



# Global Access to Clean Drinking Water and Sanitation: U.S. and International Programs

**Tiaji Salaam-Blyther**  
Specialist in Global Health

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## Summary

According to a 2012 report released by the World Health Organization (WHO) and the United Nations Children's Fund (UNICEF), roughly 780 million people around the world lack access to clean drinking water and an estimated 2.5 billion people (roughly 40% of the world's population) are without access to safe sanitation facilities. The United States has long supported efforts to improve global access to clean water, sanitation, and hygiene (WASH). In 2000, for example, the United States signed on to the Millennium Development Goals, one of which includes a target to halve the proportion of people without access to safe drinking water and basic sanitation by 2015. In 2002, the United States also participated in the 2002 World Summit on Sustainable Development, which emphasized the need to address limited access to clean water and sanitation among the world's poor. The 109<sup>th</sup> Congress enacted legislation to advance these global goals through the Senator Paul Simon Water for the Poor Act of 2005 (P.L. 109-121 [Water for the Poor Act]). In March 2012, the U.S. Agency for International Development (USAID) announced that it had joined the Sanitation and Water for All partnership—a coalition of governments, donors, civil society and development groups committed to advancing sustainable access to clean drinking water and sanitation.

Congressional support for the act was motivated, in part, by calls to augment funding for WASH programs and improve the integration of WASH activities into broader U.S. foreign aid objectives and programs, as well as global health efforts. The act called for USAID to bolster support for WASH programs, further synthesize WASH activities into global health programs, and contribute to global goals to halve the proportion of people without access to clean water and sanitation by 2015. In the 111<sup>th</sup> Congress, the Senator Paul Simon Water for the World Act of 2010 was introduced, but not enacted. That bill would have amended the Water for the Poor Act and addressed several concerns observers raised regarding the Water for the Poor Act, particularly by creating senior leadership within USAID to address water and sanitation issues, assessing U.S. water and sanitation programs, and strengthening reporting requirements. A new bill, introduced in the 112<sup>th</sup> Congress as the proposed Water for the World Act (S. 641), awaits action by the Senate Committee on Foreign Relations.

Several agencies contribute to U.S. efforts to improve global access to clean drinking water and sanitation, of which programs implemented by the Millennium Challenge Corporation (MCC) and USAID make up roughly 90%. In FY2010, for example, the United States invested \$953 million on water and sanitation programs worldwide, including \$898 million provided by USAID and MCC. Appropriations for water projects are provided to USAID annually, while MCC receives multi-year funding for its country compacts that include support for water projects. As such, spending by MCC on water projects may vary significantly from year to year and may not be requested annually.

The President requested \$302 million for USAID's water activities for FY2012 and Congress appropriated not less than \$315 million for international water and sanitation programs through the FY2012 Consolidated Appropriations. The FY2013 request for USAID's water and sanitation efforts was slightly lower at \$299.1 million. This report addresses congressional efforts to address limited access to clean drinking water and sanitation, outlines related programs implemented by USAID and MCC, and analyzes issues related to U.S. and international drinking water and sanitation programs that the 112<sup>th</sup> Congress might consider.

## Contents

Introduction.....	1
Background.....	2
Global Access Rates to Clean Water and Sanitation.....	6
Clean Water .....	8
Sanitation.....	10
International Spending on Water and Sanitation.....	12
Water and Sanitation Funding Needs .....	13
Congressional Actions .....	13
U.S. Foreign Assistance for Water and Sanitation.....	14
U.S. Progress in Meeting Clean Drinking Water Targets .....	15
Water for the Poor Act, Implementing Agencies .....	16
U.S. Department of State.....	17
U.S. Agency for International Development.....	17
Distribution of USAID WASH Resources, FY2006-FY2010.....	19
Millennium Challenge Corporation .....	20
U.S. Global Water and Sanitation Efforts: Issues .....	21
Clarifying Roles and Responsibilities and Authorizing Funding .....	21
Balancing Funding Between WASH and Other Water Areas .....	22
Balancing Regional Investments .....	22
Ensuring Accuracy of Data.....	24
Sustainability/Prioritizing Operations and Management.....	24
Summary of Key Issues .....	25

## Figures

Figure 1. WASH Terminology .....	4
Figure 2. The Water, Sanitation, and Poverty Cycle.....	6
Figure 3. Progress Toward MDG Water and Sanitation Targets, 1990-2015.....	7
Figure 4. Global Access to Clean Water, 2010 .....	9
Figure 5. Global Access to Sanitation, 2010.....	11
Figure 6. ODA Commitments and Disbursements, 2005-2010 .....	12
Figure 7. Number of People Who Gained Improved Access to Drinking Water and Sanitation Through U.S. Programs, 2010.....	16
Figure 8. USAID Obligations on WASH Activities, FY2006-FY2010 .....	19
Figure 9. USAID Water & Sanitation Obligations by Country, FY2010.....	20
Figure A-1. Water and Sanitation Access in Sub-Saharan Africa, 2004-2009.....	28
Figure F-1. Access to Drinking Water & Sanitation, High Priority Countries, FY2009 .....	36
Figure G-1. Number of People Who Gained Access to Water and Sanitation by Region, 1990-2010.....	39

## **Tables**

Table 1. Top Five Donor Countries for Water and Sanitation, 2005-2010 .....	13
Table 2. Number of People in Target Areas with First-Time Access to Improved Drinking Water Supply as a Result of U.S. Assistance, FY2006-FY2012 .....	15
Table 3. USAID Areas of Support for the Water Sector .....	18
Table 4. USAID Obligations for Water by Sector, FY2004-FY2012 .....	18
Table B-1. Official Development Assistance Commitments for Water and Sanitation .....	29
Table E-1. MCC Water and Sanitation Compacts, 2006-2008 .....	34
Table G-1. Explanation of Water Person Years.....	38

## **Appendixes**

Appendix A. Water and Sanitation Access in Sub-Saharan Africa, by Wealth and Residence, 2004-2009 .....	28
Appendix B. Official Development Assistance Commitments for Water and Sanitation, 2005-2010 .....	29
Appendix C. Summary of S. 641, The proposed Water for the World Act of 2011 .....	31
Appendix D. Description of USAID and State Department Accounts .....	33
Appendix E. MCC Water and Sanitation Compacts by Country .....	34
Appendix F. Access to Drinking Water & Sanitation, High Priority Countries, FY2009 .....	36
Appendix G. Measuring and Evaluating WASH Programs: Challenges.....	37

## **Contacts**

Author Contact Information.....	40
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## Introduction

Tainted water and unsanitary practices are at the root of many health problems in the developing world and are hindering U.S. and international global health efforts. Congressional interest in combating this problem is strong, evidenced by the passage of P.L. 109-121, The Senator Paul Simon Water for the Poor Act of 2005 (Water for the Poor Act). The law amended the Foreign Assistance Act of 1961<sup>1</sup> to make the provision of “affordable and equitable access to safe water and sanitation in developing countries” a U.S. foreign policy priority. The act also called for U.S. agencies to work toward halving the 2009 level of people without access to clean drinking water and sanitation by 2015. Key provisions of the law

- direct the Secretary of State, in consultation with the U.S. Agency for International Development (USAID) and other implementing agencies, to develop and implement a strategy that boosts access to safe drinking water and sanitation;
- require the Department of State to report annually on U.S. efforts to expand global access to clean drinking water and sanitation; and
- urge USAID to raise resources for and attention on water and sanitation, and better integrate water, sanitation, and hygiene (WASH) activities within global health efforts.

Congressional support for the legislation was motivated, in part, by concerns that the United States had not given WASH programs sufficient priority and that these efforts needed to be better aligned with U.S. foreign aid programs, particularly global health efforts.<sup>2</sup> Support for the act was also tied to previously established commitments by the United States to support attainment of the Millennium Development Goals.

The Obama Administration continues to demonstrate support for advancing access to clean water and sanitation. On World Water Day in March 2010, Secretary of State Hillary Clinton pledged to elevate water issues and later called on Under Secretary for Democracy and Global Affairs Maria Otero and USAID Administrator Rajiv Shah to

- spearhead U.S. efforts to address water issues;
- develop a comprehensive approach to addressing water-related challenges;
- identify areas of investment that can deliver sustainable, measurable results; and
- maintain a long-term perspective on solving water-related issues.<sup>3</sup>

In March 2012, USAID announced that it had joined the Sanitation and Water for All (SWA) partnership—a coalition of governments, donors, civil society, and development groups committed to advancing sustainable access to clean drinking water and sanitation.<sup>4</sup>

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<sup>1</sup> 22 U.S.C.A. §2151.

<sup>2</sup> See H.Rept. 109-260.

<sup>3</sup> Hillary Clinton, "Secretary of State," Remarks at National Geographic Society, Washington, DC, March 22, 2010.

<sup>4</sup> USAID, "USAID Joins Global Water and Sanitation Partnership," press release, April 20, 2012, (continued...)

Generally speaking, water-related efforts can be grouped into three areas: water supply, sanitation, and hygiene (WASH), water resource management, and water productivity.<sup>5</sup>

- **WASH** activities are aimed at addressing the health consequences of inadequate access to clean drinking water and sanitation.
- **Water resource management** programs promote policy and legal reforms, build local capacity, and strengthen water resources planning, management, and governance.
- **Water productivity** projects seek to make water use more efficient for the preservation of water reserves, and reduce pollution and other threats to water quality for the protection of water supplies.

This report focuses on bilateral WASH schemes authorized by the Water for the Poor Act. These programs are monitored and reported by the Department of State and implemented primarily by USAID and the Millennium Challenge Corporation (MCC). In FY2009, USAID and MCC accounted for roughly 90% of all U.S. spending on the issue.<sup>6</sup> Broader water-related efforts supported by other U.S. agencies and departments<sup>7</sup> are not addressed, nor are water and sanitation efforts implemented by a variety of international actors—including multilateral groups like the World Bank, private businesses like Procter and Gamble, and foundations like the Bill & Melinda Gates Foundation. This report identifies some issues that donors and U.S. agencies face while carrying out global drinking water and sanitation projects.

## Background

Roughly 780 million people lack access to clean drinking water and some 2.5 billion people are without adequate sanitation facilities.<sup>8</sup> The World Health Organization (WHO) estimates 6.3% of all deaths are caused by limited access to

- safe drinking water;
- improved sanitation facilities and hygiene practices; and
- water management practices that reduce the transmission of water-borne diseases.<sup>9</sup>

According to the United Nations (U.N.), more than 14,000 people die daily from water-borne illnesses.<sup>10</sup> The bulk of these deaths are related to a number of infections, including

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(...continued)

<http://www.usaid.gov/news-information/press-releases/usaid-joins-global-water-and-sanitation-partnership>. For more information on SWA, see its website at <http://www.sanitationandwaterforall.org>.

<sup>5</sup> For more information on each of these, see USAID's webpage on water and sanitation at <http://www.usaid.gov/what-we-do/water-and-sanitation>.

<sup>6</sup> U.S. Department of State, *Senator Paul Simon Water for the Poor Act: Report to Congress*, June 2010, p. v, <http://www.state.gov/documents/organization/146141.pdf>.

<sup>7</sup> For more information on activities by other U.S. agencies in support of WASH activities, see U.S. Department of State, *Senator Paul Simon Water for the Poor Act: Report to Congress*, June 2010, p. 71.

<sup>8</sup> UNICEF and WHO, *Progress on Sanitation and Drinking Water: 2012 Update*, 2012, p.2.

<sup>9</sup> WHO, *Safer Water, Better Health*, 2008, p. 10.

- 2 billion cases of intestinal worms;
- 5 million cases of lymphatic filariasis and trachoma, each;
- 1.4 million child diarrheal deaths; and
- 500,000 deaths from malaria.

Children are especially susceptible to unsafe water and poor sanitation. Related death and disability rates are twice as high among children younger than 14. Some 5,000 children die daily from preventable water- and sanitation-related diseases, 90% of whom die before age five.<sup>11</sup>

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(...continued)

<sup>10</sup> Information in this paragraph and the subsequent one was summarized from the United Nations 2005 World Summit website at <http://www.un.org/summit/water.html>, accessed on July 31, 2012.

<sup>11</sup> United Nations Development Program, *Water Supply and Sanitation*, <http://www.undp.org/water/priorityareas/supply.html>.

Figure 1. WASH Terminology

IMPROVED SANITATION	<b>Use of the following facilities:</b>	<ul style="list-style-type: none"> <li>• Flush or pour-flush to: <ul style="list-style-type: none"> <li>• piped sewer system</li> <li>• septic tank</li> <li>• pit latrine</li> </ul> </li> <li>• Ventilated improved pit (VIP) latrine</li> <li>• Pit latrine with slab</li> <li>• Composting toilet</li> </ul>	UNIMPROVED SANITATION
	<b>Use of the following sources:</b>	<ul style="list-style-type: none"> <li>• Piped water into dwelling, yard or plot</li> <li>• Public tap or standpipe</li> <li>• Tubewell or borehole</li> <li>• Protected dug well</li> <li>• Protected spring</li> <li>• Rainwater collection</li> </ul>	
IMPROVED DRINKING-WATER	<b>Use of the following facilities:</b>	<ul style="list-style-type: none"> <li>• Flush or pour-flush to elsewhere (that is, not to piped sewer system, septic tank or pit latrine)</li> <li>• Pit latrine without slab/open pit</li> <li>• Bucket</li> <li>• Hanging toilet or hanging latrine</li> </ul>	UNIMPROVED DRINKING-WATER
	<b>Shared facilities of any type No facilities, bush or field</b>	<b>Use of the following sources:</b>	
		<ul style="list-style-type: none"> <li>• Unprotected dug well</li> <li>• Unprotected spring</li> <li>• Cart with small tank or drum</li> <li>• Tanker truck</li> <li>• Surface water (river, dam, lake, pond, stream, canal, irrigation channel)</li> <li>• Bottled water</li> </ul>	

**Source:** Reproduced by CRS from U.N. Children's Fund (UNICEF) and WHO, *Progress on Sanitation and Drinking Water: 2010 Update*, 2010, p. 34.



WHO believes the impact of unclean water and unsanitary practices is underestimated, because of weak data collection and insufficient research on several WASH issues. WHO also expects global phenomena, such as climate change, to exacerbate WASH-related morbidity and mortality by creating hospitable environments for disease-carrying pests and facilitating the spread of water-related diseases.

