to drinking water.”¹¹ In 2001, the Water Supply and Sanitation Collaborative Council launched the Global WASH Campaign to raise awareness about the importance of sanitation and hygiene, including hand washing with water and soap, to the achievement of the MDGs. At the 2002 Johannesburg World Summit on Sustainable

⁷ U.S. Department of State, *Senator Paul Simon Water for the Poor Act: Report to Congress*, June 2009 (Washington, D.C.: U.S. Department of State, Bureau of Oceans, Environment and Science, 2009), pp. 56–57.

⁸ When the U.S. Environmental Protection Agency was created in 1970, it incorporated the Department of Health, Education, and Welfare's Bureau of Water Hygiene and Solid Waste Management. See Environmental Protection Agency, “The Birth of EPA,” <http://www.epa.gov/history/topics/epa/15c.htm>.

⁹ See Rose George, *The Big Necessity: The Unmentionable World of Human Waste and Why It Matters* (New York: Metropolitan Books, 2008); see also WaterAid America, “Fatal Neglect: How health systems are failing to comprehensively address child mortality,” May 2009, http://www.wateraidamerica.org/what_we_do/policy_and_research/addressing_child_mortality/default.aspx.

¹⁰ See United Nations, “A Guide to UN Water,” <http://www.unwater.org>, which states: “As UN Water is not an implementing body, its specific activities and programs are hosted by individual member agencies on behalf of UN Water.”

¹¹ End Poverty 2015: Millennium Development Goals, <http://www.un.org/millenniumgoals/bkgd.shtml>.

Development, delegates agreed to add a commitment to extending basic sanitation services to the MDG water target.¹² In December 2003, the United Nations General Assembly declared the years between 2005 and 2015 the International Decade for Action “Water for Life.”¹³ Meeting in Evian, the leaders at the 2003 Group of 8 (G-8) Summit agreed to a Water Action Plan to improve water governance, finance, and infrastructure. In 2006 the United Nations General Assembly designated 2008 the International Year of Sanitation, and in 2007 readers of the *British Medical Journal* named sanitation the “greatest medical advance since 1940.” In June of 2008 the World Health Organization (WHO) released for the first-time country-by-country estimates of the burden of disease attributed to poor access to water and sanitation.¹⁴

Several other events have sharpened policymakers’ awareness of the broad political, economic, and social consequences of failing to provide and maintain drinking water and sanitation services for needy populations. The ongoing cholera outbreak in Zimbabwe, which began in August of 2008 and had claimed more than 4,000 lives by May of 2009, offers a recent and compelling example of the important links among health, water access, and security. Although Zimbabwe at one time boasted a relatively well-developed water supply and sanitation system, by late 2008 deferred infrastructure maintenance over several decades, along with inadequately outfitted hospital facilities, accelerated the spread of cholera and rendered health authorities incapable of responding to the outbreak.¹⁵ In the context of a political stalemate over presidential succession and an economic crisis in which 80 percent of the population was unemployed, the cholera epidemic forced the government to declare a national emergency and provoked protests by health care professionals who were angry that they did not have adequate provisions to treat patients suffering from cholera and frustrated by the government’s failure to pay them in hard currency. They were joined by residents of neighborhoods in which water services were suspended. In Harare, riot police were deployed to break up the protests, even as soldiers, trade unionists, and

¹² See Water Supply and Sanitation Collaborative Council, “Global WASH Campaign,” <http://www.wsscc.org/en/what-we-do/advocacy-communications/global-wash-campaign/index.htm>, and UN Habitat, “Water and Sanitation,” <http://www.unhabitat.org/categories.asp?catid=270>. At the program level, themes related to drinking water and sanitation are often considered along with campaigns to promote improved personal hygiene practices, such as hand washing with soap. The advocacy and implementation agenda focused on drinking water, sanitation, and hygiene is frequently referred to by the letters WSH or WASH.

¹³ United Nations, International Decade for Action: Water for Life, 2005–2015, <http://www.un.org/waterforlifedecade/background.html>.

¹⁴ Prüss-Üstün et al., *Safer Water, Better Health*. This report highlights the wide range of negative health effects associated with water, including vector-borne diseases such as malaria, which is transmitted by mosquitoes that breed in water, and trachoma, which is transmitted by flies, causes blindness, and is related to failure to wash the face. The report also pointed toward drowning and illness resulting from chemical contamination of surface and ground water supplies as significant contributors to the burden of disease associated with water.

¹⁵ Eric D. Mintz and Richard L. Guerrant, “A Lion in Our Village: The Unconscionable Tragedy of Cholera in Africa,” *New England Journal of Medicine* 360, no. 11 (March 12, 2009).

others joined or built on the momentum sparked by the cholera protests to mobilize around their own grievances.¹⁶

In Somalia, where only 29 percent of the population has access to an improved drinking water source, persistent drought cycles since the early years of this decade have led to community conflicts over access to drinking water, including violence and killings in some cases.¹⁷ Not only do adults as well as children suffer infections from contaminated water sources, but they also experience hygiene-related ailments resulting from limited access to water for hand washing and food preparation. Without water to tend crops or provide to domesticated animals, food sources are restricted as well.¹⁸ Humanitarian aid agencies, such as UNICEF, have worked to help communities rehabilitate water systems and to conserve and protect water supplies, but those who collect water for household use must regularly compete with others for access to wells, many of which are controlled by armed gangs.¹⁹

