



USAID
FROM THE AMERICAN PEOPLE



SAFEGUARDING THE WORLD'S WATER

2010 REPORT ON USAID FISCAL YEAR 2009
WATER SECTOR ACTIVITIES

OCTOBER 2010

PHOTO: USAID/WATER
PHOTO: USAID/WATER
PHOTO: POLYN
PHOTO: DR. JAYE CHANG, OFFICE OF HEALTH, USAID/PERU
VOLK

Cover photos:

Top (left to right): Wastewater treatment plant, Jordan; village well, Ghana;
water filter, India; handwashing, Peru

CREDITS (LEFT TO RIGHT): MEAWATERS; WATERAID; POUZIN PROJECT; DR. JAIME CHANG, OFFICE OF HEALTH, USAID/PERU

Bottom:
Coastal waters, Tanzania

CREDIT: VOLK

SAFEGUARDING THE WORLD'S WATER

2010 REPORT ON USAID FISCAL YEAR 2009
WATER SECTOR ACTIVITIES

OCTOBER 2010

Table of Contents

Introduction and Summary	I
Africa	13
Africa Regional	14
East Africa	
Regional Programs	17
Country Programs	18
Southern Africa	
Regional Programs	32
Country Programs	33
West Africa	
Regional Programs	40
Country Programs	42
Asia	50
Regional Programs	51
Country Programs	54
Europe and Eurasia	67
Country Programs	68
Latin America and the Caribbean	71
Regional Programs	72
Country Programs	73
Middle East	83
Regional Programs	84
Country Programs	84
Central Programs	91
Financial and Results Tables	103
Acronyms and Abbreviations	110
Index of Regional, Subregional, and Country Programs and Special Topics	113
“Filmstrip” Photo Credits	115

Introduction and Summary

Primary schoolchildren in Madagascar wash their hands with soap and water before lunch.



MADAGASCAR HIP

The following report summarizes the fiscal year (FY) 2009 investments and programs of the U.S. Agency for International Development (USAID) in water and sanitation supply projects pursuant to the Senator Paul Simon Water for the Poor Act of 2005 (Public Law [PL] 109–121). The funding figures it presents are based upon estimates of budget allocations and budget commitments reported by USAID operating units around the world through May 2010. The report describes all USAID water management programs that help ensure “water security and sustainability with equity.”¹ These programs address the following specific areas: 1) water supply, sanitation, and hygiene (WSSH); 2) water resources management (WRM) and global climate change adaptation (CCA); 3) water productivity (WP) and food security (FS); and 4) water-related disaster risk reduction (DRR) from floods, storms, and droughts.

¹ “Water security and sustainability with equity” simultaneously considers the need for human access to safe and affordable water for health and well-being; the assurance of economic and political stability; the protection of human populations from the risks of water-related hazards; the equitable and cooperative sharing of water resources; the complete and fair valuation of the resource; and the sustainability of ecosystems at all parts of the hydrologic cycle.

The report presents these programs by their USAID geographic region: sub-Saharan Africa, Asia, Europe and Eurasia, Latin America and the Caribbean, and the Middle East. The report also covers USAID's central water sector programs based in Washington, D.C.

The Problem

The world faces enormous water challenges. According to the World Health Organization (WHO) and the United Nations Children's Fund (UNICEF), nearly 900 million people do not use improved sources of drinking water, and nearly three times that many – 2.6 billion – do not use improved sanitation.² Implicit in these two figures are a host of multidimensional water-related challenges to short- and long-term development progress, because without significant improvements in water and sanitation access, global development goals in child mortality, primary education, disease reduction, environmental sustainability, and poverty reduction will not be achieved.

The above shortfalls in access to improved sources of drinking water and improved sanitation undermine the efforts of the international community and developing countries to generate economic growth, promote social development, and protect public health. In many countries, the effort to obtain a daily household water supply cuts into time and activities in education or productive employment. Girls are often assigned the task of fetching water, and they suffer the greatest burden of lost education due to lack of improved household water supplies. Young children are particularly vulnerable to water- and sanitation-related health threats. They thus suffer the greatest water-related disease burden, and every year nearly 1.6 million children under 5 years of age die from diarrhea caused largely by unsafe drinking water but also by inadequate sanitation and hygiene. The reasons that developing-country populations have such limited access to clean water and improved sanitation services include lack of effective demand, especially for sanitation; lack of sufficient financing coupled with weak institutional capacity for employing more innovative approaches in financing; and lack of institutional and human capacity, especially in utility and community service delivery organizations.

Over the coming decades, the world's water challenges will loom larger. As water resources become scarce and pressures on them increase, tensions are likely to grow.

Global demand for water is doubling every 20 years, and more than 2.8 billion people will live in either water-scarce or water-stressed regions by 2025. Human pressures on freshwater ecosystems, water resources, and watersheds from urban growth, industrial development, and pollution continue to build. Wetland ecosystems, which serve as buffers against natural disasters and breeding grounds for fisheries, are being lost around the world at alarming rates. More than 260 river basin watersheds are shared by at least two countries and are thus possible sources of international tension and conflict. Meeting these challenges is imperative if all of humankind is to have access to water supplies of sufficient quality and quantity to meet global health, environmental, social, and economic needs.

USAID Water Supply, Sanitation, and Hygiene Activities

USAID's WSSH activities support three "pillars" required for sustainable access to and use of improved water supplies and sanitation:

- Access to appropriate hardware and supplies – Municipal and community water supply systems and sewers; household sanitation facilities; and other household-level technologies and products, such as soap and handwashing devices
- Hygiene and sanitation promotion, behavior change, and demand creation – Community mobilization for sustained management of drinking water supply and latrine building; social marketing of products and behaviors like point-of-use (POU) drinking water treatments and sanitation options; magnification of



Toting a five-gallon jerry can, a woman in Upper Nile, Sudan, makes her daily trek to find water. With each new water source, fewer women have to spend hours a day away from their families.

FRED LE GREGAM, PACT

² WHO/UNICEF Joint Monitoring Programme for Water Supply and Sanitation. Progress on Sanitation and Drinking-water: 2010 Update at <http://www.unicef.org/media/files/JMP-2010Final.pdf>



This poster from USAID's POUZN project in India advises families of the importance of safe, clean drinking water.