Water advocates link inadequate access to potable water and sanitation with poverty because it affects many aspects of people's lives. These areas include

- **Health**—Several diseases, including diarrhea and several neglected tropical diseases, are contracted through contact with bacteria-infested water and soil and cause millions of deaths and illnesses annually.<sup>12</sup> At the same time, mosquitoes, flies, and other vectors breed in water. Good sewerage and drainage systems can eliminate breeding grounds and water can be treated to remove bacteria found in tainted water.
- **Agriculture and economic growth**—Parasitic worms afflict more than 1 billion people annually and cause a variety of ailments, including stunting, malnutrition, and anemia. Worm eggs are deposited in the soil when humans carrying the worms defecate on the ground. Humans can be infected should worms penetrate the skin; they fail to adequately wash their hands before eating and after touching tainted soil; or they eat crops grown in contaminated soil. While fleeing infested fields, farmers may relocate to areas with lower quality soil and less water access and may inadvertently carry the worm eggs with them.<sup>13</sup> Expanded access to improved farming technology (such as irrigation, fertilizers and mechanized farming tools) and improved sanitation facilities can help interrupt the transmission of these diseases.
- **Education**—Women and children are often tasked with collecting water. While collecting water, children miss school. Following menses, girls without access to sanitation facilities may drop out of school.<sup>14</sup> Access to clean water can minimize the amount of time children spend collecting water and allow more time for education. At the same time, availability of sanitation facilities at schools can help with school completion rates among girls.
- **Conflict**—A growing number of conflicts are exacerbated by limited access to water. Increasing demand and greater variability in rainfall can inflame tensions, as seen in Kenya.<sup>15</sup> Regional water management strategies can help deter conflict and improve international relations.

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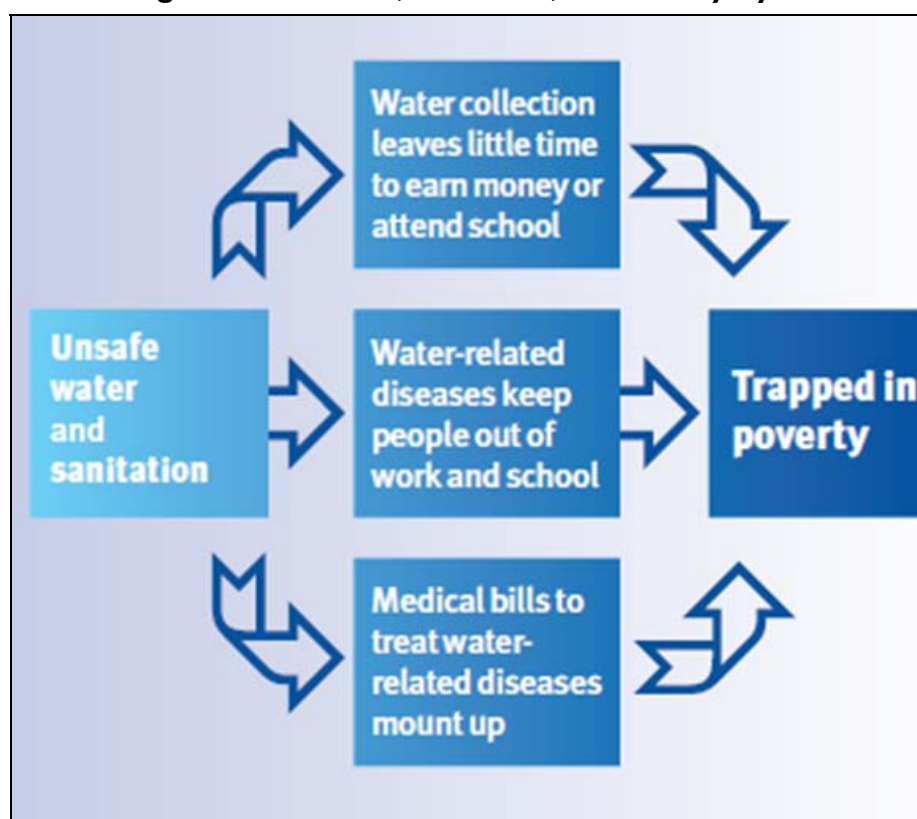
<sup>12</sup> Neglected tropical diseases are a group of diseases that impact more than 1 billion people worldwide who are mostly poor and rural populations. For more information on neglected tropical diseases, see CRS Report R41607, *Neglected Tropical Diseases: Background, Responses, and Issues for Congress*, by Tiaji Salaam-Blyther.

<sup>13</sup> See Peter Hotez et al., "Rescuing the Bottom Billion Through Control of Neglected Tropical Diseases," *The Lancet*, vol. 373 (May 2, 2009), pp. 1570-1575.

<sup>14</sup> Water Aid, *Is menstrual hygiene and management an issue for adolescent girls?*, March 2009, p. ii, [http://www.wateraid.org/documents/plugin\\_documents/wa\\_nep\\_mhm\\_rep\\_march2009.pdf](http://www.wateraid.org/documents/plugin_documents/wa_nep_mhm_rep_march2009.pdf).

<sup>15</sup> U.N. Office for the Coordination of Humanitarian Affairs, "KENYA: Early drought prompts conflict," *IRIN News*, July 26, 2012.

**Figure 2. The Water, Sanitation, and Poverty Cycle**



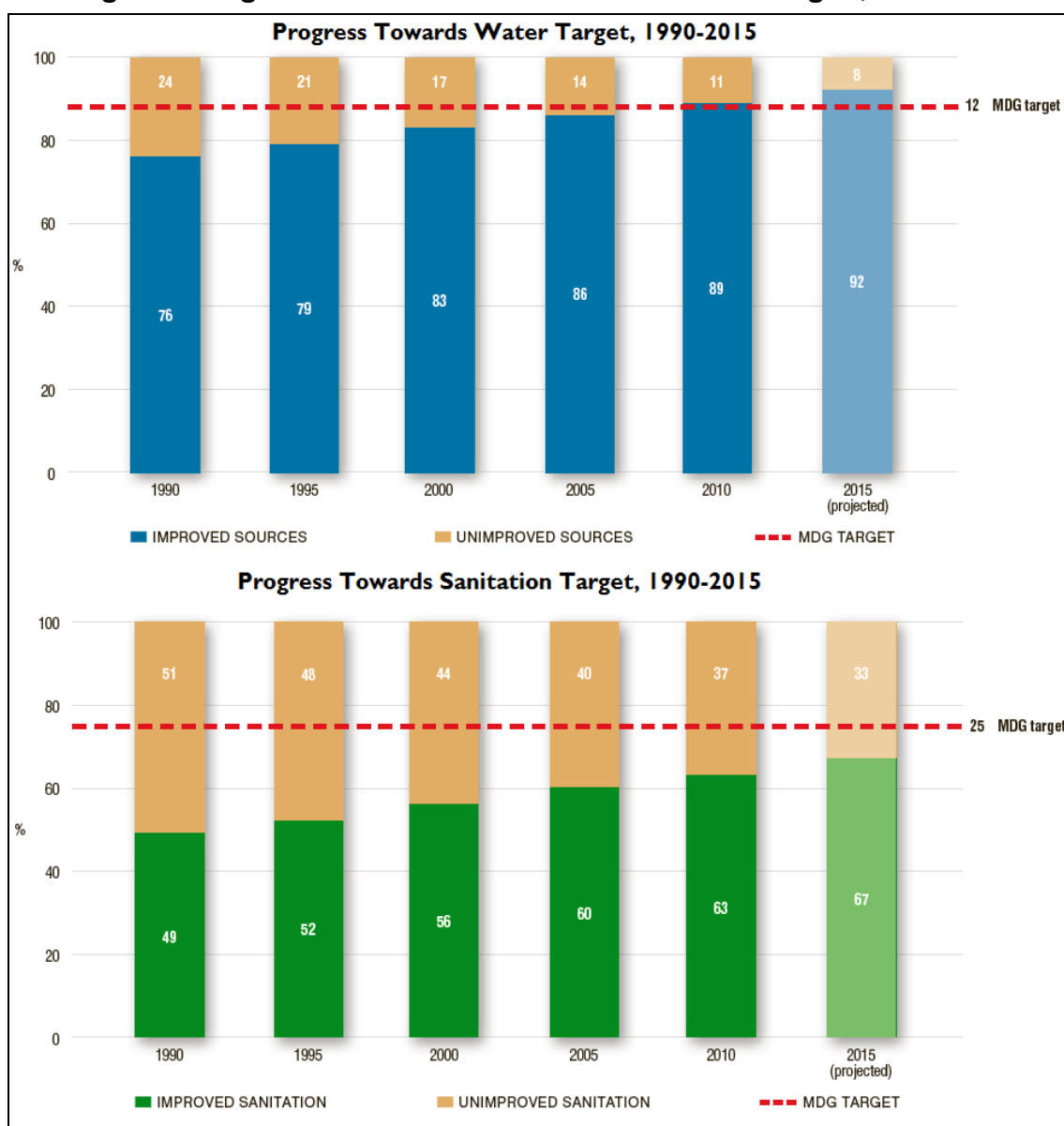
Source: WaterAid, Water for Life, November 8, 2009\CRS

## Global Access Rates to Clean Water and Sanitation

In September 2000, the United Nations (U.N.) adopted the Millennium Declaration, which committed member states to support needy countries in reaching eight Millennium Development Goals (MDG) by 2015.<sup>16</sup> Progress toward the eight MDGs is measured through 21 targets and 60 indicators. Target 7C aims to halve, from 2000 levels, the share of people without access to safe drinking water and basic sanitation by 2015. In March 2012, WHO announced the world had met the MDG target for clean water (**Figure 3**).<sup>17</sup>

<sup>16</sup> U.N. General Assembly, *United Nations Millennium Declaration*, September 18, 2000, <http://www.un.org/millennium/declaration/ares552e.pdf>. The eight MDGs are eradicate poverty and hunger (MDG1), achieve universal primary education (MDG2), promote gender equality and empower women (MDG3), reduce child mortality by two-thirds (MDG4), reduce maternal mortality by two-thirds (MDG5), combat HIV/AIDS, malaria, and other diseases (MDG6), ensure environmental sustainability, including halving the proportion of those without access to clean water and sanitation (MDG7), and develop a global partnership for development (MDG8).

<sup>17</sup> WHO, "Millennium Development Goal drinking water target met," press release, March 6, 2012, [http://www.who.int/mediacentre/news/releases/2012/drinking\\_water\\_20120306/en/index.html](http://www.who.int/mediacentre/news/releases/2012/drinking_water_20120306/en/index.html).

**Figure 3. Progress Toward MDG Water and Sanitation Targets, 1990-2015**

**Source:** Compiled by CRS from UNICEF and WHO, *Progress on Sanitation and Drinking Water: 2012 Update*, 2012, pp. 4 and 15.

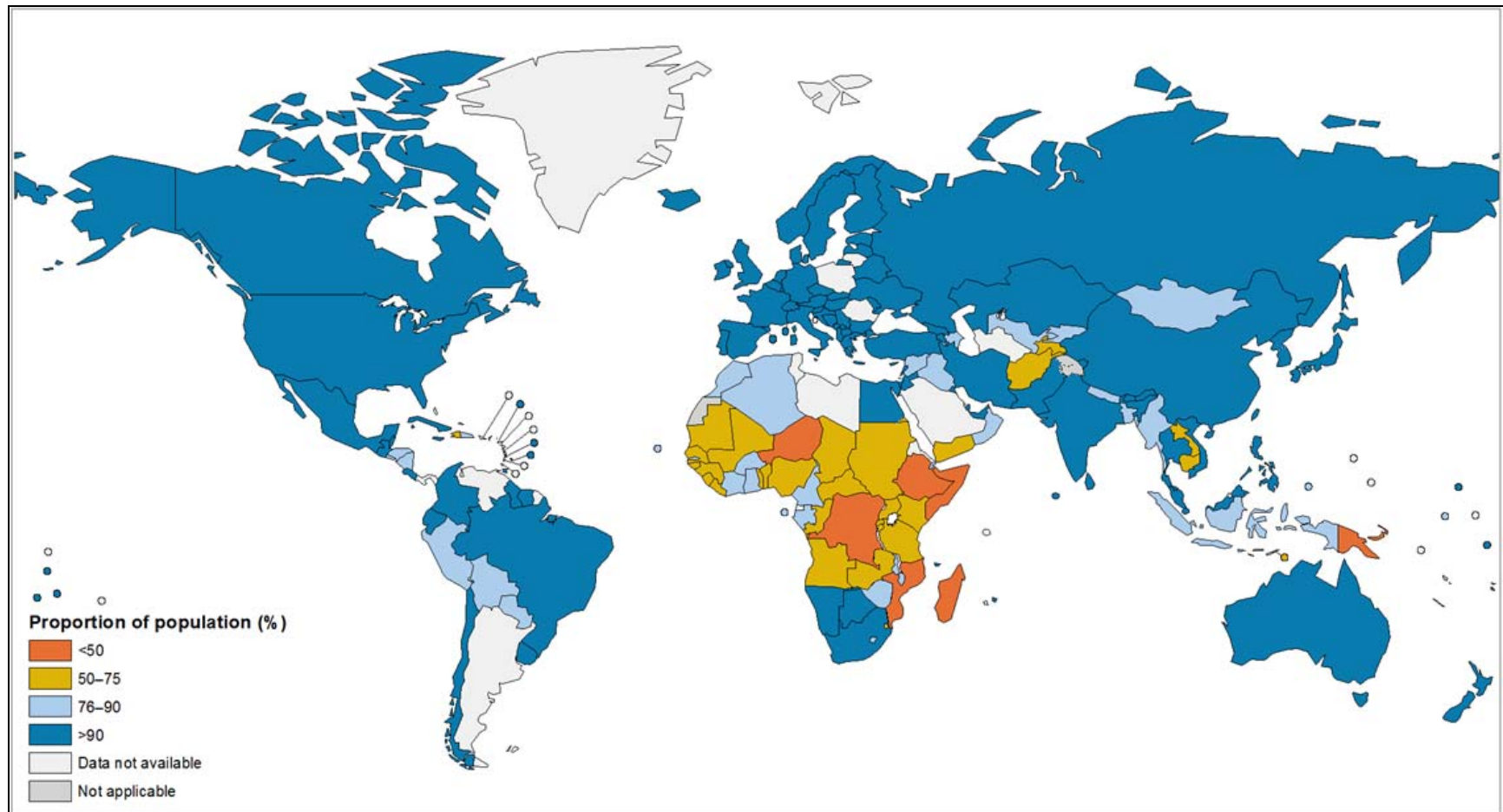
More than 2 billion people have gained access to improved water sources from 1990 to 2010 (almost half of whom lived in China or India, **Figure G-1**).<sup>18</sup> Despite this worldwide achievement, some regions were not expected to reach the target, particularly much of sub-Saharan Africa and parts of Asia. At the same time, the world is not on track to reach the sanitation targets.