And in Bangladesh, where 24 percent of deaths each year are attributed to water-related disease, the economic costs of failure to ensure population access to water and sanitation services are considerable. Not only does Bangladesh face yearly monsoon season floods, which contaminate the surface water supplies on which many communities depend, but ground water sources in some parts of the country are contaminated with naturally occurring arsenic, which is associated with higher rates of cancers and skin disorders among people who consume the water over the long term. Children who are sick miss valuable educational opportunities while women in the communities often forgo income-generating activities to care for sick household members, leading to greater impoverishment for the most economically vulnerable families. In urban slums, where many people live on less than \$1 a day, inadequate sanitation and overcrowding lead to the spread of diarrheal disease. Women suffer the greatest consequences within the context of Bangladesh's water problems. Those with arsenic-related skin problems face divorce or abandonment by their husbands, while the lack of private sanitation facilities in densely populated areas causes some women to avoid urination or defecation during daylight hours.²⁰ Small-scale community-level interventions offer the promise of improved health and economic opportunities. Through the outreach of female health workers, women in settlements with a high risk of water-related disease in Dhaka have learned how to protect their families and identify ways to generate income through cleaning or maintaining sanitation facilities in the community.²¹

In the United States, domestic support for greater U.S. investments in projects focused on improving global health through addressing water, sanitation, and hygiene issues has gathered

¹⁶ BBC News, "Zimbabwe cholera 'an emergency,'" December 4, 2008, <http://news.bbc.co.uk/2/hi/africa/7764200.stm>.

¹⁷ Emily Wax, "Dying for Water in Somalia's Drought," *Washington Post*, April 14, 2006, p. A1.

¹⁸ United Nations, *Somalia: Humanitarian Overview 2*, issue 3 (March 2009).

¹⁹ UNICEF, "Crisis in Somalia," June 2009, http://www.unicef.org/mergency/58/latest_infosheet.pdf.

²⁰ UNICEF, "Arsenic mitigation in Bangladesh," <http://www.unicef.org/bangladesh/Arsenic.pdf>;

²¹ WaterAid, "Women and Water Aid," http://www.wateraid.org/documents/women_and_wateraid_2006.pdf.

momentum over the last five years. In late 2005 President George W. Bush signed into law the Senator Paul Simon Water for the Poor Act, making water, sanitation, and hygiene (WSH) activities a strategic focus of United States foreign assistance.²² In FY 2008 and FY 2009 Congress, appropriated \$300 million to support international WSH activities for the poorest and most vulnerable populations. Several public health schools in the United States have established or reinvigorated research centers focused on global water issues. In November of 2009, the American Public Health Association will organize its 137th meeting around the theme of “Water and Public Health.”²³ Moreover, during a period of economic crisis in which some U.S. citizens question the utility of overseas assistance programs and believe that government should focus more attention on domestic concerns, a recent poll showed that 61 percent put improving access to safe drinking water at the top of a list of issues Americans believe should be global health priorities for the United States government.²⁴

With the Obama administration’s announcement of a new Global Health Initiative and with the proposed 2009 Senator Paul Simon Water for the World Act legislation suggesting that the “United States should lead a global effort to bring sustainable access to clean water and sanitation to poor people throughout the world,” the time is right for U.S. agencies to assert political leadership in addressing the persistent and significant global health challenges related to water and sanitation.²⁵ This report examines the key health challenges associated with lack of access to safe drinking water and sanitation; identifies the principal United States agencies working on water and health internationally; reviews the limitations of the current U.S. approach; and offers recommendations to advance U.S. engagement on water and sanitation access issues in the context of global health programming and policymaking. It recognizes that any effort to improve global health through enhancing access to drinking water and sanitation will necessarily involve many sectors. Over the long term, improving communities’ access to water and sanitation will require consideration of those services within the context of the broader set of issues related to water management and the use of water for agricultural and industrial purposes. It will also require significant investments by private sector actors. This report focuses primarily on the links among water, sanitation, and the health sector and identifies opportunities for greater U.S. engagement on water and sanitation through global health programming and policymaking.

²² U.S. Department of State, *Senator Paul Simon Water for the Poor Act: Report to Congress*, June 2008 (Washington, D.C.: U.S. Department of State, Bureau of Oceans, Environment and Science, 2008), p. v.

²³ American Public Health Association, Annual Meeting Meeting and Exposition, <http://www.apha.org/meetings/>.

²⁴ The Henry J. Kaiser Family Foundation, *U.S. Global Health Policy: Survey of Americans on the U.S. Role in Global Public Health*, May 2009, p. 12.

²⁵ Remarks by President Obama on Global Health Initiative, May 5, 2009, <http://www.america.gov/st/texttrans-english/2009/May/20090505165154eaifas0.283897.html>; see also S.624, 111th Congress, 1st Session, and H.R. 2030, 111th Congress, 1st Session.