POUZN PROJECT

messages through media and communication; and WSSH promotion through school and health clinic programs

- Enabling environment – Improved policies; institutional support; community organization; finance and cost recovery; utility reform and governance/regulatory improvements; improved operations and maintenance; and public-private partnerships for improved WSSH

Increased WSSH coverage alone, through increased supply systems, technologies, and products, is not sufficient. Once physical access to a water supply exists, consistent and correct sanitation practices (such as handwashing with soap, safe feces disposal, and safe drinking water treatment and storage) must be maintained and sustained, with ongoing policy, institutional, and community support, for health and social benefits to be realized.

USAID's investments in these areas focus on five programming activities:

1. Strengthening the capacity and sustainability of small-scale service providers who operate in rural and peri-urban areas
2. Improving the operating environment, operations, and financial sustainability of utilities that serve cities and towns undergoing the most rapid population growth
3. Improving household- and community-level hygiene and sanitation

4. Mobilizing capital from domestic markets for infrastructure development on a permanent and sustainable basis

5. Integrating water supply and sanitation with humanitarian assistance/disaster risk reduction and response programs

USAID's WSSH projects address the provision of clean and adequate supplies of drinking water and improved sanitation facilities to rural and urban communities, as well as promote demand for sanitation and appropriate hygiene behaviors. USAID WSSH projects also promote good watershed management practices that protect drinking water supplies from contamination, such as drinking water source protection, proper handling and storage of domestic drinking water, and proper disposal of household waste. Project activities include improvement or rehabilitation of water sources, water wells, and water delivery systems; removal of contaminants from drinking water through both large-scale water supply treatment plants and small-scale or household POU treatment; and sanitation improvements. USAID also addresses the need to improve the capacity of municipal and community governments and public and private utilities and other organizations to deliver potable water and sanitation infrastructure services in a sustainable, cost-effective, and water- and energy-efficient manner. Activities support legal, regulatory, and governance reforms needed to finance, operate, and maintain these services.



Irrigating these terraced rice fields in Indonesia requires mutual assistance in water distribution from many parties.

© HARIMAWAN LATIF, COURTESY OF PHOTOSHARE

USAID Watershed/Water Resources Management Activities

All countries and communities depend on sustainable supplies of fresh water of sufficient quantity and quality to meet society's needs, sustain economic growth, and maintain ecosystems, and they all face the challenge of how to best use and protect this finite but renewable resource. Water resources and hydrologic systems are under enormous pressure from population growth, environmental degradation, and climate change. The clearing of forest lands for agriculture, mining, and logging has degraded many watersheds and impacted downstream estuarine and coastal ecosystems through more rapid runoff, increased erosion and sedimentation, reduced groundwater replenishment, and increased potential for floods and droughts. Climate change may exacerbate these impacts and potentially force dramatic shifts in human settlements, agricultural practices, and livelihoods. Most countries share water resources with others, further complicating the management of this essential resource.

The objectives of USAID's WRM activities include meeting human needs; protecting environmental resources; optimizing the benefits of water among competing uses for drinking water, agriculture, industry, and environments and ecosystems; and supporting efforts to manage and/or adapt to hydrological variability and the risks of flood and drought associated with global climate change. Achieving these objectives requires highly participatory and holistic governance and management approaches. As competing demands upon limited water resources increase, the potential for tensions will heighten, raising the possi-

bility of conflicts over water rights, allocations, and use. Avoiding such conflicts is vital, as they are expensive and disruptive and interfere with efforts to relieve human suffering, reduce environmental degradation, reduce vulnerability to future disasters, and achieve sustainable economic growth.

WRM activities promote the conservation and sustainable use of water resources, thereby protecting the quantity and quality of surface water and groundwater for drinking, irrigation, and other uses, while maintaining aquatic ecosystem services provided by rivers, lakes, aquifers, fisheries, wetlands, and coastal environments. WRM also addresses a wide array of land uses within watersheds that may have local impacts while also affecting downstream communities and ecosystems. Integrated WRM, water quality protection, and pollution prevention and control support the management of watersheds and ground and surface water. WRM also promotes environmentally sound technologies and clean production practices that reduce the amounts of raw material, water, and energy used in agricultural, industrial, manufacturing, and other production processes. WRM programs also seek to enhance the beneficial uses of water and to reduce human health risks from water by reducing, preventing, and mitigating water pollution.

Specific WRM activities include improving water resources planning; addressing challenges to water quantity and quality; strengthening participatory governance through multistakeholder approaches; mobilizing financing; and managing hydrologic variability. To help governments,

civil society, and communities plan, finance, and regulate instruments for transparent and equitable water allocation and management, USAID engages in:

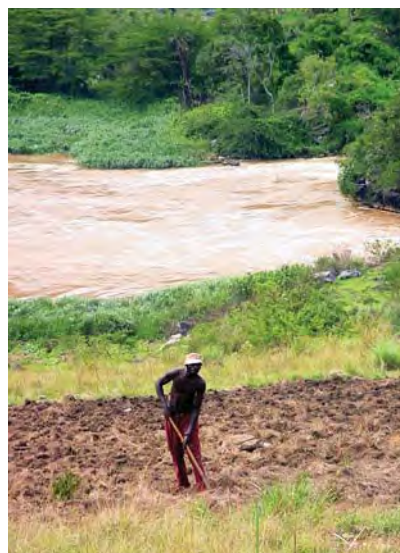
- Broad-based policy development and institutional strengthening, based on multistakeholder input and dialogue
- Strategy and structure development to conserve the quality and supply of water
- Surveys dealing with water balances, water supply, aquatic life, and habitat protection
- Transboundary WRM focusing on data sharing and common protocol development in river basins shared by two or more countries

USAID Water Productivity Activities

Improving the productivity of available water is critically important for economic development. Economic activities ranging from agriculture and mining to industry require dependable water supplies. Food production depends on predictable, high-quality supplies of freshwater or healthy estuarine and marine waters. More than 70 percent of all human freshwater use is devoted to agriculture, often in irrigation systems that are inefficient and environmentally unsustainable. As urban, industrial, and commercial water consumption increases, the tradeoffs between water allocations for domestic use, agriculture, industry, and ecosystem services will only intensify.