<sup>18</sup> See UNICEF and WHO, *Progress on Sanitation and Drinking Water: 2012 Update*, 2012, p.4.

## **Clean Water**

While worldwide access to clean drinking water has progressed enough to reach the MDG target, 780 million people remain without access to clean drinking water. Significant disparities exist among and within countries (**Figure 4**). Roughly 90% or more of populations across Latin America and the Caribbean, Northern Africa, and much of Asia have access to clean drinking water, while an average of 61% of people in sub-Saharan Africa do. Certain segments of the population in sub-Saharan Africa, however, enjoy broad access to clean drinking water. Across 35 countries in sub-Saharan Africa, over 90% of the richest quintile in urban areas use improved water sources and over 60% have piped water on their premises (**Appendix A**). In the poorest rural quintile, however, piped water is non-existent.

**Figure 4. Global Access to Clean Water, 2010**



**Source:** WHO World Map Gallery at [http://gamapserver.who.int/mapLibrary/Files/Maps/phe\\_Global\\_water\\_2010.png](http://gamapserver.who.int/mapLibrary/Files/Maps/phe_Global_water_2010.png), accessed on August 2, 2012.

## Sanitation

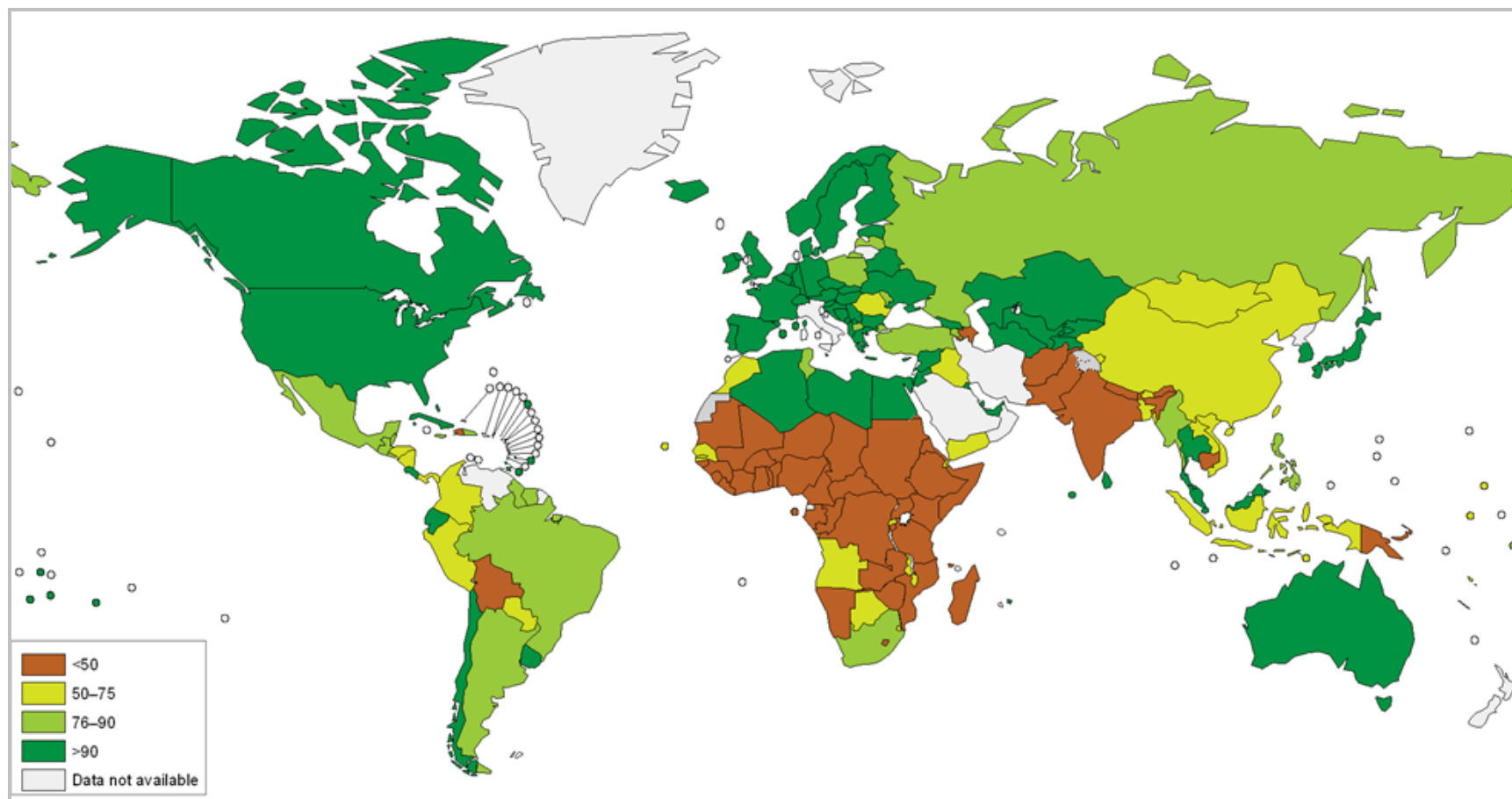
Use of improved sanitation facilities can help to prevent the spread of diseases that are transmitted through human feces, including intestinal worms and other neglected tropical diseases.<sup>19</sup> Access to these facilities is widespread in most industrialized countries while less than half of the people in much of sub-Saharan Africa and southeast Asia have access (**Figure 5**). Global progress in achieving sanitation targets has been skewed. South Asia (led primarily by India) made substantial progress, having halved the proportion of its population using unsafe sanitary systems. In 2010, 69% of people in the region had access to improved sanitation services, up from 46% in 1990. Sub-Saharan Africa made the least progress, having decreased the proportion of its population engaged in unsanitary practices by roughly 15%. In 2010, about 30% of people in the region had access to an improved sanitation facility, up from 26%.

Nonetheless, open defecation rates were the highest across southern Asia. Roughly 41% of the people in the region practiced open defecation in 2010, down from 67% in 1990. Nonetheless, the region made greater strides than sub-Saharan Africa, which had lower rates (25%), but made the least progress in curbing the practice. Open defecation rates were particularly high among the poor who had the least access to sanitation services and were most likely to practice unsanitary practices, including open defecation (**Appendix A**).

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<sup>19</sup> For more information, see CRS Report R41607, *Neglected Tropical Diseases: Background, Responses, and Issues for Congress*, by Tiaji Salaam-Blyther.

**Figure 5. Global Access to Sanitation, 2010**



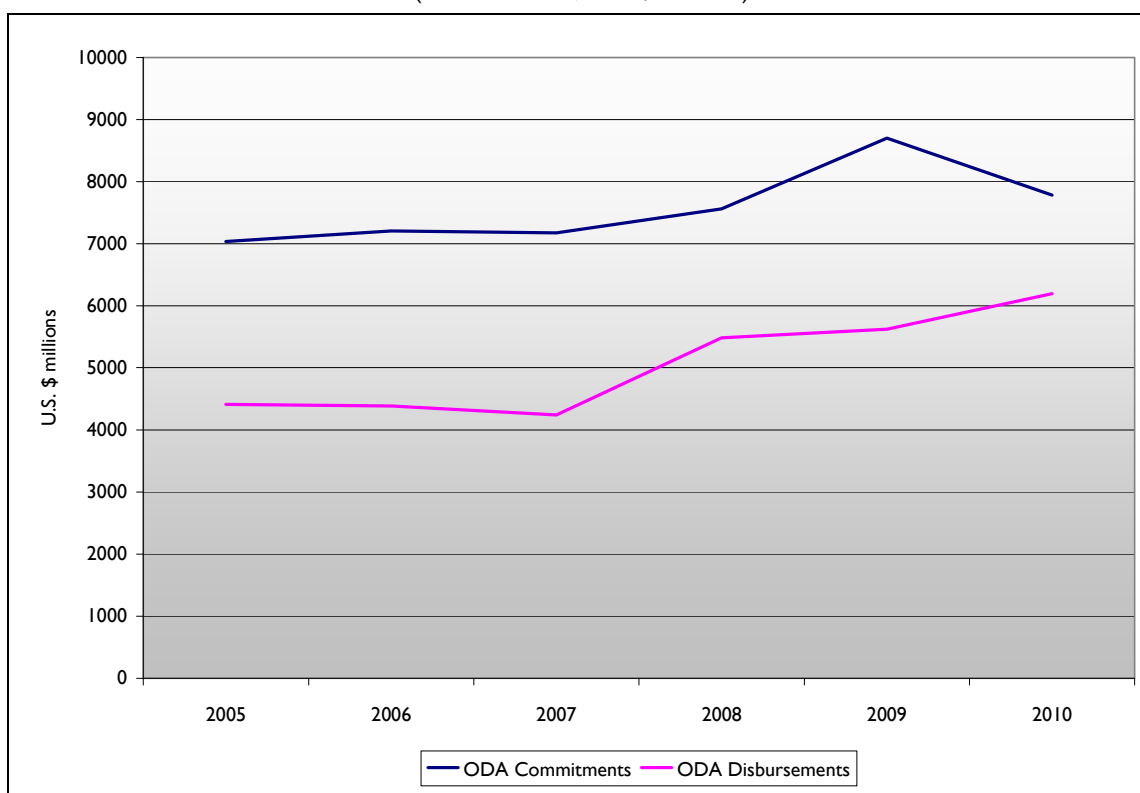
**Source:** WHO World Map Gallery at [http://gamapserver.who.int/mapLibrary/Files/Maps/phe\\_Global\\_sanitation\\_2010.png](http://gamapserver.who.int/mapLibrary/Files/Maps/phe_Global_sanitation_2010.png), accessed on August 2, 2012.

## International Spending on Water and Sanitation

According to the Organization for Economic Cooperation and Development (OECD), global funding for water and sanitation efforts has steadily increased since 1971.<sup>20</sup> Pledges in 2010, however, dropped from 2009 levels (**Figure 6**). In 2010, members of the OECD and multilateral agencies committed \$7.8 billion for improving global access to clean drinking water and sanitation, down from \$8.7 billion in 2009 (**Appendix B**). Roughly 65% of these funds have been disbursed. In 2010, the five largest donors were Japan, Germany, France, the United States, and Spain. The extent to which donors funded these pledges varied. Between 55% and 108% of pledges were funded (**Table 1**).

**Figure 6. ODA Commitments and Disbursements, 2005-2010**

(constant 2010, U.S. \$ millions)



**Source:** Created by CRS from OECD, *Aid Activity Database*, <http://stats.oecd.org/Index.aspx>, accessed on July 31, 2012.

<sup>20</sup> OECD, *Financing Water and Sanitation in Developing Countries: The Contribution of External Aid*, June 2010, <http://www.oecd.org/dataoecd/34/2/45902160.pdf>.



**Table I. Top Five Donor Countries for Water and Sanitation, 2005-2010**

(constant 2010, U.S. \$ millions)

	Donor Commitments						% of Commitments Disbursed					
	2005	2006	2007	2008	2009	2010	2005	2006	2007	2008	2009	2010
Japan	2,533.3	1,594.8	2,498.4	1,916.6	2,899.3	1,933.3	28%	59%	37%	81%	52%	85%
Germany	447.8	546.8	589.4	847.1	785.0	750.8	95%	69%	70%	64%	70%	79%
France	131.7	285.6	385.4	335.3	747.0	500.9	148%	84%	42%	53%	35%	55%
United States	1,139.0	879.2	451.5	865.6	467.2	431.3	111%	102%	127%	27%	61%	92%
Spain	84.0	62.1	109.4	573.6	549.4	308.5	82%	123%	98%	93%	91%	108%

Source: OECD, *Aid Activity Database*, <http://stats.oecd.org/Index.aspx>, accessed on July 31, 2012.

## Water and Sanitation Funding Needs

The World Health Organization estimates that between 2005 and 2015, it would cost \$72 billion annually to implement and maintain enough water and sanitation schemes to meet the water and sanitation targets. Each year, \$18 billion of those funds would be spent on building new systems and \$54 billion on maintaining them.<sup>21</sup>

Commitments by donors (multilateral organizations and donor countries) on water and sanitation are enough to fund roughly half the amount WHO recommends be spent on building new water and sanitation networks in developing countries. Should the expense of operations and management be considered, however, these funds only meet about 12% of the financial needs. Inadequate investments in operations and management can weaken the impact of water and sanitation projects and shorten the lifespan of water and sanitation projects (see “Sustainability/Prioritizing Operations and Management”).

## Congressional Actions

Congressional support for improving access to clean water and sanitation has grown, particularly since FY2003 when Congress directed USAID to make available \$100 million for WASH efforts through its Development Assistance account (see Consolidated Appropriations Resolution, 2003, P.L. 108-7). In FY2006, Congress raised that amount to \$220 million. In FY2008, Congress boosted funding for WASH projects again, appropriating not less than \$300 million for safe drinking water and sanitation supply projects and directing that not less than \$125 million of those funds be spent in sub-Saharan Africa. In each of FY2010-FY2012, Congress appropriated not less than \$315 million for water and sanitation programs. Obligations for water and sanitation activities typically exceed appropriated levels (see “U.S. Agency for International Development”). In FY2011, for example, USAID obligated \$597 million to the water sector, including \$343.7 million for water and sanitation efforts; down from \$642 million in FY2010, when some \$520.4 million was obligated to WASH programs.

<sup>21</sup> Guy Hutton and Jamie Bartram, *Regional and Global Costs of Attaining the Water Supply and Sanitation Target (Target 10) of the Millennium Development Goals*, WHO, 2008, p. iv, [http://www.who.int/water\\_sanitation\\_health/economic/mdg\\_global\\_costing.pdf](http://www.who.int/water_sanitation_health/economic/mdg_global_costing.pdf).