U.S. Government International Water, Sanitation, and Hygiene Activities

The U.S. Department of State reports that in FY 2008 the United States obligated more than \$1 billion to support water and sanitation activities in developing countries, not including Iraq. According to the U.S. State Department's *Senator Paul Simon Water for the Poor Act: Report to Congress* submitted in June 2009, U.S. agencies spent \$815 million of the \$1 billion on water activities in 95 countries. The funds were dedicated to providing needy populations with access to safe drinking water and sanitation and to improving hygiene practices. Agencies spent more than half of that sum—\$648.7 million—on drinking water, sanitation, and hygiene activities in sub-Saharan Africa. The 2009 *Water for the Poor* report estimated that the combined U.S. agencies' FY 2008 drinking water, sanitation, and hygiene efforts "led to improved access to safe drinking water" for 7.7 million people and to improved sanitation access for 6.3 million people.²⁶ The United States estimates that 4.6 million people received first time access to an improved water source and that more than 2.1 achieved first-time access to improved sanitation, thanks to FY 2008 spending.²⁷ These funds represent an increase over FY 2007 obligations, in which USAID allocated \$489.6 million for water and sanitation activities in 75 countries.²⁸ Most U.S. government international water and sanitation activities are carried out by USAID, the Millennium Challenge Corporation (MCC), and the Department of Defense, all of which receive direct appropriations for water and sanitation activities. However, the Centers for Disease Control and Prevention, the Environmental Protection Agency, the Department of Energy, and the U.S. Geological Survey are also key players.

USAID has carried out work on water since the 1970s. The agency's work on water and sanitation gathered momentum in the 1980s during the International Decade for Clean Drinking Water. Over time, the agency's work has shifted from an emphasis on hardware (i.e., supplying pipes and pumps) to a focus on water-related governance; promoting a better "enabling environment" for implementation of water and sanitation services; identifying innovative financing and credit mechanisms to help communities set up water and sanitation systems; and building the capacity of water service and management institutions.²⁹ USAID began to devote greater attention to water through its global health programming in the 1990s, initiating projects on household water management as well as hygiene and sanitation.³⁰ The Economic Growth and Trade Bureau (EGAT) oversees work on water infrastructure, financing, and management in conjunction with regional bureaus and with offices focused on democracy promotion, alternative development,

²⁶ U.S. Department of State, *Senator Paul Simon Water for the Poor Act*, June 2009, p. iii.

²⁷ *Ibid.*, p. 4.

²⁸ *Ibid.*, p. iii.

²⁹ Anthony Kolb, "USAID and Water Supply, Sanitation and Hygiene," U.S. Agency for International Development, Bureau for Economic Growth, Agriculture, and Trade, <http://www.thirstingtoserve.org/content/2008ppt/USAID.ppt>.

³⁰ See for example, USAID/HIP: Hygiene Improvement Project, <http://www.hip.watsan.net>.

Key Challenges

- ***Lack of access to safe drinking water and sanitation causes significant morbidity and mortality worldwide, primarily in developing countries.*** At least 1.5 million deaths a year, mostly among children, are attributable to unsafe drinking water. At least 884 million people worldwide lack access to safe drinking water, and at least 2.5 billion people do not have access to even a basic toilet. Unsafe drinking water also contributes to child mortality associated with malnutrition.¹
- ***The economic and opportunity costs associated with water-related disease are significant.*** Waterborne diseases cause lost income and missed work or schooling opportunities for those who are ill and those who care for them. Sick children miss nearly 300 million school days a year from water-related causes, and an estimated 320 million productive work days are lost to illness resulting from unsafe drinking water and lack of access to sanitation.² UNICEF estimates that achieving the MDG targets for water and sanitation would reap economic benefits of \$7.40 per \$1 invested.³
- ***Access to safe drinking water and sanitation is highly inequitable.*** The WHO/ UNICEF Joint Monitoring Program (JMP) reported in 2008 that 87 percent of the world's population had access to an improved drinking water supply. However, in 2006 at least 96 percent of the world's urban population had access to an improved supply, but only 78 percent of rural populations had access. The JMP also reported that 62 percent of the world's population had access to improved sanitation, up from 49 percent in 1990. But while 79 percent of urban populations are served by sanitation services, only 45 percent of rural populations count on sanitation access.⁴
- ***There are significant geographic disparities with respect to access to safe drinking water and sanitation.*** The world region where the highest percentage of the population lacks access to safe drinking water is sub-Saharan Africa, where more than 30 percent of the population in 27 countries cannot count on such access, and more than 50 percent of the population in 36 countries lacks access to sanitation services. Because of population density, the greatest number of people without access to safe drinking water and sanitation is in Asia. Of the 2.5 billion people globally who do not have access to improved sanitation, 1.8 billion are in Asia.
- ***The investment needed to meet the MDG drinking water and sanitation target is estimated to be \$18 billion per year.*** To maintain water and sanitation services for those who have access is projected to cost another \$54 billion annually.⁵ The amount of Overseas Development Assistance (ODA) for the water sector rose to \$6.2 billion, or 8 percent of total ODA, between 2006 and 2007. However, ODA funds for water activities in sub-Saharan Africa, the neediest world region, have actually decreased as a percentage of overall ODA, according to the OECD. In the recent eThekweni Declaration, African ministers committed to try to spend at least 0.5 percent of GDP on water, sanitation, and hygiene programs. But private sector investments in water and sanitation infrastructure will be essential for ensuring available financing for large-scale drinking water and sanitation activities.⁶ Household-level point of use (POU) water treatment and storage technology will need to be scaled-up in contexts where populations will not otherwise expect to have access to an improved drinking water supply anytime soon.
- ***Improved hygiene, including hand washing with soap and safe disposal of feces, can help prevent waterborne disease, but making such behaviors sustainable remains challenging.*** At least 200 million tons of human waste is uncollected and untreated each year, and an estimated 18 percent of the world's population practices open defecation.⁷ Regular hand washing with soap is estimated to reduce the number of diarrhea episodes by almost 50 percent. Hand washing and good hygiene practices have also been demonstrated to reduce the incidence of other disease, including trachoma, scabies, and skin and eye infections. Some researchers estimate that the incidence of pneumonia among children under the age of five can be halved with proper hand-washing practices.⁸ However, research suggests that promoting