USAID's WP programs seek to maximize efficient, productive water use in the industrial, agricultural, and other sectors, and to support pollution prevention, water loss reduction, and demand management programs. They focus on approaches that:

- Improve water use efficiency in agriculture
- Help countries adapt to hydrologic variability and climate change
- Reduce water pollution and improve efficiency of water use by industry
- Improve water use efficiency in cities.
- Expand productive fisheries and improve their sustainability and protection



A farmer in Uganda cultivates land on the banks of the River Kagera, a major tributary of the Nile. Environmentalists worry about the river's deteriorating water quality due to siltation caused by agricultural activity along its banks.

©THE NEW VISION, COURTESY OF PHOTOSHARE

WP programs in agriculture support efforts to improve productivity by emphasizing irrigation system efficiency. They work with public and private extension services to increase farmers' adoption of improved production technologies, systems, and appropriate crops. Where appropriate, they promote the reuse of treated wastewater for agriculture. They also work with research institutions to develop improved aquaculture production technologies and systems that increase yields while reducing water demand and promoting the use of aquaculture species and systems that improve water quality.

USAID Disaster Risk Reduction Activities

Floods, storms, and droughts can cause massive loss of life and economic losses in the billions of dollars. Between 1999 and 2009, water-related disasters such as floods, drought, and windstorms (hurricanes, cyclones, and typhoons) killed more than 575,000 people (half of the total fatalities caused by natural disasters); affected more than 2.5 billion people (97 percent of the total population affected by natural disasters); and are estimated to have cost nearly \$770 billion (72 percent of total estimated damages from natural disasters).³ These weather- and climate-related events can have significant impacts through loss of livelihoods; destruction of shelters; destruction of ecosystems; damaged infrastructures for water supply and sanitation, energy, power, and transportation; disruptions in health and social services; scarcities of food and water; and conflicts and migrations. The direct and indirect im-

³ International Federation of Red Cross and Red Crescent Societies. World Disasters Report 2009 at <http://www.ifrc.org/Docs/pubs/disasters/wdr2009/WDR2009-full.pdf>

pacts of such disasters can set back economic development and increase a population's vulnerability to natural hazards.

Reducing the risk of and vulnerability to water-, weather-, and climate-related disasters is part of the International Strategy for Disaster Reduction, and identifying, monitoring, understanding, and forecasting hydrometeorological hazards are critical first steps for developing and implementing DRR plans, strategies, policies, and measures. The USAID Office of U.S. Foreign Disaster Assistance (OFDA) works closely with communities, national and local governments, international and regional organizations, and nongovernmental organizations (NGOs) to identify, manage, and strengthen capacity and increase resilience to hydrometeorological disasters at all levels. These activities have strong links to managing natural resources, including water, and seek to enable countries and communities to prepare for and cope with hydrometeorological disasters through an integrated multisectoral approach that emphasizes capacity building and locally sustainable, environmentally sensitive measures. Specific activities encompass strengthening early warning capacity and information dissemination and include:

- Flood forecasting
- Drought monitoring, climate prediction, and mitigation
- Global flood hazard mapping
- Community-based flood and drought management
- Global flash flood guidance system



Disease outbreaks and lack of safe drinking water threatened Mandalay Marikina after Typhoon Onday hit the Philippines in September 2009. Flash floods from a nearby treeless mountain left mud everywhere, contaminating water sources.

© KARLO EMMANUEL M. VICTORIANO, COURTESY OF PHOTOSHARE

- Dissemination of hydrometeorological information to end users, populations in remote areas, and people at risk

FY 2009 Results

During FY 2009, USAID provided improved water supply to more than 6.4 million people, of whom approximately 4.5 million received first-time access to an improved supply. More than 3.4 million people received first-time access to improved sanitation. The Agency's investments in "water and sanitation supply projects" (the language of the appropriations legislation, PL 111-8, Omnibus Appropriations Act of 2009, of March 11, 2009) reflect the urgent need to help countries provide their populations with safe and affordable domestic water supplies that are effectively integrated into overall water resources management.



In this drought-stricken area of Zambia, USAID/OFDA supports irrigation projects and other drought-mitigation activities.

© HARIMAWAN LATIF, COURTESY OF PHOTOSHARE

FY 2009 Budget Allocations

USAID's total FY 2009 investments in all aspects of the water sector (WSSH, WRM/CCA, WP/FS, and DRR) exceeded \$630 million, a nearly 29 percent increase from the \$490 million investment level of FY 2008 and more than double the Agency's water sector investment just two years earlier in FY 2007. Geographically, the majority (89 percent) of water sector allocations were spread fairly evenly among the Middle East (\$191.5 million, 30 percent), sub-Saharan Africa (\$190.5 million, 30 percent), and Asia (\$180.8 million, 29 percent) (figure 1).

The total water sector portfolio of \$630.1 million was dominated by investments in drinking water supply, sanitation, and hygiene, with \$493.0 million in WSSH funds (78 percent), followed by \$50.6 million for DRR (8 percent), \$45.3 million for WP (7 percent), and \$41.2 million for WRM (7 percent) (figure 2).

WSSH: The breakdown of the total water sector budget of \$630.1 million into its components is provided in figure 3, and the breakdown of all WSSH investments, totaling \$493.0 million (figure 4), was as follows:

- \$296.1 million (60 percent), WSSH in the primary Framework for Foreign Assistance Water Supply and Sanitation element (element 3.1.8)
- \$98.9 million (20 percent), International Disaster Assistance (IDA)

- \$46.6 million (9 percent), household WSSH activities funded with the Global Health and Child Survival account
- \$41.9 million (8 percent), all other development program elements and sub-elements containing WSSH activities, including education (WSSH in schools), health (WSSH in health clinics), democracy and governance (WSSH in municipal services), and alternative development (WSSH in communities receiving antidrug development assistance)
- \$9.5 million (2 percent), PL 480 Food for Peace (FFP) program

Of the total \$493.0 million USAID WSSH funds in FY 2009, \$177.7 million (36 percent) were allocated to the Middle East and \$167.2 million (34 percent) to sub-Saharan Africa (figure 5). These were followed by Asia (\$114.1 million, 23 percent); central programs (\$16.4 million, 3 percent); Latin America and the Caribbean (\$14.7 million, 3 percent); and Europe and Eurasia (\$2.3 million, 0.5 percent).

WRM: In FY 2009, USAID reported more than \$41.2 million in WRM allocations, with Asia's 49 percent share the largest among the USAID regions (figure 6). For the Middle East, both absolute and relative amounts increased from FY 2008, from \$8.4 million (14 percent) to \$8.75 million (21 percent).