Budgetary increases for water and sanitation efforts followed enactment of The Senator Paul Simon Water for the Poor Act of 2005 (P.L. 109-121), which made the provision of “affordable and equitable access to safe water and sanitation in developing countries” a U.S. foreign policy priority. The act amended the Foreign Assistance Act of 1961 and the Agricultural Trade Development and Assistance Act of 1954, and called for U.S. agencies to seek to halve the proportion of people without access to clean water and sanitation by 2015 (from 2009 levels). The act also called for

- the Secretary of State, in consultation with USAID and other implementing agencies, to develop and implement a strategy to increase affordable and equitable access to safe drinking water and sanitation. The strategy is to include
  - specific and measurable goals, benchmarks, and timetables for improving access to clean water and sanitation;
  - an evaluation of ongoing activities;
  - an assessment of the funding and types of assistance needed to achieve the goals, benchmarks, and timetables related to the strategy;
  - methods to coordinate and integrate U.S. water and sanitation programs with other U.S. development programs, and with other related donor programs;
  - a list of high-priority countries with the greatest need for access to safe water and sanitation and where assistance can make the greatest impact; and
  - an appraisal of recipient government commitments to policies or reforms that support affordable and equitable access to safe water and sanitation.
- the Secretary of State to submit annual reports to Congress on the implementation of the strategy, including the amount the United States obligates for water and sanitation activities in each country; progress made in improving access to clean water and sanitation; and any changes to the strategy.

In the first session of the 112<sup>th</sup> Congress, on March 2011, Senator Richard Durbin introduced the proposed Water for the World Act of 2011 (S. 641). The act calls for the United States to provide, within six years, safe water and sanitation to 100 million people, among other things. For a detailed synopsis of the bill, see **Appendix C**.

## **U.S. Foreign Assistance for Water and Sanitation**

In FY2010, the United States spent some \$953 million on water and sanitation programs worldwide, of which \$898 million was obligated by USAID and MCC.<sup>22</sup> This report focuses on the programs supported by these two agencies, though other agencies also take part in the U.S. response.<sup>23</sup> Other sources of U.S. support include contributions to international organizations and

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<sup>22</sup> U.S. Department of State, Senator Paul Simon Water for the Poor Act: Report to Congress, June 21, 2011, p. 1.

<sup>23</sup> These include: the Centers for Disease Control and Prevention, Department of Defense, Department of State, Environmental Protection Agency, U.S. Geological Survey, National Aeronautics and Space Administration, National Oceanographic and Atmospheric Administration, Overseas Private Investment Corporation, Peace Corps, and U.S. Army Corps of Engineers. See U.S. Department of State, *Senator Paul Simon Water for the Poor Act: Report to Congress*, June 2010, p. 10.

participation in several development banks. In FY2010, for example, the United States contributed approximately \$40 million to nine U.N. organizations in support of international water, sanitation, and emergency relief efforts.<sup>24</sup>

It is important to note that information on U.S. global WASH activities is not always disaggregated from broader water efforts. In this report, efforts related to drinking water, sanitation, and hygiene will be specifically referred to as WASH. Otherwise, references to water programs refer to U.S. efforts to improve access to clean water through any number of efforts including WASH, water resource management, and water productivity.

## U.S. Progress in Meeting Clean Drinking Water Targets

In the FY2012 Congressional Budget Justification (CBJ) for Foreign Operations, the State Department published a set of targets for expanding access to clean drinking water. According to the report, the United States sought to extend clean drinking water to more than 5 million in 2010, but only reached 3 million people (**Table 2**).<sup>25</sup> More than 90% of those assisted resided in Africa or Asia (**Figure 7**). The department attributed the bulk of the shortfall to delays in projects throughout Pakistan, West Bank and Gaza, and the Africa Regional office.

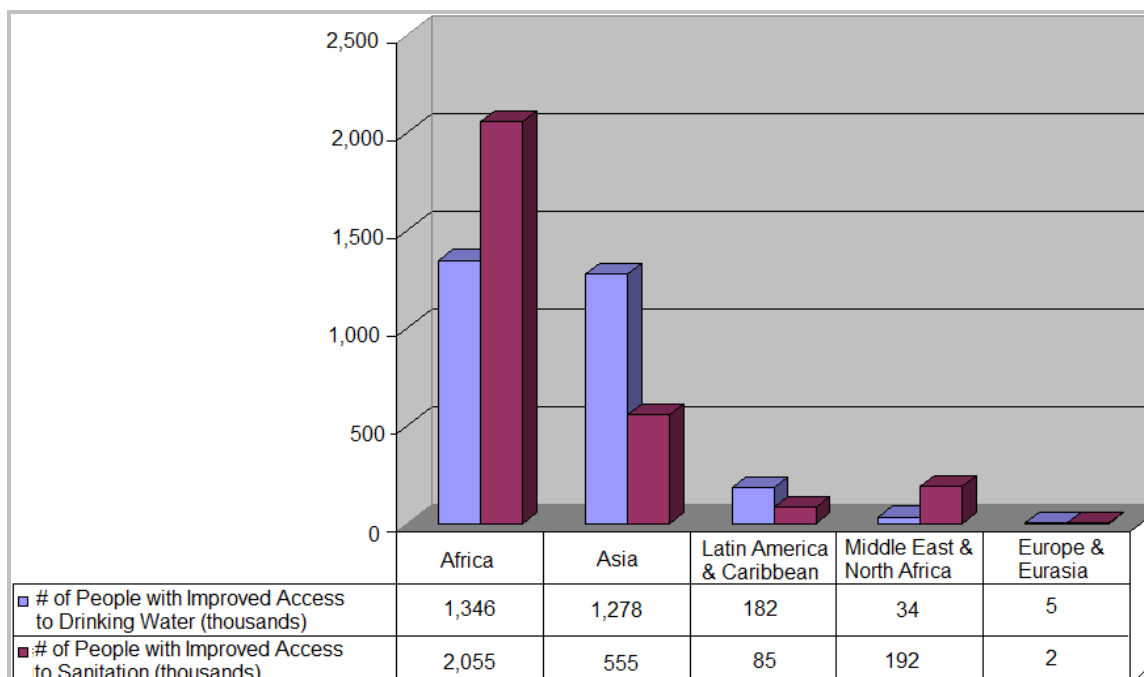
**Table 2. Number of People in Target Areas with First-Time Access to Improved Drinking Water Supply as a Result of U.S. Assistance, FY2006-FY2012**

<b>FY2006 Results</b>	<b>FY2007 Results</b>	<b>FY2008 Results</b>	<b>FY2009 Results</b>	<b>FY2010 Target</b>	<b>FY2010 Results</b>	<b>FY2010 Rating</b>	<b>FY2011 Target</b>	<b>FY2012 Target</b>
1,918,205	4,988,616	4,633,566	7,751,265	5,616,991	2,844,484	Below Target	5,369,572	2,988,050

**Source:** Department of State, *Foreign Operations Congressional Budget Justification*, Volume 2, April 8, 2011, p. 393.

<sup>24</sup> U.S. Department of State, Senator Paul Simon Water for the Poor Act: Report to Congress, June 21, 2011, p. 2.

<sup>25</sup> Information in this section was summarized by CRS from Department of State, *Foreign Operations Congressional Budget Justification*, Volume 2, FY2012, p. 393 <http://www.state.gov/documents/organization/158267.pdf>.

**Figure 7. Number of People Who Gained Improved Access to Drinking Water and Sanitation Through U.S. Programs, 2010**

**Source:** Created by CRS from Department of State, *Senator Paul Simon Water for the Poor Act*, Report to Congress, June 2011, pp. 3-4.

In Pakistan and West Bank and Gaza, delays were caused by shifts in the focus of the programs. The Africa Regional program encountered delays launching a Global Water Development Alliance between Coca-Cola and USAID to support water-related programs in 19 countries. On the other hand, the State Department noted advancements in other areas, particularly in Kenya, where a water treatment project exceeded its target by 252%. The State Department also noted the Coca-Cola partnership “has leveraged \$15 million in private funds to provide improved access to clean water for 500,00 people.”<sup>26</sup>

## Water for the Poor Act, Implementing Agencies

The State Department, USAID, and MCC each play a unique role in reaching the goals indicated in the Water for the Poor Act. The State Department plays a convening and oversight role, USAID works with host governments to expand access to potable water and sanitation and funds related activities, and MCC supports broader national development plans that include WASH activities. As specified by the Water for the Poor Act, the U.S. strategy for expanding access to potable water and sanitation is being jointly developed by the State Department and USAID while USAID and MCC serve as the primary implementers of designated efforts.

<sup>26</sup> U.S. Department of State, *Foreign Operations Congressional Budget Justification*, Volume 2, FY2013, p. 267.

## U.S. Department of State

Each year, the State Department reports to Congress progress made by the federal government in implementing the Water for the Poor Act. Though the report is intended to report on government-wide water and sanitation activities, comprehensive information is only available for USAID-supported efforts with a summary table of water projects supported by MCC. The most recent report, released in June 2011, documents activities supported from FY2006 to FY2010.<sup>27</sup>

In addition to its oversight role, the Department of State plays an important role in expanding access to water and sanitation through diplomatic channels. U.S. officials emphasized the importance of addressing water issues early in the Obama Administration. On World Water Day in March 2010, for example, Secretary of State Hillary Clinton called for a five-pronged water strategy that focused on

- building capacity at the local, national, and regional levels;
- bolstering water diplomacy;
- mobilizing financial support at the local, national, and regional levels;
- researching and developing improved technologies to address water-related issues; and
- broadening partnerships.

Secretary Clinton also pledged to elevate water issues within the Global Partnerships Initiative—an effort to convene actors from various regions and sectors to work on issues of common interest.<sup>28</sup> While making a speech during World Water Day on March 22, 2011, Secretary Clinton underscored the importance of leveraging partnerships to resolve water issues and signed a memorandum of understanding (MOU) with the World Bank to enhance collaboration between the United States and the World Bank on water efforts.<sup>29</sup>

## U.S. Agency for International Development

USAID is the lead implementer of U.S. international clean drinking water and sanitation programs. These efforts are one component of broader efforts to address water issues, including water scarcity, water degradation, and inadequate water network systems. USAID groups its water programs into three sectors: water supply and sanitation, water resource management, and water productivity. **Table 3** describes activities that are typically supported in each of these sectors. Roughly 70% of USAID's budget is spent on water supply and sanitation, which support improvements in water purification, public taps, small-scale piped water, tube wells, small sewer systems, septic tanks, and hygienic latrines. USAID also invests in education programs and public awareness campaigns that promote good sanitation and hygiene.

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<sup>27</sup> See Department of State, *Senator Paul Simon Water for the Poor Act*, Report to Congress, June 2011, <http://www.state.gov/documents/organization/166895.pdf>

<sup>28</sup> For more information on the partnership, see <http://www.state.gov/s/partnerships/>.

<sup>29</sup> See Department of State, "Secretary of State Remarks on World Water Day," press release, March 22, 2011, <http://www.state.gov/secretary/rm/2011/03/158833.htm>. See the MOU at <http://www.state.gov/g/oes/158770.htm>.

**Table 3. USAID Areas of Support for the Water Sector**

Water Supply and Sanitation	Water Resource Management	Water Productivity
Strengthening the capacity and sustainability of small-scale service providers in rural and peri-urban areas;	Addressing related policy, regulatory, and institutional frameworks at the appropriate scale and across all relevant sectors	Applying techniques to foster the efficient use of water in agriculture
Improving the capacity and financial sustainability of utilities that serve cities and towns undergoing population booms	Optimizing water supply and assessing surface and groundwater supplies, water balance, wastewater reuse, and environmental impacts	Helping countries to manage hydrologic variability and adapt to climate change
Mobilizing capital from domestic markets for infrastructure development on a permanent and sustainable basis	Addressing water demand, cost-recovery policies, water technologies, and decentralized water resource management authorities	Reducing water pollution by industry
Improving household- and community-level hygiene and sanitation	Facilitating equitable access to water through participatory and transparent governance	Conserving water use in rural areas

**Source:** Summarized by CRS from USAID, Addressing Water Challenges in the Developing World: A Framework for Action, March 2009.

Every year, USAID reports to Congress how it spent funds on global water activities, which are funded through several accounts.<sup>30</sup> For a description of these accounts, see **Appendix D**. Annual requests for water-related programs, however, do not specify the type of support that will be funded and tend to be less than half the obligated amounts after funding from all sources is considered, including supplemental appropriations. In FY2011, for example, the President requested \$260.4 million for water programs. By the end of the fiscal year, however, USAID had obligated \$596.7 million for water activities, including \$343.8 million for WASH (**Table 4**). Congress appropriated not less than \$315 million for global water and sanitation programs in FY2012, slightly more than requested levels (\$302 million).

**Table 4. USAID Obligations for Water by Sector, FY2004-FY2012**

(current, U.S. \$ millions)

	FY2004 Actual	FY2005 Actual	FY2006 Actual	FY2007 Actual	FY2008 Actual	FY2009 Actual	FY2010 Actual	FY2011 Request	FY2011 Estimate	FY2012 Approp	FY2013 Request
WASH	239.8	216.9	265.0	213.2	389.9	493.0	520.4	n/a	343.8	n/s	n/s
WRM	82.5	60.7	56.0	27.4	58.6	41.2	47.2	n/a	124.4	n/s	n/s
WP	68.4	45.4	22.5	17.4	38.9	45.3	53.1	n/a	98.5	n/s	n/s
DRR	10.0	6.8	5.8	5.7	2.2	50.6	21.5	n/a	30.0	n/s	n/s
<b>TOTAL</b>	<b>400.7</b>	<b>329.8</b>	<b>349.3</b>	<b>263.7</b>	<b>489.6</b>	<b>630.1</b>	<b>642.2</b>	<b>260.4</b>	<b>596.7</b>	<b>315.0</b>	<b>299.1</b>

**Sources:** USAID Budget Office, March 10, 2011, correspondence with the Water Team, September 13, 2011, and the FY2012 Consolidated Appropriations.

**Acronyms:** Appropriation (Approp), not available (n/a), Water Supply, Sanitation, and Hygiene (WASH), Water Resources Management (WRM), Water Productivity (WP), and Disaster Risk Reduction (DRR).

<sup>30</sup> These accounts include: Assistance for Europe, Eurasia, and Central Asia (AEECA), Development Assistance (DA), Economic Support Fund (ESF), Global Health and Child Survival (GHCS), International Disaster Assistance (IDA), and P.L. 480 (food aid).