(continued next page)

sanitation as well as hygiene behaviors and products for health reasons is not always successful. Social marketing schemes that frame soap and sanitation services as desirable consumer products rather than health aids may be more effective in the long term.⁹

- ***Lack of access to safe drinking water and sanitation has especially negative implications for women and girls.*** Not only do women and girls bear the burden of fetching water, particularly in rural areas of developing countries, but women and girls who have to travel far from the household to find privacy are vulnerable to rape and other assault. In some settings, families keep girls out of school if there are not separate facilities for them to wash or relieve themselves in private. According to UNICEF, 50 percent of girls in sub-Saharan Africa drop out of school when they reach puberty because of poor water and sanitation services.
- ***Climate change will negatively affect water quality and contribute to outbreaks of waterborne disease.*** Diarrheal diseases vary seasonally, suggesting sensitivity to climate change. In the tropics, diarrheal diseases typically peak during the rainy season. Floods and droughts increase the risk of diarrheal disease.
- ***Urbanization presents special challenges with respect to water quality and sanitation service provision.*** Even within urban settings, access to safe drinking water and sanitation is uneven. Wealthier areas can count on reliable services, whereas many slum and informal settlement dwellers do not have access to taps or toilets. Small-scale, often informal, providers offer the most impoverished urban residents low-quality water at high prices. Community sanitation services often fail because of inadequate funds for maintenance and a lack of commitment on the part of the local population to undertake upkeep for common toilets.
- ***Chemical contamination pollutes ground and surface water with toxins harmful to human health.*** Naturally occurring arsenic in some parts of the world and contamination from agricultural and industrial run-off threaten the quality of water supplies in some of the world's most populous regions, including South Asia and China as well as Mexico.
- ***In conflict settings or in the aftermath of natural disaster, the potential for outbreaks of waterborne disease is significant.*** Provision of safe drinking water and sanitation can help mitigate outbreaks among refugees or internally displaced peoples as well as stabilize precarious social and political situations.

¹ WHO Burden of Disease and Cost Effectiveness Estimates. Poor water quality continues to pose a major threat to human health. Diarrheal disease alone amounts to an estimated 4.1 percent of the total DALY global burden of disease and is responsible for the deaths of 1.8 million people every year (WHO, 2004). It was estimated that 88 percent of that burden is attributable to unsafe water supply, sanitation and hygiene and is mostly concentrated on children in developing countries. According to UNICEF, about 4,500 children die each day from unsafe water and lack of basic sanitation.

² Ibid, p. 21.

³ UNICEF, *Soap, Toilets, and Taps: A Foundation for Healthy Children, How UNICEF Supports Water, Sanitation and Hygiene* (New York: UNICEF, 2009).

⁴ WHO/UNICEF Joint Monitoring Program, *Progress on Drinking Water and Sanitation*.

⁵ Prüss-Üstün et al., *Safer Water, Better Health*, p. 25.

⁶ Launch of the OECD report, "Managing Water for All: An OECD Perspective on Pricing and Financing," World Water Forum, Istanbul, March 17, 2009, http://www.oecd.org/document/14/0,3343,en_2649_34563_42373390_1_1_1_37465,00.html.

⁷ WHO/UNICEF Joint Monitoring Program, *Progress on Drinking Water and Sanitation*.

⁸ Michele Barry and James M. Hughes, "Talking Dirty—The Politics of Clean Water and Sanitation," *New England Journal of Medicine* 359, no. 8 (August 21, 2008): 785.

⁹ Prüss-Üstün et al., *Safer Water, Better Health*, p. 18.

humanitarian assistance, disaster relief, and education. The Senator Paul Simon Water for the Poor Act of 2005 and the FY 2008 and 2009 budget appropriation requirements that at least \$300 million be “made available for safe drinking water and sanitation projects” have sparked greater investments in the water sector both at USAID headquarters and at the mission level. In 2003 the agency devoted 40 percent of its water funds to WSH activities; by 2007 that percentage had doubled to 80 percent.³¹ In FY 2008 USAID allocated \$108 million for work in sub-Saharan Africa, \$75 million for water, sanitation, and hygiene programs in the Asia Pacific Region, and \$57 million in the Middle East/North Africa Region, with most of that focused in Jordan. Latin America and the Caribbean and Europe/Eurasia received comparatively smaller allocations.³²

In the 2009 *Senator Paul Simon Water for the Poor Act: Report to Congress*, USAID identified sixteen priority countries in sub-Saharan Africa, seven in Asia and the Pacific, four in the Middle East, three in Europe and Eurasia, and one in Latin America and the Caribbean for its work on drinking water, sanitation, and hygiene.³³ USAID officers have worked with staff implementing the President’s Emergency Plan for AIDS Relief (PEPFAR) to influence field guidance regarding the potential contributions of water, sanitation and hygiene program activities to the success of HIV/AIDS prevention, care, and treatment initiatives.³⁴