Figure 1: USAID Water Sector Budget Allocations by Region and Central Programs, Including IDA & FFP Fiscal Year 2009 Worldwide Funding \$630.105 Millions of Dollars

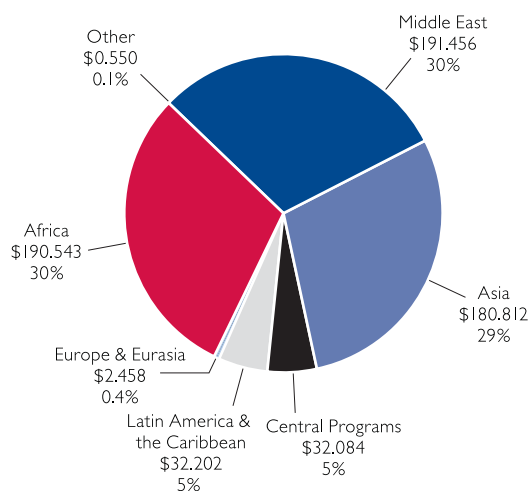
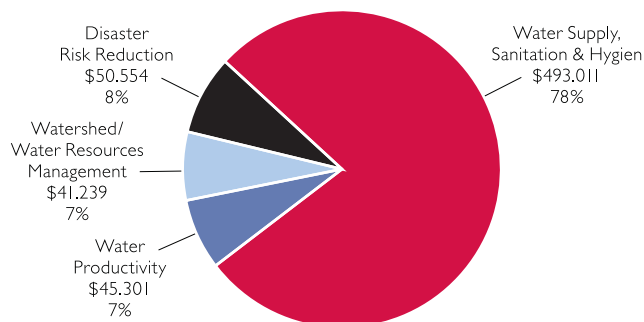


Figure 2: USAID Water Sector Budget Allocations by Key Issue, Including IDA & FFP Fiscal Year 2009 Worldwide Funding \$630.105 Millions of Dollars



WP: WP funds, which appear in the Framework for Foreign Assistance primarily under the Agricultural Sector Capacity program element, were reported at \$45.3 million, up from \$38.9 million in FY 2008. Sub-Saharan Africa represented about 32 percent of WP allocations, followed by Asia at 23 percent and Latin America/Caribbean and central programs, each at 17 percent (figure 9).

DRR: In FY 2009, USAID supported nearly \$50.6 million (including \$8 million through the FFP program) for hydrometeorological risk reduction activities (figure 10). For the first time, development accounts funding was included in USAID’s water sector summary for DRR within the Disaster Objective area of the Framework for Foreign Assistance. Most of these funds (including the

Figure 3: USAID Water Sector Budget Allocations by Funding Theme, Including IDA & FFP Fiscal Year 2009
Worldwide Funding \$630.105
Millions of Dollars

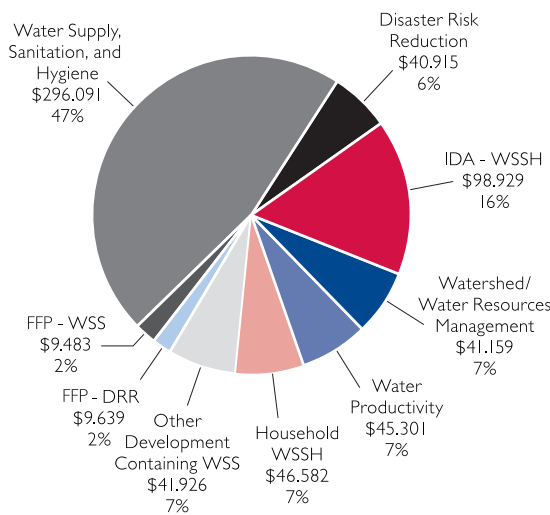


Figure 4: USAID Water Supply, Sanitation, and Hygiene Budget Allocations by Funding Theme, Including IDA & FFP Fiscal Year 2009
Worldwide Funding \$493.011 (78% of World Total)
Millions of Dollars

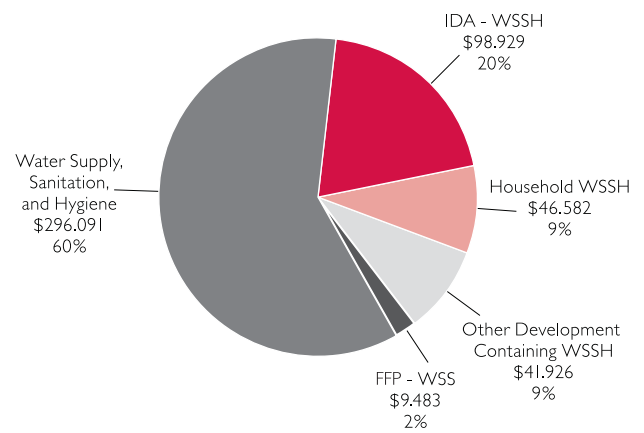


Figure 5: USAID Water Sector Budget Allocations for Water Supply, Sanitation, and Hygiene by Region and Central Programs, Including IDA & FFP Fiscal Year 2009
Worldwide Funding \$493.011 (78% of World Total)
Millions of Dollars

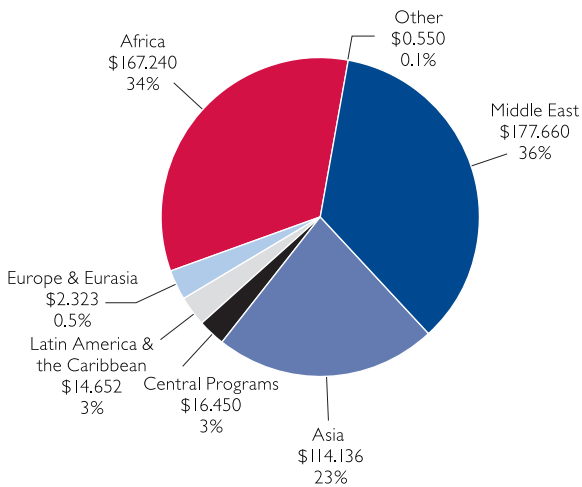
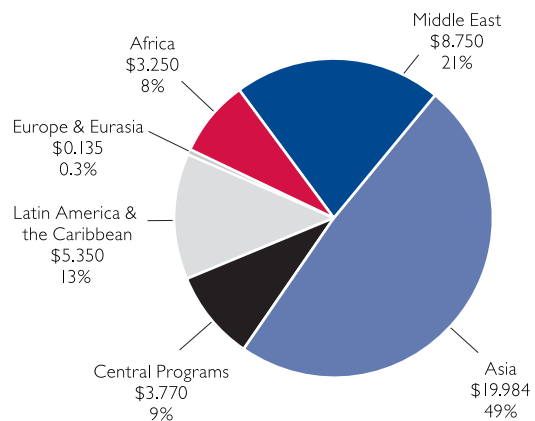