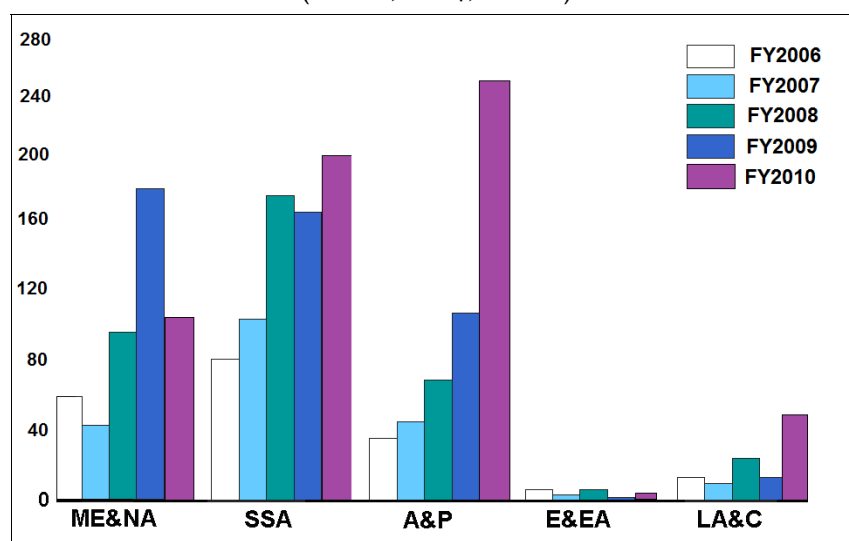
**Notes:** Includes supplemental funding and spending through several accounts, including Assistance for Europe, Eurasia, and Central Asia (AEECA), Development Assistance (DA), Economic Support Fund (ESF), Global Health and Child Survival (GHCS), International Disaster Assistance (IDA), and P.L. 480 (food aid).

## Distribution of USAID WASH Resources, FY2006-FY2010

In September 2010, the U.S. Government Accountability Office (GAO) released a report that analyzed U.S. global water and sanitation efforts from FY2004 through FY2009. This section summarizes these findings and adds details from the State Department June 2011 report to offer a review of USAID global water and sanitation programs from FY2004 through FY2010.

**Figure 8. USAID Obligations on WASH Activities, FY2006-FY2010**

(current, U.S. \$, millions)



**Source:** Created by CRS from GAO, *U.S. Water and Sanitation Aid: Millions of Beneficiaries Reported in Developing Countries, but Department of State Needs to Strengthen Strategic Approach*, September 2010, p. 18 and Department of State, *Senator Paul Simon Water for the Poor Act*, Report to Congress, June 2011, pp. 4-5.

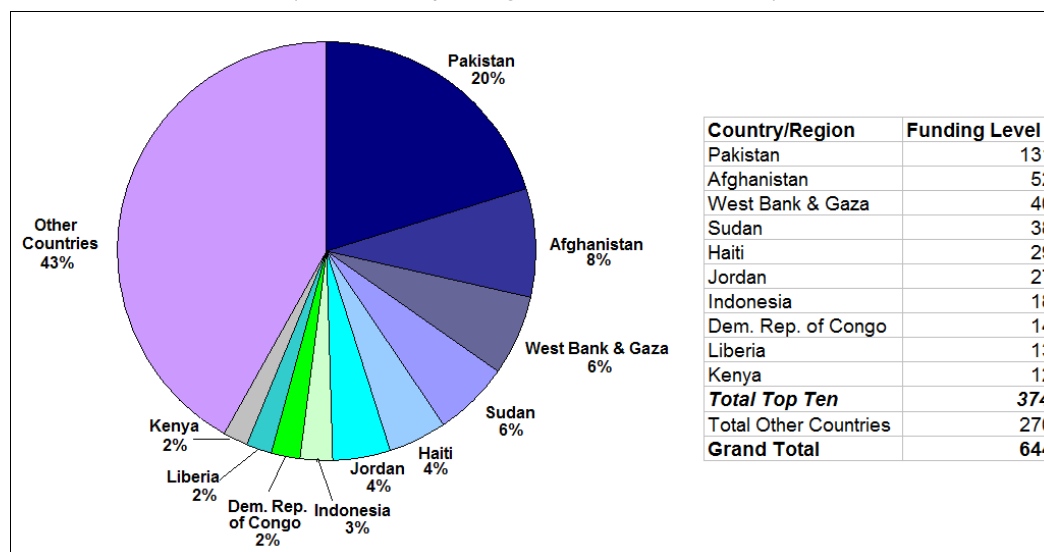
**Acronyms:** Middle East and North Africa (ME&NA), sub-Saharan Africa (SSA), Asia and Pacific (A&P), Europe and Eurasia (E&EA), and Latin America and Caribbean (LA&C).

From FY2006 to FY2009, USAID made the highest investments related to water and sanitation in the regions of the Middle East and North Africa (ME&NA) and sub-Saharan Africa (**Figure 8**).<sup>31</sup> The State Department report of June 2011, however, noted delayed WASH projects in the ME&NA led to lower obligation levels in the region in FY2010. At the same time in that fiscal year, investments in Asia & Pacific (A&P) rose precipitously from FY2009. In 2010, more than half of all funds for water and sanitation programs were obligated in 10 countries (**Figure 9**).

<sup>31</sup> GAO, *U.S. Water and Sanitation Aid: Millions of Beneficiaries Reported in Developing Countries, but Department of State Needs to Strengthen Strategic Approach*, GAO-10-967, September 2010, p. 18, <http://www.gao.gov/new.items/d10957.pdf>.

**Figure 9. USAID Water & Sanitation Obligations by Country, FY2010**

(share of all spending, U.S. \$ current millions)



**Source:** Created by CRS from Department of State, *Senator Paul Simon Water for the Poor Act*, Report to Congress, June 2011, pp. 4-5.

## Millennium Challenge Corporation

The Millennium Challenge Corporation (MCC) was established in 2004 as an alternative approach to traditional foreign aid.<sup>32</sup> Whereas USAID seeks to create an enabling environment that facilitates development, MCC awards aid to those countries that are demonstrating good governance, encouraging economic freedom, and investing in their people. The development programs supported by MCC are conceived and implemented by the host countries, whereas development programs supported by USAID are usually developed and implemented by non-governmental organizations and other partners. Through multi-year funding, MCC has considerable flexibility in determining how to allocate its resources, whereas USAID relies on annual appropriations to fund its development programs, which are often shaped by congressional directives. Since MCC-funded compacts are country-driven, MCC does not designate priority areas, such as health, food, or water.

Since its inception, MCC has approved multi-year grant agreements, known as compacts and threshold agreements, in several countries worth more than \$8 billion. These agreements support country-driven development projects across several sectors including

- agriculture and irrigation,
- transportation (roads, bridges, ports),
- water supply and sanitation,
- access to health,

<sup>32</sup> For more information on this process, see CRS Report RL32427, *Millennium Challenge Corporation*, by Curt Tarnoff.



- finance and enterprise development,
- anticorruption initiatives,
- land rights and access, and
- access to education.

Roughly \$803 million of those funds are aimed at water and sanitation projects in seven countries: El Salvador, Georgia, Ghana, Lesotho, Jordan, Mozambique, and Tanzania.<sup>33</sup> The water and sanitation projects support activities that range from improving complex water networks and wastewater systems (Jordan) to implementing more rudimentary approaches like drilling wells and boreholes (Ghana). **Appendix E** summarizes progress made in MCC-supported water projects, based on information made available on their website on July 7, 2011.

## **U.S. Global Water and Sanitation Efforts: Issues**

The Water for the Poor Act reflected congressional support for the Millennium Development Goals by calling for U.S. programs to halve the 2009 level of people without access to clean water and sanitation by 2015. The act provided general guidance on how this should be done, but allowed flexibility on what steps implementing agencies should take to reach the goal. While the legislation did not specify how water funding should be spent, it called for increasing investments in water and sanitation activities, particularly in sub-Saharan African countries. Several groups have debated how to improve U.S. implementation of the Water for the Poor Act. This section discusses key issues raised by observers, which focus on

- clarifying roles and responsibilities of implementing agencies;
- balancing funding between WASH and other water areas;
- balancing regional investments; and
- verifying program data.

## **Clarifying Roles and Responsibilities and Authorizing Funding**

The Water for the Poor Act directs the Secretary of State to develop a water strategy in conjunction with USAID and other implementing partners and to annually submit a report to Congress delineating U.S. progress in expanding access to clean water and sanitation. At the same time, the act calls on USAID to allocate greater resources to water and sanitation programs. The act does not specify, however, who has authority over funding and implementation.

Under the President's Plan for Emergency AIDS Relief (PEPFAR), for example, Congress appropriates the bulk of global HIV/AIDS funds to the Department of State. The Global AIDS Coordinator at the Department of State distributes most of these resources out to several U.S. agencies that implement the international HIV/AIDS programs while the State Department oversees and reports on U.S. progress in tackling HIV/AIDS worldwide.

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<sup>33</sup> Also see the MCC webpage on Water and Sanitation at <http://www.mcc.gov/pages/activities/activity-two/water-and-sanitation>.

The Water for the Poor Act and the proposed Water for the World Act call on the State Department to develop targets for improving global access to water and sanitation. Each act also designates the State Department as the agency responsible for enforcing implementation, but neither provides budgetary authority. Without a mandate, the State Department can not dictate how agencies spend water resources or coordinate program implementation across agencies.

At the same time, some observers point out Congress has not appropriated funds specifically for implementing the act. A number of supporters are concerned USAID might reduce the budgets of other non-WASH activities to meet statutory requirements.

## **Balancing Funding Between WASH and Other Water Areas**

Following the enactment of the Water for the Poor Act, spending by USAID on water management and productivity declined while funding for WASH activities increased. USAID reports that it has increasingly concentrated its water and sanitation resources on WASH efforts to comply with appropriations language that emphasizes WASH.<sup>34</sup> Today, roughly 70% of these investments are aimed at improving water supply and sanitation. WASH funds may be used to build new water and sanitation systems, but funds provided for water resource management and productivity are used to maintain these systems and identify where water scarcity exists. Whether this apportionment for water-related projects is appropriate is a key subject of debate. Some groups advocate for increasing support for water management while others believe investing in water management distracts from efforts to achieve public health goals.

Congressional language does not bar investments in operations and management. In fact, language in the Water for the Poor Act specifies that related U.S. assistance shall

- support the design, construction, maintenance, upkeep, repair, and operation of water delivery and sanitation systems;
- improve the safety and reliability of water supplies, including environmental management; and
- improve the capacity of recipient governments and local communities, including capacity-building programs for improved water resource management.

Congress might consider clarifying how water funds are to be used through an amended Water for the Poor Act, annual appropriations legislation, or through the proposed Water for the World Act. On the other hand, some observers maintain that removing legislative directives might enable USAID to better balance water funding across water sectors. At the same time, fewer congressional mandates might also allow USAID to apply funds, as needed, to meet other development priorities that affect successful implementation of WASH efforts.

## **Balancing Regional Investments**

In FY2009, USAID obligated \$482 million for water and sanitation with about half of those investments provided in five countries or territories (**Figure 9**): West Bank & Gaza (\$102.2 million), Jordan (\$53.5 million), Pakistan (\$48.0 million), Sudan (\$38.9 million), and Afghanistan

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<sup>34</sup> U.S. Department of State, *Senator Paul Simon Water for the Poor Act: Report to Congress*, June 2008, p. v.

(\$22.6 million).<sup>35</sup> USAID and the Department of State designated 31 countries as “high priority” in FY2009. GAO raised questions, however, about how the priority countries were selected and noted that 4 of the 10 countries that the United Nations concluded had the greatest need for access to improved water sources were not among the high priority countries, and 7 of the 10 countries that U.N. data show with greatest need for access to improved sanitation were also not counted among the high priority countries.<sup>36</sup>

At the same time, GAO noted that several of the “high priority countries” were not among those that the United Nations considered with the greatest need for water or sanitation. In 6 of the 31 high priority countries—Lebanon, Georgia, Armenia, Jordan, and the West Bank and Gaza—at least 76% of the population had access to improved sanitation facilities (**Appendix F**). At the same time, two of these territories—Jordan and West Bank & Gaza—were among the top 10 recipients of WASH resources and received 32% of USAID WASH funds in 2010. Similarly, in 12 of the 31 high priority countries, at least 79% of the population had access to improved water. Five of these territories were among the top 10 recipients of WASH resources and accounted for nearly half of all USAID WASH spending.

The Water for the Poor Act specifies that water and sanitation assistance is to be focused toward “the countries, locales, and people with the greatest need.” Some observers assert that the concentration of U.S. WASH resources in Middle Eastern countries with high water and sanitation access is motivated more by strategic geopolitical reasons than by need.<sup>37</sup> Several groups call on USAID to adhere to the legislative language, adjust the disbursement of its resources, and allot greater proportions to those countries most in need, particularly in sub-Saharan Africa. Other experts maintain congressional directives limit the ability of USAID to adjust WASH resources. At the same time, another group points out the United States considers a number of factors when determining the level and type of investment, including opportunities to leverage U.S. resources and capacity to sustain the programs. At the root of this debate are questions about whether need should outweigh other mitigating factors like political will and other factors that contribute to program success like long-term capacity of recipient countries to assume ownership of water and sanitation programs.

Water and sanitation projects are considered by USAID to be a “cross-cutting issue” and are funded through several accounts that are jointly managed by USAID and the Department of State, including Assistance for Eastern Europe and Central Asia (AEECA), Development Assistance (DA), Economic Support Fund (ESF), Food for Peace (FFP), and Global Health and Child Survival (GHCS). This means that USAID and the State Department attempt to address the multi-faceted impacts of limited access to clean water and sanitation through a variety of programs, bureaus, and budgetary sources. The bulk of spending on water and sanitation-related activities is funded primarily through the DA and ESF accounts. Each account is funded at different levels and has distinct objectives; see **Appendix D**. As such, water activities are implemented as part of the goals and objectives of the overarching account. Some believe a government-wide water and

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<sup>35</sup> U.S. Department of State, *Senator Paul Simon Water for the Poor Act: Report to Congress*, June 2010.

<sup>36</sup> GAO, *U.S. Water and Sanitation Aid: Millions of Beneficiaries Reported in Developing Countries, but Department of State Needs to Strengthen Strategic Approach*, GAO-10-967, September 2010, p. 32.