The Millennium Challenge Corporation supports water projects in developing countries with funds from the Millennium Challenge Account, which was launched in 2003. Governments interested in seeking assistance from the MCC submit proposals to the agency, which include plans for the how the money will be spent. The MCC then signs a compact with the recipient country and disburses funds for the host government to use in supporting development projects. By the end of FY 2007, the MCC had committed nearly \$880 million to water sector projects through compacts with countries in Africa and Latin America. In FY 2008 MCC obligated \$546.9 million to the water and sanitation sector, with 80 percent of the total for safe drinking water projects.³⁵ For example, the MCC’s compact with Mozambique allocates \$203 million to supply water and sanitation services to six cities and to provide water services to 600 rural locales. In El Salvador, MCC is investing \$24 million to facilitate community access to drinking water and sanitation services.³⁶

Within the Department of Defense, the Army Corps of Engineers has provided support for water projects in the United States and abroad since the nineteenth century. Its international work

³¹ U.S. Department of State, *Senator Paul Simon Water for the Poor Act*, June 2008, p. vii.

³² U.S. Department of State, *Senator Paul Simon Water for the Poor Act*, June 2009, pp. 56–57.

³³ *Ibid.*, pp. 9–26.

³⁴ U.S. Agency for International Development, Environmental Health Project, “HIV-Affected Families and Water/Sanitation and Hygiene—Introduction,” <http://www.ehproject.org/eh/eh-topics.html>.

³⁵ U.S. Department of State, *Senator Paul Simon Water for the Poor Act*, June 2009, p. 6.

³⁶ Millennium Challenge Corporation, “MCC’s Commitment to Clean Water, Sanitation, and Improved Water Infrastructure: Fact Sheet,” March 18, 2009, <http://www.mcc.gov/mcc/bm.doc/factsheet-031809-water.pdf>.

accelerated after World War II, when the corps undertook large-scale water infrastructure projects in Greece, followed by Afghanistan and Burma, among other locales. Since the implementation of the Foreign Assistance Act of 1961, the Army Corps has carried out international work with support from USAID on a reimbursable basis.³⁷ In combat settings such as Iraq and Afghanistan, the Department of Defense's Commander's Emergency Response Program (CERP) allows officials in the field to access and distribute funds for specific humanitarian projects, including drilling wells and other activities to improve drinking water access for local populations.³⁸ Two of the Combatant Commands, AFRICOM and SOUTHCOM, are working to develop partnerships with regionally based NGOs to facilitate work on water and sanitation access. Espousing an "indirect approach" to counter violent extremism," the Combined Joint Task Force–Horn of Africa seeks to promote "long-term regional stability" by digging wells and carrying out water projects at the village or school level in several countries in the region.³⁹ The USNS *Comfort* hospital ship carried engineers on its deployment to the Caribbean and Central/South America in 2007, undertaking water projects in cooperation with local communities in ports of call.⁴⁰ And the 2009 *Beyond the Horizon* exercises deployed U.S. military personnel to Colombia, Jamaica, the Dominican Republic, Honduras, Trinidad and Tobago, and Suriname to drill or renovate wells, among other activities, in local communities.⁴¹

The Environmental Protection Agency (EPA), through its Office on Drinking Water and its Office of International Affairs, supports international activities to promote access to safe drinking water. Working with the U.S. Centers for Disease Control and Prevention (CDC) and the Pan American Health Organization (PAHO) in the Partnership for Environmental Public Health, EPA has led interagency work on the international popularization of water safety plans, a WHO-developed holistic approach for ensuring water quality from catchment to consumer based on the food industry's Hazard Analysis and Critical Control Point (HACCP) principles. The partnership has completed one plan in Jamaica and has entered into an agreement with the International Water Association to carry out water safety plan projects elsewhere in the Latin America and Caribbean region. In India, EPA is working with WHO's regional arm, the South-East Asia Regional Office (SEARO), and the city of Hyderabad to finalize a water safety plan pilot project, with additional projects anticipated in Delhi and in the city of Pune.

³⁷ U.S. Army Corps of Engineers, "The U.S. Army Corps of Engineers: A Brief History," <http://www.usace.army.mil/HIstory/Pages/Brief11-15>.

³⁸ U.S. Government Accountability Office, "Military Operations: Actions Needed to Better Guide Project Selection for Commander's Emergency Response Programs and Improve Oversight in Iraq," GAO-08-736R Military Operations, June 23, 2008, <http://www.gao.gov/new.items/d08736r.pdf>.

³⁹ Combined Joint Task Force Horn of Africa, "CJTF-HOA Factsheet," <http://www.hoa.africom.mil/AboutCJTF-HOA.asp>.

⁴⁰ USNS *Comfort* T-AH20, "Comfort's Recent Missions," <http://www.med.navy.mil/sites/usnscomfort/Pages/MSCRecentMissions.aspx>.

⁴¹ United States Southern Command (US-SOUTHCOM), "Beyond the Horizon 2009," <http://www.southcom.mil/AppsSC/factFiles.php?id=104>.