Figure 6: USAID Water Sector Budget Allocations for Watershed/Water Resources Management by Region and Central Programs, Including IDA & FFP Fiscal Year 2009
Worldwide Funding \$41.239 (7% of World Total)
Millions of Dollars



FFP funds) were allocated in Asia, mainly in Bangladesh, which received more than \$34 million of the total \$50.6 million for constructing shelters to protect vulnerable populations from flood and high wind damage caused by cyclones. Also included were some smaller development accounts-funded activities in other regions falling under the DRR category. Previously reported amounts under

the DRR category were exclusively reported as those funded only under the IDA account.

Congressional and Agency Background

USAID also fulfilled the congressional directive in the FY 2009 Consolidated Appropriations Act (PL 111-8, March 11, 2009), which states:

USAID Water Sector Funding Trends

In FY 2009, USAID WSSH funding directed at safe drinking water supply and sanitation projects surpassed \$493 million, the most from normal development appropriations sources (not including supplemental appropriations for Afghanistan or Iraq or other activities) since careful tracking of water sector funding levels began in 2000. The 26 percent increase from FY 2008 continued the upward trend in WSSH funding, which surged by 83 percent between FYs 2007 (\$213 million) and 2008 (\$389.9 million). The FY 2009 WSSH funding of \$493 million represented 78 percent of USAID's \$630 million total water sector portfolio.

The remainder of the USAID FY 2009 water portfolio was split among WP, which received \$45.3 million (7 percent); DRR, \$50.6 million (8 percent); and WRM, \$41.2 million (7 percent). This allocation was a substantial departure from FY 2008, when DRR received a less than 1 percent allocation while WRM and WP received, respectively, 12 and 8 percent. The shifting allocations in FY 2009 resulted in a substantial reduction in WRM funds (\$41.2 million, down from \$58.6 million in FY 2008).

The congressional directive for "water and sanitation supply projects" has increased throughout the decade, from \$100 million between 2003 and 2005 to the 2006–2007 level of \$200 million and then to \$300 million in FYs 2008 and 2009. Accordingly, WSSH rose as a percentage of all water sector allocations and commitments from 40 to 80 percent between 2003 and 2007 and has remained around 80 percent since. WRM and WP, taken together, meanwhile dropped from more than 60 percent to less than 20 percent. Since 2007, the entire USAID water sector portfolio more than doubled, from \$263 million in 2007 to \$630 million in FY 2009, as did all WSSH activities, from \$213 million to \$493 million. Figures 7 and 8 below show USAID's water sector budget allocations by theme in actual amounts and as percentage of total funding for FYs 2003 through 2009.

Figure 7: USAID Water Sector Budget Allocations by Theme, Fiscal Years 2003–2009
Millions of Dollars

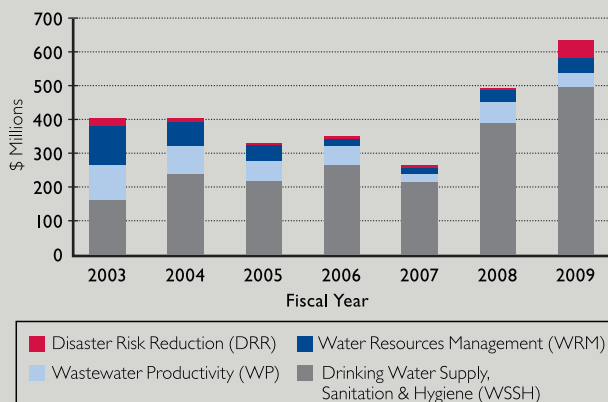


Figure 8: USAID Water Sector Budget Allocations by Theme, Fiscal Years 2003–2009
(as a percentage of total funding for that fiscal year)

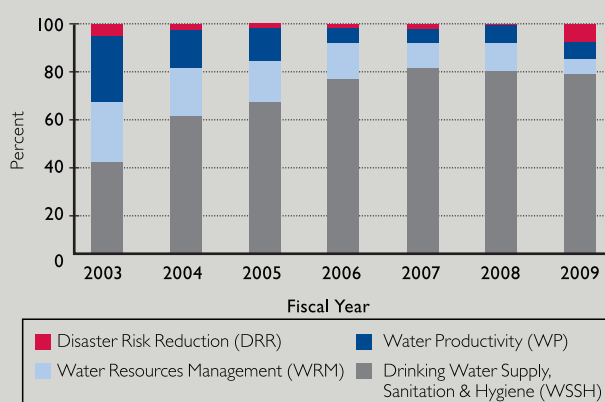
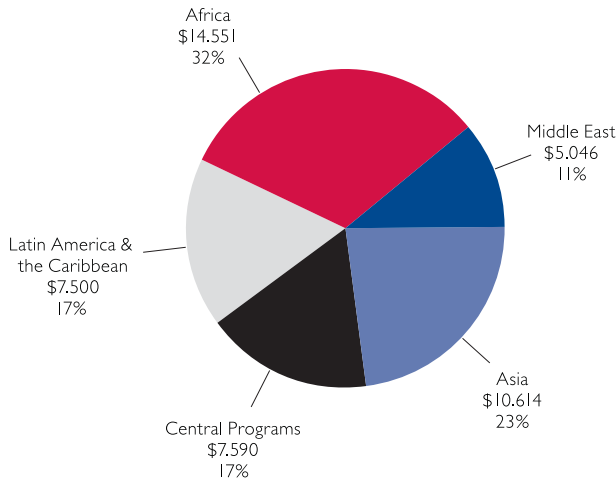


Figure 9: USAID Water Sector Budget Allocations for Water Productivity by Region and Central Programs, Including IDA & FFP Fiscal Year 2009
Worldwide Funding \$45.301 (7% of World Total)
Millions of Dollars