<sup>37</sup> See, for example, a report released by several non-governmental groups, including Care, Catholic Relief Services, and WaterAid, *U.S. Implementation of the Senator Paul Simon Water for the Poor Act: Small Steps for a Crisis that Calls for Great Srides*, November 2010, p. 10.

sanitation strategy might help to make U.S. international water and sanitation responses more cohesive, effective, and balanced.

## Ensuring Accuracy of Data

U.N. agencies responsible for monitoring progress in attaining the MDGs expressed some skepticism about water and sanitation data (see **Appendix G**). Furthermore, WHO discourages attempts to compare data released in each annual report, because efforts to improve data collection are ongoing and each report incorporates new information.<sup>38</sup> Uncertainty about these data raises several questions regarding water and sanitation programs in general and U.S. WASH programs in particular, including:

- How will the United States know when project goals are met?
- How will implementing U.S. agencies determine whether projects are reaching those most in need?
- How will the United States confirm the projects are designed to meet the needs of the target population?

The GAO recognized this challenge in its 2010 report on the Water for the Poor Act.<sup>39</sup> Specifically, the report indicated that the Department of State had not yet “developed specific and measurable goals, benchmarks, and timetables to assess its progress.” Observers urge governments and donors to strengthen data collection and information systems and bolster operational research efforts. Regarding data collection and evaluation, Congress might consider providing sufficient resources for USAID and other implementing agencies to conduct rigorous field surveys. WHO and UNICEF found that such efforts are useful, but expensive. To drive down the expense, WHO calls for developing innovative, field-ready tools that could be used to rapidly and reliably measure water quality at a low cost.<sup>40</sup>

## Sustainability/Prioritizing Operations and Management

Ensuring adequate funding for operation and maintenance is an important, but often overlooked, part of sustaining access to clean drinking water and sanitation. While investments in water and sanitation have been escalating since the launch of the Millennium Development Goals, several experts point out that much of this spending is aimed at developing new water and sanitation systems and little is budgeted for operation and maintenance (O&M).<sup>41</sup> As a result, these facilities often fail before their expected lifetimes and quality of service is compromised by deteriorated pipes and machinery that were not sufficiently cared for due to short supply of maintenance equipment, vehicles, and spare parts.

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<sup>38</sup> UNICEF and WHO, *Progress on Sanitation and Drinking Water: 2010 Update*, 2010, p. 35.

<sup>39</sup> See GAO, U.S. Water and Sanitation Aid: Millions of Beneficiaries Reported in Developing Countries, but Department of State Needs to Strengthen Strategic Approach, September 2010, p. 25.

<sup>40</sup> UNICEF and WHO, *Progress on Sanitation and Drinking Water: 2010 Update*, 2010, p. 31.

<sup>41</sup> See Lucrezia Koestler et al., “Improving Sustainability Using Incentives for Operation and Maintenance: The Concept of Water-Person-Years,” *Waterlines*, vol. 29, no. 2 (April 2010), p. 149, <http://www.fontes.no/a/uploaded/file/Waterlines%20April2010%20-%20Waterpersonyears-Koestler.pdf>. Edward Breslin, *Rethinking Hydrophilanthropy: Smart Money for Transformative Impact*, Water for the People, January 29, 2020, p. 1, <http://www.waterforpeople.org/assets/pdfs/rethinking-hydrophilanthropy.pdf>.

Underfunding operations and management of water supply creates a cyclical effect. As countries attempt to expand water and sanitation services (often through new investments by donors), governments must seek ways to cover the costs of operation and maintenance, as well as capital costs. There is often little support within national budget ministries and among the general public to increase service charges, particularly when quality of service is poor. At the same time, donors expect governments to cover O&M expenses. Poorly defined agreements among donors and recipient countries regarding roles and responsibilities for operating and maintaining water and sanitation systems are a key contributor to poorly functioning systems and complicate efforts to sustain advancements made in broadening use of clean water and safe sanitation systems.

## Summary of Key Issues

If enacted, the proposed Water for the World Act might address several of the concerns raised by observers regarding the implementation of the Water for the Poor Act, but several issues remain.

- **Water and sanitation goals.** The Water for the Poor Act provides a broad goal for improving access to clean water and sanitation but does not specify how the United States might measure progress in attaining the goal. An option Congress might consider would be to specify what outcomes should emerge from U.S. water and sanitation efforts, particularly those that measure
  - impacts on the local community (e.g., Do unsanitary practices or use of unclean water abate following project implementation?);
  - how long the tools (handpumps, wells, etc.) remain operational; and
  - the connection between WASH outcomes and health improvements, for example, reductions in diarrhea cases.
- **Balanced water sector funding.** Annual reports to Congress on U.S. water and sanitation efforts seem to reflect a perception that congressional support for water and sanitation eclipses support for other efforts, particularly water management and productivity. Language in the Water for the Poor Act, however, indicates support for improving the safe and efficient use of water and sanitation systems. The proposed Water for the World Act appears to address this ambiguity and emphasizes capacity building and water resource management. Congress might consider amending the Water for the Poor Act to clarify how water and sanitation resources should be spent in light of diminished investments in water resource management. At the same time, some advocates call for a removal of all statutory language that directs how funds should be spent.
- **Connect authorizing and appropriating language.** Both the Water for the Poor Act and the proposed Water for the World Act, as introduced, outline a number of goals and actions for the Administration in relationship to improving global access to clean water and sanitation. Neither act, however, authorizes funds to support these efforts. Some fear USAID might siphon funds from other development programs to meet the goals of the act. Congress might consider authorizing and appropriating additional funds to facilitate attainment of the goals outlined in the Water for the Poor Act and taking the same action if Congress passes the proposed Water for the World Act. Congress might also consider authorizing and appropriating gradual funding increases to extend time for planning and absorbing resources.

- **Multi-year funding authority.** Goals and targets are established by considering a number of long-term action plans. It is difficult for USAID to develop multi-year plans, however, while receiving annual appropriations. Without funding security, agencies are uncertain about what steps can be taken to reach program goals. Congress might consider authorizing multi-year funding to facilitate achievement of goals established in the Water for the Poor Act.
- **Reporting requirements.** As discussed in “Water for the Poor Act, Implementing Agencies,” reporting by the State Department on U.S. progress on improving access to clean water and sanitation worldwide focuses almost exclusively on USAID with limited discussion about MCC activities. Congress might consider directing the State Department to include additional details about other U.S. government (USG) water and sanitation efforts, particularly those conducted by agencies like the Army Corps of Engineers that provide significant resources. In FY2009, for example, the agency obligated an estimated \$54 million on water and sanitation efforts.<sup>42</sup> The proposed Water for the World Act specifies that the report should include information on all implementing agencies.

Congress might also consider how to address incomplete compliance with reporting requirements. GAO reports, for example, that the State Department has neither developed a budget for attaining goals outlined in the Water for the Poor Act nor outlined specific and measurable goals, benchmarks, and timetables to assess WASH programs.<sup>43</sup> Further, GAO indicates none of the annual reports to Congress include performance measures. The Congressional Budget Office (CBO) estimated that the Paul Simon Water for the World Act (S. 624), which was introduced in the 111<sup>th</sup> Congress, reintroduced in the 112<sup>th</sup> Congress as S. 641, and would modify the goals outlined in the Water for Poor Act, would cost roughly \$1.3 billion annually.<sup>44</sup>

- **Political will and program sustainability.** The detrimental effects of inadequate access to clean drinking water and sanitation have been well-documented. Some observers maintain, however, that limited access to these necessities should not be the main factor for allocating aid. Instead, some analysts urge the U.S. government to invest more heavily in countries that have demonstrated commitment to improving access to clean drinking water and sanitation, capacity to sustain and leverage U.S. investments in these areas, and interest in building public-private partnerships that could advance such efforts. Supporters of these ideas maintain U.S. resources would be better spent on creating an enabling environment (such as encouraging policy reforms) and monitoring and evaluating ongoing efforts. U.S. participation in the SWA partnership may help to advance these goals. The SWA emphasizes country ownership and commitment to addressing water and sanitation issues.
- **Collection of baseline data.** As discussed in “Ensuring Accuracy of Data,” experts have expressed some uncertainty about water and sanitation data. Inaccurate data on water needs and use of water resources raises questions about how the United States can (1)

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<sup>42</sup> Department of State, *U.S. Engagement on Water Issues*, Fact Sheet, October 1, 2010, <http://www.state.gov/g/oes/rls/fs/2010/148545.htm>.

<sup>43</sup> GAO, *U.S. Water and Sanitation Aid: Millions of Beneficiaries Reported in Developing Countries, but Department of State Needs to Strengthen Strategic Approach*, GAO-10-967, September 2010, p. 25.

<sup>44</sup> See CBO, *S. 624 Senator Paul Simon Water for the World Act of 2009*, May 4, 2010, <http://www.cbo.gov/ftpdocs/114xx/doc11484/s624.pdf>.

accurately measure progress in reaching the needy, (2) ensure WASH projects meet the needs of the community, and (3) make certain U.S. resources are efficiently and properly used. The Water for the Poor Act does not address questions about data accuracy. While the proposed Water for the World Act acknowledges the need to collect baseline data, it does not specify how the United States will collect the data, if at all. Congress might consider providing a separate budget allocation for monitoring and evaluation that would ensure funding is reserved for collecting data across implementing agencies and specify common indicators to reduce costs and harmonize efforts.

- **U.S. and donor coordination.** Each agency has a unique role to play in improving water and sanitation conditions. Each annual report to Congress asserts U.S. agencies are coordinating their efforts on water and sanitation but provides no supporting details. Congress might consider providing further guidance on U.S. coordination, which could include
  - discussing the role of Ambassadors in ensuring implementing agencies cooperate with each other, to the extent possible, at all stages of implementation (planning, execution, and monitoring and evaluation);
  - developing joint indicators and coordinated reporting, auditing, and procurement processes, to the extent possible; and
  - illustrating how investments in WASH activities by one agency advance related efforts by another agency (e.g., how MCC investments in wastewater treatment facilities and water distribution networks amplify USAID efforts to decrease water-borne morbidity and mortality).

The proposed Water for the World Act calls for the creation of two high-level positions at the Department of State to coordinate U.S. water and sanitation efforts and for USAID Mission Directors to report on the coordination of water and sanitation efforts in high priority countries. Neither of these positions have been granted budgetary oversight authority. Congress might consider what oversight and budgetary duties each official should play.

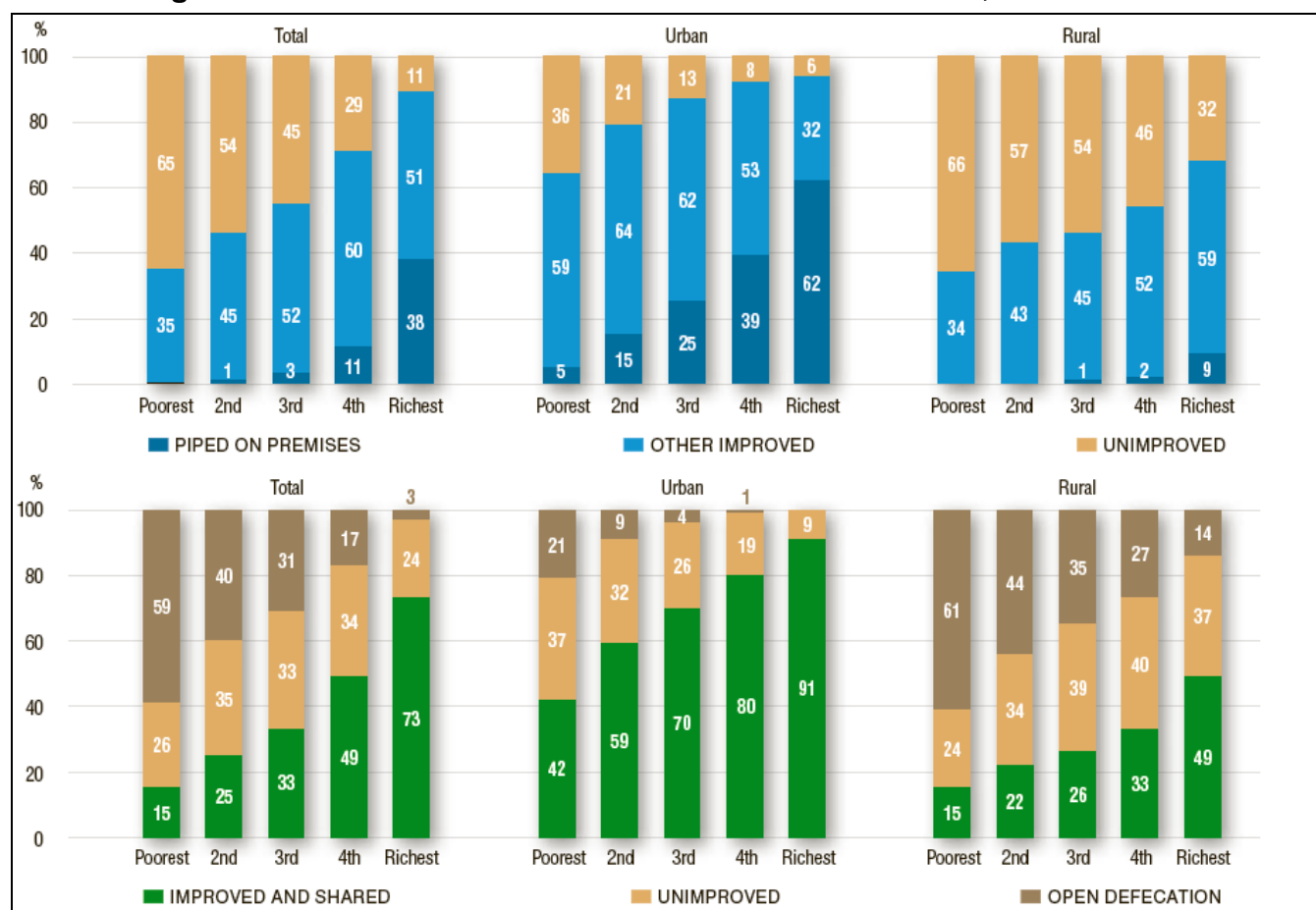
Congress might also consider the importance of U.S. government coordination with other donors. In many developing countries, water and sanitation efforts are primarily funded by foreign donors and the private sector. In Ghana, for example, one estimate indicates between 80% and 90% of spending on water and sanitation is funded by donors, including the private sector.<sup>45</sup> Experts assert that disjointed management of water and sanitation resources contributes to weak oversight of associated activities and resources. The Water for the Poor Act calls for 25% of all spending on water and sanitation activities to be provided by non-federal actors, but does not specify how this is to be accomplished or whether these efforts are to be integrated with U.S. efforts.