The CDC carries out work related to water through two national centers—the National Center for Zoonotic, Vector-borne, and Enteric Diseases (NCZVED) and the National Center for Environmental Health (NCEH). Because CDC does not receive significant congressional appropriations for international water activities, its centers respond to requests for assistance from host governments, receive funding from USAID or other government agencies, and can receive support from NGOs and private sector entities through the CDC Foundation to carry out international work. Following the cholera outbreak in Peru in the early 1990s, CDC staff worked with officials at the Pan American Health Organization to pioneer “point of use” (POU) techniques to allow people to disinfect and safely store water at the household level. CDC now carries out POU activities in at least 15 countries in Africa, Asia, and the Caribbean (Haiti) in partnership with USAID and a host of NGO partners, including community and faith-based organizations. The NCEH has worked to promote the water safety plan concept internationally, working closely with PAHO and the EPA, as well as with the St. Lucia-based Caribbean Environmental Health Institute to carry out projects in Guyana, Belize, and Bolivia.

The Department of Energy’s Sandia National Laboratories in New Mexico run the Sandia Water Initiative to “increase the safety, security and sustainability of water infrastructure through the development of advanced technologies that create new water supplies, decrease demand through water-use efficiency, and provide decision-informing tools to the institutions responsible for balancing supply and demand.”⁴² Through the Arsenic Water Technology Partnership, Sandia partners with domestic and international water suppliers to “move innovative technologies from the bench-scale to pilot scale demonstration” in order to reduce arsenic-contaminated water.⁴³ Sandia has also worked with partners such as the Center for Strategic and International Studies to complete the “Global Water Futures” project aimed at identifying and anticipating forthcoming challenges in the international water arena.

Peace Corps volunteers carry out training and infrastructure development related to water, sanitation, and hygiene in multiple settings in Latin America, the Caribbean, Africa, and Asia. Volunteers working at the community level develop projects ranging from digging wells and building latrines to training local populations regarding hygiene techniques. In 2008, the State-USAID *Senator Paul Simon Water for the Poor Report* noted that Peace Corps projects led to the construction of 486 latrines in Ghana, 143 rural drinking water systems in Bolivia, and the improvement or construction of 64 community drinking water systems in Honduras, among other activities.⁴⁴

The U.S. Geological Survey (USGS) responds to requests from countries seeking to study and control the contamination of groundwater sources. Over the past seven years, the USGS has worked with the government of Bangladesh, where numerous shallow wells are contaminated

⁴² Sandia National Laboratories, Water Initiative, <http://www.sandia.gov/water/objective.htm>.

⁴³ Arsenic Water Technology Partnership, <https://www.sandia.gov/water/arsenic.htm>.

⁴⁴ U.S. Department of State, *Senator Paul Simon Water for the Poor Act*, June 2008, pp. 8–12.

with arsenic, to research water quality in the deeper aquifer areas of the country's hydrologic system and to identify sources of safe ground water.⁴⁵ Since the mid-1990s, USGS has worked with governments in the Middle East to generate reliable water data and to help countries exchange information to facilitate policymaking at the national and regional levels.⁴⁶ In Latin America and the Caribbean, USGS has worked in Honduras to help the government's water agencies develop plans to ensure water quality within the country's larger hydrologic network.⁴⁷

The Department of State coordinates interagency communication on international water issues and represents the U.S. government in diplomatic discussions regarding international water issues. It is the U.S. government agency through which funds for refugee assistance, including the provision of drinking water, sanitation, and hygiene services, are channeled and through which contributions to international organizations conducting work on water, including the United Nations Children's Fund (UNICEF) and the WHO, are made.⁴⁸ The Department of State is also home to the interagency Office of the Global AIDS Coordinator, which includes attention to water quality in some of its HIV/AIDS-related assistance programming. Since 2005 the Department of State, through the Bureau of Oceans, Environment, and Science (OES), has also managed a modest amount of Economic Support Fund (ESF) monies to support programmatic work that may help build the case for greater government and donor country investments in water, sanitation, and health activities; in FY 2008 OES programmed \$500,000 dollars for water-related initiatives.⁴⁹

Beyond the work carried out by its individual agencies, the United States contributes to multilateral development agencies that carry out work related to water and sanitation. These include the Inter-American Development Bank, the African Development Bank, the North American Development Bank, and the World Bank.⁵⁰

⁴⁵ U.S. Geological Survey (USGS) International Programs, "Aquifer System in the Bengal Delta of Bangladesh," http://international.usgs.gov/projects/bg_arsenic.htm.

⁴⁶ USGS International Programs, Region: Middle East, <http://international.usgs.gov/regional/regmideast.htm>.

⁴⁷ USGS International Programs, Region: Latin America and the Caribbean, <http://international.usgs.gov/regional/reglatiname.htm>.

⁴⁸ U.S. Department of State, *Senator Paul Simon Water for the Poor Act*, June 2009, p. 7.

⁴⁹ For examples, see *ibid.*, p. 25 and p. 57.

⁵⁰ *Ibid.*, p. 8.