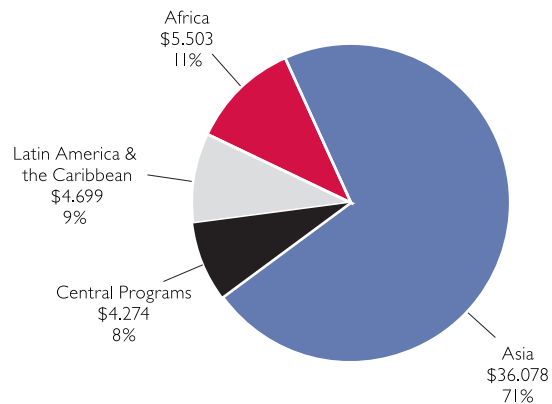


... of the funds appropriated by this Act, not less than \$300,000,000 shall be made available for water and sanitation supply projects pursuant to the Senator Paul Simon Water for the Poor Act of 2005 (PL 109-121).

The Agency fulfilled the water earmark with FY 2009 funding of \$300 million for activities meeting the earmark criteria, defined by USAID as activities meant to:

... implement the Senator Paul Simon Water for the Poor Act of 2005 with an emphasis on increasing sustainable access to safe drinking water and sanitation and improving hygiene. Eligible activities include development account-financed drinking water supply, sanitation, and hygiene activities and activities under watershed/water resources management and water productivity that have been approved for inclusion under water earmark funding.

Figure 10: USAID Water Sector Budget Allocations for Disaster Risk Reduction by Region and Central Programs, Including IDA & FFP Fiscal Year 2009
Worldwide Funding \$50.554 (8% of World Total)
Millions of Dollars



The amount of the \$300 million FY 2009 congressional USAID water earmark was unchanged from 2008, but the definition of the earmark permitted greater latitude for including some important WRM and WP activities under the earmark while still maintaining a primary emphasis on drinking water supply, sanitation, and hygiene.

The USAID programs, projects, and activities that address water and sanitation supply reflect the continuing efforts of USAID, the State Department, and other U.S. Government agencies to carry out a comprehensive strategy for implementing the Senator Paul Simon Water for the Poor Act of 2005, which made access to safe water and sanitation for developing countries “a specific policy objective of U.S. foreign assistance programs.”⁴ During FY 2009,

⁴ Paul Simon Water for the Poor Act 2005 at <http://www.state.gov/g/oes/water/>

Another Source of Information – The Senator Paul Simon Water for the Poor Act Report to Congress

The Department of State Report to Congress (June 2010) summarizes State Department, USAID, and other U.S. Government efforts to implement the Senator Paul Simon Water for the Poor Act during 2009. The report presents more than 30 reports from USAID Missions that summarize USAID Mission approaches in providing assistance in the water sector; Mission plans for measuring effectiveness, and Mission results reporting. The report is available on the State Department public Web site at: <http://www.state.gov/documents/organization/146141.pdf>.

Table 1: Allocations from Foreign Assistance Accounts to Meet the 2009 Statutory Requirement on Water and Sanitation Supply Projects by Region and Funding Account*

(Millions of Dollars)						
	DA	GHCS/ USAID	ESF	AEECA	IDA	Total
Grand Total**	117.948	34.529	141.824	5.358	0.341	300,000
Africa	66.950	17.690	26.000	-	-	110.640
Asia	20.508	10.189	47.478	3.651	-	81.826
Middle East	2.500	-	59.296	-	-	61.796
Central Programs	17.340	5.200	-	-	0.341	22.881
Latin America & the Caribbean	10.650	1.450	8.500	-	-	20.600
Europe & Eurasia	-	-	-	1.707	-	1.707
Other***	-	-	0.550	-	-	0.550

* FY 2009 budget data represent best estimates from USAID analysis of information as of March 2010.

** Grand Total amount represents the \$300 million FY 2009 water earmark.

*** Other: State Oceans and International Environmental and Scientific Affairs (OES)

Acronyms: DA = Development Assistance; GHCS/USAID = Global Health and Child Survival/USAID; ESF = Economic Support Fund; AEECA = Assistance for Europe, Eurasia, and Central Asia; IDA = International Disaster Assistance

these efforts were carried out in the State Department and at USAID in the third year of the Framework for Foreign Assistance, which includes an “operational plan” process that uses the Foreign Assistance Coordination and Tracking System (FACTS). Much of the information provided in this report is derived from submissions from all USAID operating units as of May 15, 2010.

FY 2009 Funding and Results for “Water and Sanitation Supply” Projects

The water directive in the Omnibus Appropriations Act 2009 resulted in a 2009 level of funding of \$300 million. USAID’s official budget allocation decisions for the FY 2009 water earmark funds by region, operating unit, and funding account are shown in table 1. Table 10 in the financial and results tables at the end of this report gives these figures by individual country.

Table 2 shows FY 2009 budget allocations for WRM, WP, and DRR activities by region and central programs,

while table 3 shows the allocations of all WSSH and non-WSSH activities combined.

The number of people receiving either first access to improved water supply (approximately 4.5 million) or improved access (1.3 million in Pakistan and 630,000 in Jordan) was more than 6.4 million in 2009, and people receiving first-time access to improved sanitation numbered more than 3.4 million. Table 4 provides these figures by region, and table 11 in the financial and results tables provides them by country, as reported by FACTS.

Also shown in table 4, the amount of drinking water treated with POU disinfection products partially or wholly supported by USAID in 2009 reached nearly 8 billion liters. These water treatment activities took place through 12 country programs and a central global health program, with Madagascar (more than 2.2 billion liters treated), Zambia (1.7 billion), and Kenya (1.65 billion) the three largest.