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<sup>45</sup> Frankie Freeman, "Ghana: The Waste Land," *World Policy Journal*, vol. 27, no. 2 (Summer 2010), p. 34, p. 52.

## Appendix A. Water and Sanitation Access in Sub-Saharan Africa, by Wealth and Residence, 2004-2009

**Figure A-1. Water and Sanitation Access in Sub-Saharan Africa, 2004-2009**



**Source:** Compiled by CRS from UNICEF and WHO, Progress on Sanitation and Drinking Water: 2012 Update, 2012, p. 29.



## Appendix B. Official Development Assistance Commitments for Water and Sanitation, 2005-2010

**Table B-1. Official Development Assistance Commitments for Water and Sanitation**  
(current U.S. \$ millions)

Donors	2005	2006	2007	2008	2009	2010
Australia	3.9	35.1	2.9	37.5	75.9	217.8
Austria	19.4	23.0	24.4	34.5	22.4	18.0
Belgium	67.1	77.2	91.1	97.4	58.7	48.9
Canada	54.6	24.8	26.1	49.4	84.2	16.3
Denmark	115.7	168.6	33.0	18.1	161.9	140.8
Finland	49.9	50.1	31.3	48.0	51.9	99.4
France	131.7	285.6	385.4	335.3	747.0	500.9
Germany	447.8	546.8	589.4	847.1	785.0	750.8
Greece	0.6	1.2	3.0	0.7	2.9	0.2
Ireland	17.2	16.5	18.2	21.6	15.8	9.9
Italy	85.9	58.4	57.8	154.0	53.4	65.0
Japan	2,533.3	1,594.8	2,498.4	1,916.6	2,899.3	1,933.3
Korea	0.0	75.0	66.4	278.7	81.1	283.1
Luxembourg	16.9	12.4	13.8	18.3	22.8	21.1
Netherlands	235.6	504.0	362.5	345.7	189.3	123.1
New Zealand	5.8	4.0	2.8	0.7	2.2	6.1
Norway	63.5	30.5	42.7	49.3	55.2	47.5
Portugal	2.9	0.7	1.6	0.3	0.4	1.0
Spain	84.0	62.1	109.4	573.6	549.4	308.5
Sweden	135.1	82.7	45.1	83.7	21.6	55.0
Switzerland	83.8	43.6	51.6	36.6	52.4	49.6
United Kingdom	85.4	122.8	145.9	228.4	256.2	67.8
United States	1,139.0	879.2	451.5	865.6	467.2	431.3
<b>DAC Countries Total</b>	<b>5,379.2</b>	<b>4,699.1</b>	<b>5,054.4</b>	<b>6,041.2</b>	<b>6,656.1</b>	<b>5,195.5</b>
AfDF	85.3	502.5	241.0	289.9	287.5	204.7
Arab Fund	0.0	0.0	0.0	121.4	79.0	105.1
AsDB	154.4	286.1	273.5	2.6	405.7	194.4
E.U. Institutions	818.4	812.2	491.3	158.8	505.8	678.1
Inter-American Bank	0.0	50.1	52.1	12.1	46.1	57.7
IFAD	3.6	10.3	2.8	2.8	0.0	6.6
U.N. Children's Fund	20.1	29.1	44.5	41.1	46.7	48.8

<b>Donors</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>
UNDP	2.1	2.2	0.9	2.1	6.4	3.2
UNECE	0.0	0.0	0.0	0.7	1.4	2.0
World Bank	570.8	813.0	1013.3	889.2	468.7	1034.9
<b>Multilateral Total</b>	<b>1,654.8</b>	<b>2,505.5</b>	<b>2,119.5</b>	<b>1,520.7</b>	<b>1,847.3</b>	<b>2,335.4</b>
<b>All Donors</b>	<b>7,034.0</b>	<b>7,204.6</b>	<b>7,173.9</b>	<b>7,561.9</b>	<b>8,697.5</b>	<b>7,781.5</b>

**Source:** Summarized by CRS from OECD, *Aid Activity Database*, <http://stats.oecd.org/Index.aspx>, accessed on July 31, 2012.

**Acronyms:** African Development Fund (AfDF); Asian Development Bank (AsDB); European Union (E.U.); International Fund for Agricultural Development (IFAD); United Nations Development Program (UNDP), United Nations Economic Commission for Europe (UNECE)

**Notes:** Commitments made for less than three years were excluded. The total for all donors includes commitments made in 2009 by the Organization of the Petroleum Exporting Countries (OPEC) Fund for International Development (OFID, \$47.1 million) and the United Arab Emirates (UAE, \$147.0 million); and in 2010 by the Islamic Development Bank (\$60.2 million); Nordic Development Fund (\$9.3 million); OFID (\$70.2 million); Kuwait (\$72.0 million); UAE (\$31.7 million); and Global Environment Facility (GEF, \$7.3 million).

## **Appendix C. Summary of S. 641, The proposed Water for the World Act of 2011**

In the first session of the 112<sup>th</sup> Congress, on March 2011, Senator Richard Durbin introduced the proposed Water for the World Act of 2011 (S. 641). The act addresses several of the issues observers raised regarding implementation of the Water for the Poor Act. The act calls for the United States to provide, within six years, safe water and sanitation to 100 million people, on a sustainable basis, who had yet to receive such services.

The act would also amend the Foreign Assistance Act of 1961 by

- creating a Senior Advisor for Water at USAID who shall
  - report to the USAID Administrator, replace current Water Coordinator (the initial Senior Advisor shall be the Water Coordinator who is serving at the time of enactment), and be responsible for developing and overseeing U.S. water and sanitation efforts in high priority countries;
  - prioritize water, sanitation, and hygiene activities that build capacity, strengthen institutions, encourage regulatory reform, seek partner collaboration, and are consistent with sound water resource management principles;
  - integrate water strategies with country-specific or regional food security strategies; and
  - ensure that at least 25% of the overall funding necessary to meet the millennium development targets for water and sanitation is provided by non-federal sources, including foreign governments, international institutions, and through partnerships with universities, civil society, and the private sector.
- creating a Special Coordinator for International Water at the Department of State who shall
  - report to the Under Secretary for Democracy and Global Affairs and replace the current Special Coordinator for Water Resources (the initial Senior Advisor shall be the Special Coordinator for Water Resources who is serving at the time of enactment), and be responsible for overseeing and coordinating the diplomatic policy of the United States with respect to global freshwater issues; and
  - ensure international freshwater issues are represented within the United States government and in key diplomatic, development, and scientific efforts with other nations and multilateral organizations.

In addition, the proposed Water for the World Act would amend Section 6 of the Water for the Poor Act, which outlines the development of a U.S. strategy to meet the goals outlined in the Water for the Poor Act. The amended language would mandate the Special Coordinator for International Water to

- integrate the U.S. water and sanitation strategy into any strategy for global development, global health, or global food security that sets forth or establishes

- a U.S. mission for global development,
- guidelines for U.S. assistance, or
- how development policy will be coordinated with policies governing trade, immigration, and other relevant international issues;
- assess all U.S. foreign assistance allocated to water and sanitation over three fiscal years preceding enactment, across all United States government agencies and programs, including an assessment of the extent to which U.S. efforts are reaching and supporting the goal of enabling first-time access to safe water and sanitation on a sustainable basis for 100 million people in high priority countries;
- recommend what the United States Government would need to do to reach 100 million people; and
- identify best practices for mobilizing and leveraging the financial and technical capacity of business, governments, nongovernmental organizations, and civil society in forming public-private partnerships that measurably increase access to safe, affordable, drinking water and sanitation.

The act would also add reporting requirements that call for

- the USAID Mission Director for each high priority country and for each region containing a country receiving such designation to report annually to Congress on the status of
  - designating safe drinking water and sanitation as a strategic objective;
  - integrating the water strategy into a food security strategy;
  - assigning a USAID employee as in-country water and sanitation manager to coordinate in-country implementation with host country officials, the Department of State, and other relevant United States government agencies;
  - conducting formative and operational research and monitoring and evaluating the effectiveness of programs that provide safe drinking water and sanitation in collaboration with the Centers for Disease Control and Prevention, the Department of Agriculture, the Environmental Protection Agency, the National Oceanic and Atmospheric Administration, and other agencies, as appropriate; and
  - integrating efforts to promote safe drinking water, sanitation, and hygiene with existing foreign assistance programs, as appropriate, including activities focused on food security, HIV/AIDS, malaria, tuberculosis, maternal and child health, food security, and nutritional support.
- the U.S. Comptroller General to submit to the Committee on Foreign Affairs of the House of Representatives and the Committee on Foreign Relations of the Senate a report on the effectiveness and efficiency of United States efforts to provide safe water and sanitation for developing countries.

## Appendix D. Description of USAID and State Department Accounts

USAID manages a range of budget accounts that are organized largely along functional and regional lines. In addition, USAID co-manages several accounts with the State Department and administers a growing amount of funding transferred from other agencies, such as MCC. Below is a summary of how USAID describes the accounts through which it funds water and sanitation efforts.

- **Assistance for Eastern Europe and the Baltic States (AEEB)**, jointly managed by USAID and the State Department, promotes local and regional stability and supports the region's transition into the European and transatlantic mainstream. AEEB also supports post-conflict, health, and environment programs, as well as activities to reduce the threat of organized crime and HIV/AIDS. This account is also known as Support for East European Democracy (SEED).
- **Development Assistance (DA)**, managed by USAID, provides sustained support to help countries acquire the knowledge and resources that enable development and nurture indispensable economic, political, and social institutions.
- **Global Health and Child Survival (GHCS)**, jointly managed by USAID and the State Department, expands basic health services and strengthens national health systems to significantly improve people's health, especially that of women, children, and other vulnerable populations.
- **Economic Support Fund (ESF)**, jointly managed by USAID and the State Department, promotes U.S. economic and political foreign policy interests by financing economic stabilization programs, supporting peace negotiations, and assisting allies and countries that are in transition to democracy. USAID implements most ESF-funded programs, with overall foreign policy guidance from the State Department.
- **P.L. 480 Title II (Food for Peace)**, managed by USAID, uses abundant U.S. farm resources and food processing capabilities to enhance food security in the developing world by providing nutritious agricultural commodities. P.L. 480 Title II funds are appropriated to the Department of Agriculture and administered by USAID.

## Appendix E. MCC Water and Sanitation Compacts by Country

**Table E-1. MCC Water and Sanitation Compacts, 2006-2008**

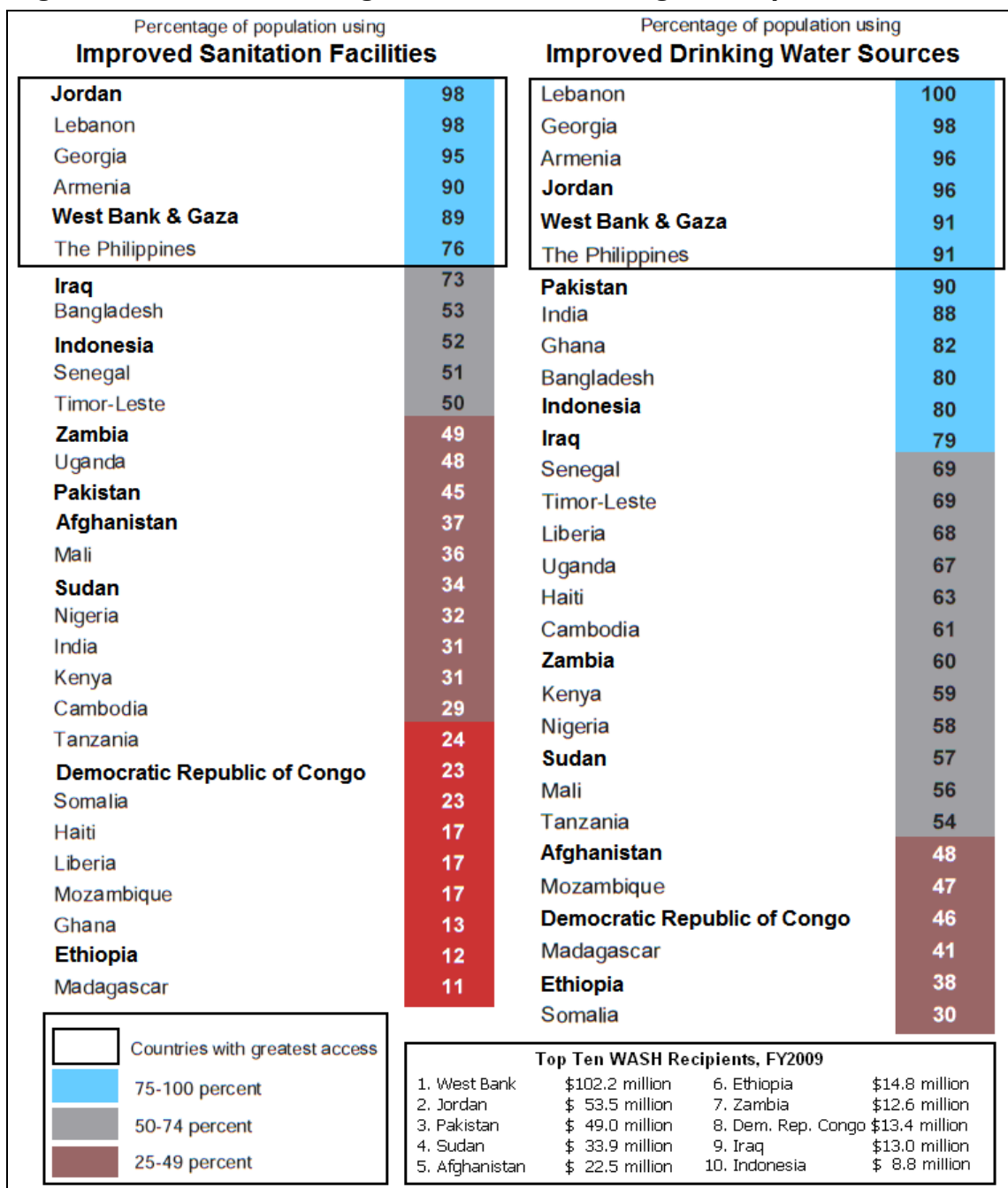
Country	Compact Summary	Compact Goal	Compact Value	Entry Into Force	Compact Progress
El Salvador	Construct improved sanitation systems (flush and composting toilets and pit latrines); and conduct trainings on hygiene and sanitary practices	Provide potable water to 18,000 households systems; improve access to sanitation services; and reduce incidence of water-borne diseases	\$23 million	September 2007	As of December 31, 2010, MCC awarded \$3.2 million for feasibility, design, and environmental studies and \$2.5 million for water and sanitation construction activities
Georgia	Increase water quality and improve water supply systems in five cities; and help targeted regions deliver safe, reliable, affordable, and accessible public and utility services	Strengthen regional and municipal water and sanitation infrastructure to 228,000 people	\$58 million	April 2006	As of September 30, 2010, an estimated 42,000 people had access to improved potable water supply
Ghana	Provide safe water and sanitation facilities to 129,840 people; construct or rehabilitate 350 water systems (e.g., boreholes and wells); construct and rehabilitate 25 small town water systems; partner with the Carter Center to help eradicate guinea worm disease; and extend existing water urban system to infected farming areas in the Northern region	Expand access to potable water	\$13 million	February 2007	As of December 31, 2010, MCC reported no water and sanitation-related activity
Lesotho	Extend and rehabilitate urban and peri-urban water networks serving the capital and other major cities; improve sanitation services for an estimated 25,000 households through construction of ventilated improved pit latrines and water systems; restore degraded wetlands at three areas in highland areas; and prepare a strategic environmental assessment to support the development of a national watershed management and wetlands conservation plan	Improve the water supply for industrial and domestic use	\$164 million	September 2008	As of September 2010, MCC provided \$4.5 million to conduct feasibility studies, estimated to cost \$11.6 million to extend clean water to 30,000 people and improve latrines to 16% of the population