Limitations of the Current Approach and Recommendations

Need for Improved Interagency Coordination

The fact that so many different government entities conduct international work related to water and sanitation access underscores the importance of effective communication and coordination among U.S. agencies. It also points to the need for strong, high-level political leadership to knit the various water and sanitation research, implementation, and diplomatic initiatives into a coherent and more powerful contribution to the global health agenda. The Senator Paul Simon Water for the Poor Act of 2005 requires that the Department of State, in consultation with USAID and other U.S. agencies, issue a yearly report on U.S. international water activities. To facilitate the exchange of information about international water activities and to gather information for the annual report, due in June of each year until 2015, the Department of State, through the Bureau of Oceans, Environment, and Science (OES), coordinates an interagency water group. The substantial effort of coordinating agency input into and writing of the report is managed by a very small staff in the Bureau's Environmental Policy office, supplemented by Presidential Management Fellows, the American Association for the Advancement of Science Diplomacy Fellows, and staff in the Bureau's health office. Agencies participate in the group meetings and contribute information to the report on a seemingly voluntary basis, with some agencies and agency representatives playing more active roles than others. It is unlikely that the yearly reports represent the full extent of U.S. work on water and health activities. Nongovernmental organizations have criticized the reports for weaknesses in the areas of data transparency and the failure of previous reports to present a strategic vision for U.S. foreign investments in the water sector.⁵¹

The FY 2008 and FY 2009 \$300 million earmarks for drinking water, sanitation, and hygiene activities have encouraged more regular, and more comprehensive, working-level cooperation between the Department of State and USAID than in previous years. But because the focus of the discussion is largely related to spending from Development Assistance and Economic Support Fund accounts, agencies that do not receive the earmarked funds are rarely involved in broader decisions about international water, sanitation, and hygiene programming in international context. Given the considerable spending on international water, sanitation, and hygiene undertaken by MCC and the Department of Defense, it may make sense to require the participation of those two agencies in efforts to account for spending on drinking water and

⁵¹ WaterAID America and the National Resources Defense Council, "Is the U.S. Government Getting Water to the Poor? Response to the U.S. Government's 2008 Report to Congress on the Senator Paul Simon Water for the Poor Act," http://www.wateraidamerica.org/includes/documents/cm_docs/2008/w/waa_nrdc_wfp_response_november_2008.pdf.

sanitation access and to help in the effort to highlight water and health in the political arena. Integrating input from all U.S. agencies carrying out international water and sanitation activities with funds from different budget accounts—or in response to requests from host governments or in partnership with international NGOs, research centers, and professional associations—could also strengthen cooperation and build congressional and administration awareness of the range of initiatives related to water, sanitation, and health with which the United States is involved.

One idea that has been advanced, and also envisioned by the proposed Senator Paul Simon Water for the World legislation, is the establishment of a special coordinator for international water issues at the Department of State and the creation of an Office on Water at USAID.⁵² Whether a special office on international water issues is created, or whether a special envoy on international water issues is named, it will be essential to ensure that the links between water, sanitation, and health are appropriately prioritized within the broader U.S. diplomatic outreach on water issues.

Recommendations

- An influential, high-level water coordinator at the Department of State should be empowered to coordinate interagency work on integrating water, sanitation, and health issues.
- All agencies working internationally at the intersection of water and health should be required to collect and provide information about international activities related to water and health to interagency coordinating bodies in order to contribute to policy deliberations about addressing water within the context of broader global health challenges.
- The Department of Defense and the Millennium Challenge Corporation should be better integrated into interagency discussions of foreign assistance regarding water and health in order to improve policy planning and program activities.

Limited Political Leadership in Promoting Water and Sanitation within Global Health Policy Settings

In recent years the United States has missed opportunities to take the lead in advocating for a greater international commitment to water, sanitation, and hygiene issues in global health venues. For example, the World Health Assembly (WHA) offers WHO member states the opportunity to discuss significant global health challenges with health ministers from all member countries. Prior to the WHA, which meets each May, the WHO Executive Board develops an agenda and considers issues to put forward in the form of resolutions. The secretary of the Department of Health and Human Services (HHS) represents the United States at the WHA, and the United States recently completed a three-year term on the Executive Board. But although a number of U.S. government agencies, including components of HHS such as the CDC, are recognized for

⁵² CSIS, Global Water Futures Project, *Declaration on U.S. Policy and the Global Challenge of Water*, March 2009; S.624, 111th Congress, 1st Session, and H.R. 2030, 111th Congress, 1st Session, p. 8.

their technical expertise on and research regarding international water, sanitation, and hygiene issues, HHS has not taken the lead at the policy level in advancing resolutions committing member states to greater action on global water issues while serving on the board.

To some extent, the United States has also missed opportunities to make clear the links between health and water in high-level political meetings. Through G-8 processes, the United States has supported statements regarding the importance of international water issues. At the 2003 G-8 Summit in Evian, leaders committed to a Water Action Plan to improve water governance, finance, and infrastructure.⁵³ In Hokkaido-Toyako in 2008, they reaffirmed the focus on water in the context of development in Africa and also formalized a water experts' group.⁵⁴ At the 2009 L'Aquila Summit, G-8 and African leaders agreed that “lack of access to water and basic sanitation is a serious threat to a healthy and dignified life and to human development.” Leaders agreed to support a “strengthened G-8–Africa partnership” on water and sanitation to increase investments in the sector. However, in L'Aquila, as at other G-8 Summits, drinking water and sanitation access issues were framed within environmental sustainability and development discussions and seen as related—but not integral—to the broader discussions regarding global health.⁵⁵ This is unfortunate, because global health topics such as HIV/AIDS, polio eradication, health systems strengthening, and pandemic preparedness have featured prominently at the G-8 meetings in recent years.