Table 2: FY 2009 USAID Budget Allocations across Regions and Central Programs by Selected Subcategories of Water-Related Activities

(Millions of Dollars)								
Water-Related Activities beyond Water Supply, Sanitation, and Hygiene (WSSH)	Africa	Middle East	Asia	Central Programs	Latin America & the Caribbean	Europe & Eurasia	Other	Grand Total
Water Resources Management	3.250	8.750	19.984	3.770	5.350	0.135	-	41.239
Water Productivity	14.551	5.046	10.614	7.590	7.500	-	-	45.301
Disaster Risk Reduction	5.502	-	36.078	4.274	4.700	-	-	50.554
All Non-WSSH Activities	23.303	13.796	66.675	15.634	17.550	0.135		137.094

Table 3: FY 2009 USAID Budget Allocations for the Water Sector by Region

(Millions of Dollars)								
Water Sector Activities	Africa	Middle East	Asia	Central Programs	Latin America & the Caribbean	Europe & Eurasia	Other	Total
Water Supply, Sanitation & Hygiene	97.076	164.130	88.645	16.450	14.235	1.867	0.550	382.953
IDA-Funded Water Supply, Sanitation & Hygiene	62.397	13.530	22.491		0.055	0.456		98.929
FFP-Funded Water Supply, Sanitation & Hygiene	7.767		3.000		0.362			11.129
All Water Supply, Sanitation & Hygiene (WSSH) Activities	167.240	177.660	114.136	16.450	14.652	2.323	0.550	493.011
Water Resources Management	3.250	8.750	19.984	3.770	5.350	0.135	-	41.239
Water Productivity	14.551	5.046	10.614	7.590	7.500	-	-	45.301
Disaster Risk Reduction	5.502	-	36.078	4.274	4.700		-	50.554
All Non-WSSH Activities	23.303	13.796	66.676	15.634	17.550	0.135	-	137.094
Total All Water Sector Categories	190.543	191.456	180.812	32.084	32.202	2.458	0.550	630.105

Prior to FY 2007, the definitions of the “numbers of people” indicators under the Water Supply and Sanitation element in the new Framework for Foreign Assistance focused on numbers of people receiving “access to improved” water supply and “access to improved” sanitation, and were changed to correspond with the definitions used by the United Nation’s Joint Monitoring Program (JMP) to measure progress toward the internationally agreed-upon Millennium Development Goals (MDGs) on water supply and basic sanitation. Those reported under these definitions

often already had some form of access to an improved water supply or improved sanitation, based on the JMP definitions, but their level of service was further “improved.” The difference between the MDG “access to improved” and USAID’s use of “improved access” is important because the MDG “access to improved” refers to people who are receiving their first access to an improved water supply or improved sanitation. These are people (usually the very poor in urban slums or small rural villages) who did not previously have such access.

Table 4: FY 2009 Number of People with Improved Access to Drinking Water Supply and Sanitation Facilities and Number of Liters of Drinking Water Disinfected with Point-of-Use (POU) Treatment Products by Region

	Number of People with Improved Access to Drinking Water Supply	Number of People with Improved Access to Sanitation Facilities*	Liters of Disinfected Drinking Water by POU Treatment**
Total	6,421,660	3,430,313	7,833,928,304
Africa	1,490,911	359,587	6,603,258,000
Asia	2,625,256	830,581	131,220,304
Middle East	838,000	2,165,038	-
Central Programs	-	-	1,085,450,000
Europe & Eurasia	74,340	-	-
Latin America & the Caribbean	1,393,153	75,107	14,000,000

* FY 2009 budget data represent best estimates from USAID analysis of information as of December 2009.

** FY 2009 budget data for POU treatment disinfected water from USAID analysis of information as of January 2010.

Africa

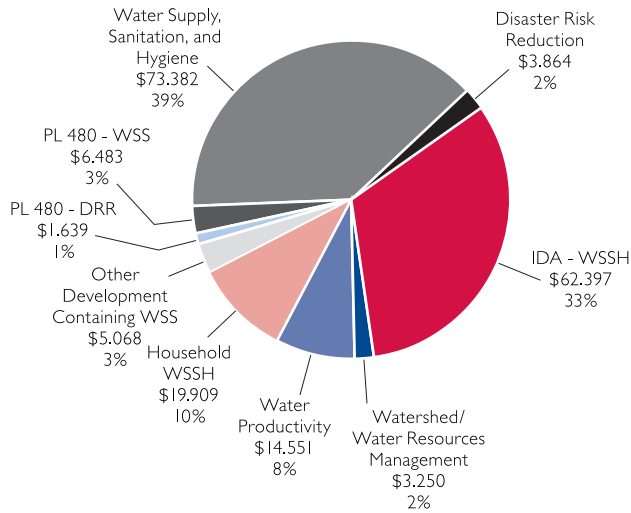
In a drought-ridden area of northern Ethiopia, residents have a water point for collecting clean water rather than drawing water from a river where animals drink.



© SANDRA KALSCHER, COURTESY OF PHOTOSHARE

Approximately 300 million people in sub-Saharan Africa lack access to clean drinking water, and twice that number lack access to adequate sanitation. In the vast majority of the region's countries, less than half the national population uses improved sanitation, and rates of open defecation, often on land close to sources of drinking water, remain high. Under these circumstances, waterborne illnesses, diarrhea in particular, are a major health concern, and in 2008 three sub-Saharan countries – Nigeria, the Democratic Republic of the Congo, and Ethiopia – ranked second, third, and fourth (behind India, with a much larger population) in estimated number of diarrhea-related deaths among children under age 5. Urban-rural disparities in availability of improved sources of drinking water are striking – 75 percent or more of urban populations in most sub-Saharan African countries have this access, compared with fewer than 50 percent of rural residents in most countries. Fewer than half of rural residents in every country but one (South Africa) use improved sanitation facilities, and the same is true for urban populations in about half of the region's countries.

Figure 11: USAID Budget Allocations for the Water Sector by Theme, Africa Fiscal Year 2009
\$190.543 (30% of World Total)
Millions of Dollars



In FY 2009, USAID water funding allocations in its Africa region exceeded \$190.5 million, nearly one-third of the year's total worldwide water allocations. Almost 90 percent of this total (approximately \$167 million) supported WSSH activities or household WSSH activities. In USAID-assisted countries, nearly 1.5 million people gained access to improved drinking water supply; nearly 360,000 gained access to improved sanitation facilities; and more than 6.6 billion liters of drinking water were disinfected by POU treatment. The box on page 15 gives an overview of USAID's 2009 water activities in sub-Saharan Africa. Narrative descriptions of the activities conducted by the Africa Regional program; subregional offices for East, Southern, and West Africa; and individual country Missions (listed alphabetically within subregions) begin below.

AFRICA REGIONAL

USAID's Africa Regional WSSH activities in 2009 included the USAID/Coca-Cola Company Water and Development Alliance (WADA); the PlayPumps Alliance; and the Hygiene Improvement Project (HIP).