Country	Compact Summary	Compact Goal	Compact Value	Entry Into Force	Compact Progress
Jordan	Expand the As-Samra Wastewater Treatment Plant's treatment capacity by 97,800 cubic meters per day, an increase of more than one-third; replace or rehabilitate up to 29 kilometers of undersized trunk lines and expand sewers by up to 140 kilometers in East Zarqa and West Zarqa; reduce water loss by constructing and repairing reservoirs, pump stations, and up to 67 kilometers of primary, 927 kilometers of secondary, and 256 kilometers of tertiary pipes; and replace household connections and meters in the two poorest, most heavily populated water service areas of Zarqa Governorate	Improve the water supply for industrial and domestic use; and help improve the efficiency of water delivery; and collection and treatment of wastewater	\$275 million	The compact was signed in October 2010 and has not yet entered into force.	As of December 2010, activities had not yet begun on this project
Mozambique	Supply water and sanitation services to six cities; extend water supply in two mid-sized towns; rehabilitate a critical water supply dam and rural water supply services covering 600 water points in two provinces; improve the capacity of local institutions; increase water supply productivity; reduce water-borne diseases; and support policy reforms	Provide access to safe and reliable water supply and sanitation services; and train 7,200 people on hygiene and sanitary practices	\$204 million	September 2008	As of December 2010, MCC had provided \$31.4 million to conduct feasibility studies in five cities. The studies estimated it would cost \$154 million to improve access to clean water and sanitation facilities in those areas
Tanzania	Improve water supply infrastructure in two major cities (Dar es Salaam and Morogoro); enhance the system efficiencies of the Dar es Salaam Water and Sewerage Authority; and reduce the prevalence of water-related diseases	Increase the quantity and reliability of potable water for domestic and commercial use	\$66 million	September 2008	As of September 2010, no construction had begun on the water infrastructure projects

**Sources:** MCC, *MCC's Commitment to Clean Water, Sanitation and Improved Water Infrastructure*, Fact Sheet, March 16, 2010, <http://www.mcc.gov/documents/press/factsheet-2010002010802-water.pdf>; and MCC's webpage on compacts at <http://www.mcc.gov/pages/activities>, accessed on June 7, 2011.

## Appendix F. Access to Drinking Water & Sanitation, High Priority Countries, FY2009

**Figure F-1. Access to Drinking Water & Sanitation, High Priority Countries, FY2009**



**Source:** Adapted by CRS from GAO, *U.S. Water and Sanitation Aid: Millions of Beneficiaries Reported in Developing Countries, but Department of State Needs to Strengthen Strategic Approach*, GAO-10-967, September 2010, p. 35.

**Note:** Top 10 WASH Recipients are bolded.



## **Appendix G. Measuring and Evaluating WASH Programs: Challenges**

Clean water and sanitation efforts are implemented by a variety of actors, including donors, governmental groups (at several levels), non-governmental groups, private businesses, and foundations. At present, there is no coordinating body responsible for overseeing international water and sanitation efforts. The Sanitation and Water for All partnership is an attempt to develop a coordinated approach to water and sanitation. Nonetheless, one authoritative body has yet to be formed. As such, a number of challenges remain, including how to ensure the accuracy of WASH data, measure the impact of related programs, and ensure proper use of the resources. Although this section discusses some of the challenges related to WASH programs in general, many of the observations may apply to U.S. bilateral WASH efforts.

### **Measuring Access to Clean Water and Sanitation**

The implementation, oversight, and maintenance of water and sanitation services can be provided by a number of actors. In some countries, there is no central authority responsible for these services, and municipal or district assemblies—who are primarily responsible for providing services—often subcontract the work with private operators. Because such duties can be fragmented, data can be disjointed and inconsistent. While national statistics offices (NSOs) are typically responsible for maintaining nationwide data on water and sanitation,<sup>46</sup> municipal governments often maintain their own data that may not align with NSOs. Whereas NSOs largely rely on household surveys and census data, municipal governments usually monitor actual use of water and sanitation systems or the number of service connections.

Donors and other actors commonly use national data to design WASH projects, although they may not align with municipal records. In Mozambique, for example, government records indicated 72% of the population in Sanga district had access to clean water. Subsequent studies concluded, however, that clean water coverage in the area was 22%.<sup>47</sup> Similarly, official documents indicated 78% of water systems in the Kanungu district were functional, yet monitoring and evaluation studies found 46% of them were capable of extracting water.<sup>48</sup>

### **Measuring the Impact of WASH Programs**

Debate is intensifying around revising indicators for measuring access to clean water and sanitation. Donors most frequently use the number of beneficiaries as a proxy for measuring the impact of water and sanitation activities. The number of people reached in a program, however, may not adequately reflect impact. Some observers urge donors to monitor the number of people

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<sup>46</sup> Frankie Freeman, "Ghana: The Waste Land," *World Policy Journal*, vol. 27, no. 2 (Summer 2010), p. 34.

<sup>47</sup> Edward Breslin, *Rethinking Hydrophilanthropy: Smart Money for Transformative Impact*, Water for the People, January 29, 2020, p. 1, <http://www.waterforpeople.org/assets/pdfs/rethinking-hydrophilanthropy.pdf>.

<sup>48</sup> Lucrezia Koestler et al., "Improving Sustainability Using Incentives for Operation and Maintenance: The Concept of Water-Person-Years," *Waterlines*, vol. 29, no. 2 (April 2010), p.149, <http://www.fontes.no/a/uploaded/file/Waterlines%20April2010%20-%20Waterpersonyears-Koestler.pdf>.

with sustained access to clean water and sanitation rather than only those who gained access in a given year.

Counting the proportion of people with access in a given year does not take into account other factors, like population growth. As a result, countries experiencing rapid population growth might improve coverage rates while the count of people with improved access declines. In sub-Saharan Africa, for example, open defecation declined by 11% since 2010. Nonetheless, due to population growth, the number of people practicing open defecation increased by 33 million.<sup>49</sup>

Some experts advocate a metric called “water person years” (WPY).<sup>50</sup> This statistic measures the cost and the utility of the initial investment (**Table G-1**). Other examples include metrics that count the amount of latrines that are functional and continue to be used and the number of hands that are consistently washed. In an effort to take population changes into account the UNICEF and WHO 2012 Water and Sanitation Report began to report “the increase since 1995 in the number of people with access as a proportion of the current (2010) population” rather than counting only the number of people who gained access in a given year.<sup>51</sup>

**Table G-1. Explanation of Water Person Years**

**Organization A**

Organization A seeks to boost access to clean water. It constructs three water systems at 100 units each for a total cost of 300 units. The new water systems are placed in three villages that each have 1,000 residents. The organization offers no funding for operation and maintenance and the community does not have sufficient resources to maintain the systems. The water systems installed by Organization A become dysfunctional in about three years. Using the WPY formula, Organization A reports 9,000 WPY for its investment.

**3 villages × 1,000 people × 3 years = 9,000 WPY**

**Organization B**

Organization B invests in one village and constructs one water system at the cost of 100 units. It sets aside 10% of the water budget (10 units) for operation and maintenance. With consistent maintenance, the water system lasts 20 years. Using the WPY formula, Organization B reports 20,000 WPY for its investment.

**1 village × 1,000 people × 20 years = 20,000 WPY**

**Source:** Created by CRS from *New incentives: economic projections with the water-person-years concept*, IRC International Water and Sanitation Center, Presentation at IRC Symposium 2010, November 16-18, 2010,

Inadequate investment in clean water and sanitation impacts sustained access. One report contends donors overemphasize expanding coverage while largely ignoring operation and maintenance.<sup>52</sup> Several papers discuss the frequent sighting of idle handpumps—abandoned due to disrepair—littering the landscape of rural areas throughout the developing world. Widely cited estimates indicate that handpump failure rates across sub-Saharan Africa range between 15% and

<sup>49</sup> UNICEF and WHO, *Progress on Sanitation and Drinking Water: 2012 Update*, 2012, p. 18.

<sup>50</sup> Lucrezia Koestler, Marius A. Koestler, and Christoph Gisler, *New incentives: economic projections with the water-person-years concept*, IRC International Water and Sanitation Center, Presentation at IRC Symposium 2010, November 16-18, 2010, [http://docs.watsan.net/Downloaded\\_Files/PDF/Koestler-2010-New.pdf](http://docs.watsan.net/Downloaded_Files/PDF/Koestler-2010-New.pdf).

<sup>51</sup> UNICEF and WHO, *Progress on Sanitation and Drinking Water: 2012 Update*, 2012, p. 11.

<sup>52</sup> Lucrezia Koestler et al., “Improving Sustainability Using Incentives for Operation and Maintenance: The Concept of Water-Person-Years,” *Waterlines*, vol. 29, no. 2 (April 2010), p. 147.

50%.<sup>53</sup> Research on water pump sustainability is scant, however, and reasons for pump failure vary. Some causes include

- poorly constructed wells or boreholes;
- disagreement on who is responsible for operations costs;
- inability of local caretakers to maintain operations; and
- poorly constructed water taps requiring frequent repair and replacement of parts.

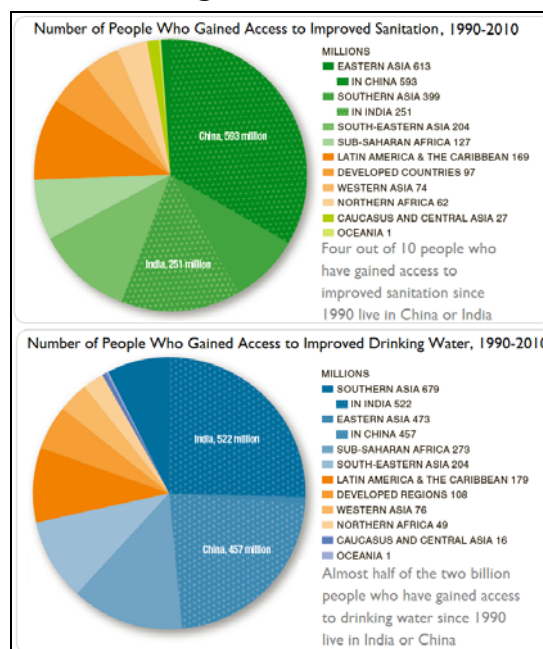
Debates about whether donors should expect countries to maintain water and sanitation systems that they establish can be seen in other foreign aid programs. It is not uncommon to see other goods donated by foreign governments and other entities fall into disrepair. This tension is part of a larger debate about the utility of foreign aid.

## Ensuring Accuracy of Water and Sanitation Data

WHO established microbiological and chemical standards to measure the safety of drinking water. WHO relies on countries to comply with these standards when reporting on clean water usage. After conducting pilot surveys in eight countries, WHO and UNICEF found that countries complied with WHO guidelines 90% of the time when reporting on access to clean water from piped water sources. Compliance rates were lower, however, for other water sources (between 40% and 70% for wells, boreholes, and rain collection).

Similar challenges exist with sanitation data. WHO and UNICEF had difficulty, for example, confirming use of improved sanitation systems in China. The Chinese government reported that from 1991 to 2008, rural use of “sanitary latrines” had increased and that the percentage of the population using other types of sanitation facilities like dry latrines and shallow pits had fallen from 84% to 68%.<sup>54</sup> Not enough information was shared, however, to determine whether the facilities met the standards of improved sanitation. As such, there is some uncertainty

**Figure G-1. Number of People Who Gained Access to Water and Sanitation by Region, 1990-2010**



**Source:** Recreated by CRS from UNICEF and WHO, *Progress on Sanitation and Drinking Water: 2010 Update*, 2010, pp. 7 and 17.

<sup>53</sup> Rural Water Supply Network (RWSN), *Sustainable Handpumps*, RWSN Strategy Paper, February 25, 2005, p. 1, [http://www.watersanitationhygiene.org/References/EH\\_KEY\\_REFERENCES/WATER/Handpumps/Handpump%20General/Sustainable%20Handpumps%20\(RWSN\).pdf](http://www.watersanitationhygiene.org/References/EH_KEY_REFERENCES/WATER/Handpumps/Handpump%20General/Sustainable%20Handpumps%20(RWSN).pdf).

<sup>54</sup> UNICEF and WHO, *Progress on Sanitation and Drinking Water: 2010 Update*, 2010, p. 24.

about the actual number of people with access to improved sanitation in the country. Ambiguity about water and sanitation data in China is important, as the country accounts for a large proportion of those who gained access (**Figure G-1**).

## **Author Contact Information**

Tiaji Salaam-Blyther  
Specialist in Global Health  
tsalaam@crs.loc.gov, 7-7677