Recommendations

- The United States should strengthen its own commitment to global health by increasing funding for projects at the intersection of water and health and by scaling up technical assistance initiatives.
- The United States should share its own history and experience improving health by addressing water, sanitation, and hygiene issues.
- It should encourage greater commitment to action on water, sanitation, and hygiene through high-level advocacy within global health coordinating bodies, including the World Health Assembly, as well as at the UNICEF Executive Board meetings, the G-8, the G-20, the United Nations General Assembly, and other high-level discussions.
- The United States should support the naming of a dynamic, high-profile United Nations special envoy on WSH issues to serve as a high-level advocate for the sector and, in particular, to confront the social challenges of discussing sanitation and hygiene issues.

⁵³ 2003 G-8 Summit documents, “Water: A G8 Action Plan,” http://www.g8.fr/evian/english/navigation/2003_g8_summit/summit_documents/water_-_a_g8_action_plan.html.

⁵⁴ G-8 Hokkaido Toyako Summit. “G8 Hokkaido Toyako Summit Leaders Declaration” July 8, 2008, http://www.mofa.go.jp/policy/economy/summit/2008/doc/doc080714__en.html.

⁵⁵ “Access to Water,” [http://www.g8italia2009.it/static/G8_Allegato/factsheetwater_EN\[1\].pdf](http://www.g8italia2009.it/static/G8_Allegato/factsheetwater_EN[1].pdf).

Obstacles to Program Scale-Up and Sustainability

Some observers note that when it comes to projects that focus on the links between water and health, the United States appears to engage in multiple small-scale projects across various countries rather than focusing attention on scaling up initiatives to the national level in cooperation with governments and other players. Several factors appear to limit scale up and project sustainability. First short-term funding cycles limit the sustainability of funding in some cases. Just as a project is getting off the ground, a new set of priorities and earmarks can shift funds to a new theme or sector. Second, contracting and hiring practices frequently limit the potential of short-term projects to develop the capacity of local health managers to carry out long-term work related to health and water. In part this is because USAID tends to channel funds for development projects through U.S.-based contractors that may have fewer ties than local NGOs to communities most vulnerable to the health consequences of limited access to water and sanitation services. Department of Defense-funded programs also rely heavily on the use of equipment and materials from the United States rather than use local manufacturers or providers in support of entrepreneurial activities in the countries where work is taking shape. Third, the structure of the Foreign Assistance Framework—and the way anticipated project outcomes are articulated and monitored—favor service delivery and bilateral agreements over investments in multilateral institutions that may have local networks capable of facilitating outreach to hard-to-reach communities and that are more likely to use locally available materials. These practices and structures can make it difficult for the United States to contribute to ventures that may have better reach or capacity to deliver services at the local level. These ventures include the World Bank’s Water and Sanitation Program (WSP) or the new Global Sanitation Fund, which is managed by the Water and Sanitation Supply Collaborative Council.⁵⁶

The clear links between water, sanitation, and health would seem to make carrying out water, sanitation, and hygiene activities within a variety of global health programs ideal. Indeed, the importance of safe drinking water and sanitation to the survival of children under five or of people living with HIV/AIDS makes integrating safe drinking water and sanitation activities into Maternal and Child Health (MCH) and PEPFAR programs an obvious choice. It could be argued that any program in which health care workers interact with patients should have the facilities in which physicians, nurses, and their assistants may wash their hands with soap and offer safe drinking water to patients who must swallow medicines. However, within the Foreign Assistance Framework, activities related to drinking water, sanitation, and hygiene at the household level are packaged as a sub-element located under the maternal and child health element in the framework’s health program area, while activities related to the provision of water and sanitation infrastructure are located under a separate water supply and sanitation program element.⁵⁷ In existing reporting mechanisms, activities carried out at the sub-element level are often invisible,

⁵⁶ Water and Sanitation Supply Collaborative Council, “Global Sanitation Fund,” <http://www.wsscc.org/en/what-we-do/global-sanitation-fund/index.htm>.

⁵⁷ See <http://www.state.gov/documents/organization/115258.pdf>.

making it difficult to know exactly where activities designed to improve health through water and sanitation for families are taking place. The framework and reporting requirements also currently limit the extent to which activities carried out under one element may be smoothly integrated into existing delivery platforms related to other elements, making the integration of water, sanitation, and hygiene work into programs focused on HIV/AIDS, nutrition, or the strengthening of health systems a challenge.

Recommendations

- Building on existing strengths within U.S. global health outreach, WSH initiatives should be incorporated into all major U.S. global health programs, including those related to HIV/AIDS, malaria, tuberculosis, pandemic planning, maternal and child health, family planning, and neglected tropical diseases.
- As a start, the United States could commit a small percentage of funds for each health-related program to ensuring water and soap for hand washing by health personnel and drinking water for medicine delivery in health clinics in every community where U.S.-funded programs are active. The United States could then extend this commitment to all clinics in countries where it provides funding or technical assistance for global health.

Conclusions

With the Obama administration's announcement of a new Global Health Initiative, the time is right for U.S. agencies to assert political leadership in addressing the persistent and significant global health challenges related to water and sanitation. To do this well, the United States must begin by improving interagency coordination regarding water and health; develop a comprehensive strategy for engaging internationally on WSH issues within U.S. global health programs; and exercise leadership to advance international action and commitment on WSH topics within global health policy discussions.