Water and Development Alliance

Active in 16 African countries in 2009, WADA (a Global Development Alliance between USAID and the Coca-Cola Company) provided access to a clean drinking water supply to more than 24,100 people, provided access to sanitation services to more than 3,200 people, and reached thousands more with training, education, and outreach to raise awareness and change WSSH-related behaviors. In the Tano River Basin between Ghana and Côte d'Ivoire, WADA's Transboundary Community Water Management Project engaged stakeholders in both countries in cross-border dialogue to address watershed management, infrastructure, and conflicts. The project conducted a diagnostic assessment of water systems in all 10 river basin communities in Ghana and Côte d'Ivoire and formed and trained a water

and sanitation committee in each community to manage water facilities and action plans. The construction of pump and mechanized boreholes and a hand-dug well gave more than 12,600 people access to potable water. Latrines were fitted with handwashing facilities in nine schools, providing nearly 3,500 schoolchildren with improved sanitation services. To foster sustainability, 122 teachers were trained in monitoring and evaluation, hygiene promotion, and disposal of human waste. The project also addressed watershed management, conducting community-wide sensitization and capacity building activities on sustainable land use practices, wildfire management, agroforestry, the importance of water bodies, and environmental sanitation. More than 3,500 people participated in these activities. The project also planted about 13,600 trees along the Tano River as part of the restoration of the riparian zone.

The WSSH activities of WADA programs in individual countries in sub-Saharan Africa are described in the country entries that follow and also in the Central Programs chapter.

Meeting the WSSH Earmark for Sub-Saharan Africa

In fiscal year 2009, 19 of USAID's 23 bilateral Missions in Africa operated with a budgetary earmark requirement for WSSH activities. The East, Southern, and West Africa regional programs also had a WSSH earmark, as did Burundi and Somalia, non-USAID presence countries. Meeting the earmark requirements resulted in nearly \$63 million of support to water supply and sanitation programming; more than \$21 million dollars to maternal and child health programming; and \$15 million to programming areas such as natural resources, biodiversity, and agriculture sector productivity.

Collectively, the activities supported by these funds brought the following results to beneficiaries throughout sub-Saharan Africa:

- Nearly 1.5 million people in target areas gained access to an improved drinking water supply.
- Nearly 360,000 people in target areas gained access to improved sanitation facilities.
- More than 6.6 billion liters of water were disinfected with point-of-use treatment methods.

The following summary of Mission and regional WSSH activities illustrates the depth and breadth of USAID's undertakings in this vital sector for healthy, productive development in sub-Saharan Africa:

- Nine Missions worked at the national and local levels to improve institutional frameworks for water and sanitation management and build governance capacity. This work ranged from helping to establish a National Water Authority in Burundi to training civil servants in Mali and Sudan to expanding incentive-based management systems for water operations in Uganda.
- 22 Missions invested in WSSH training.
- Nine Missions assessed their WSSH programs or developed new strategies. USAID/Kenya developed a Mission-wide strategy to guide WSSH programming that features multiple-use water systems that improve food security and incomes. The new Sustainable Water and Sanitation in Africa (SUWASA) project worked to increase sustainability through innovative financing, improved governance and management, and improved service delivery to the poor.
- 10 Missions worked to improve sources and delivery of water, including safe water points, water utility operations, and infrastructure.
- 11 Missions focused on ensuring safe water for households through point-of-use treatment.
- 11 Missions implemented programs to improve WSSH in schools. Activities included handwashing campaigns, construction of improved latrines, and ensuring that schools have water. Such improvements are shown to have a direct impact on the attendance of children – especially girls – and thus their economic prospects.
- 16 Missions supported expanding sanitation services. While many Missions helped construct latrines, others moved toward more innovative approaches such as “community-led total sanitation” and sanitation marketing with local businesses.
- Nine USAID Missions involved the private sector (local and international) in marketing and sales of water purification and other hygiene products, low-cost drilling, water and sanitation facilities operations, and spare parts manufacture.

In 2010, USAID Missions throughout the region are continuing to apply these and other strategies in the campaign to bring countries in sub-Saharan Africa closer to meeting their water and sanitation goals.

Table 5: Africa, Top Receiving Countries, WSSH Funding,* FY 2009

Receiving countries	\$ (millions)	Percent
Sudan	38.9	23.3
Ethiopia	14.9	8.9
Zimbabwe	13.6	8.1
DR Congo	13.4	8.0
Kenya	8.3	5.0
Madagascar	5.7	3.4
Uganda	5.0	3.0
Zambia	4.8	2.9
Chad	4.3	2.6
Senegal	4.0	2.4
Tanzania	3.6	2.2
Somalia	3.3	2.0
Angola	3.0	1.8
Ghana	3.0	1.8
Liberia	2.9	1.7
Nigeria	2.1	1.3
Other (13 countries, 4 regional missions, undistributed)	36.5	21.8
Total WSSH/Africa**	167.2	

* Budget allocations and commitments **Country figures and percentages may not add to total or 100 due to rounding.

PlayPumps

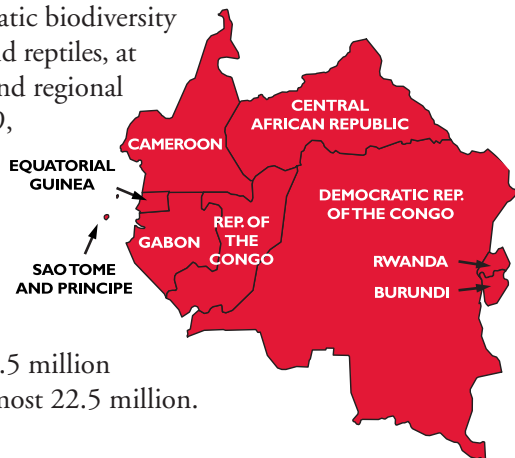
The PlayPumps Alliance provided clean drinking water to more than 110,000 people through 105 new PlayPump installations in Zambia and Malawi. It also initiated projects in Ethiopia, Kenya, South Africa, Tanzania, and Uganda.

Hygiene Improvement Project

HIP implemented large-scale activities in Ethiopia, Madagascar, and Uganda, providing more than 40,300 people in target areas with access to an improved drinking water supply. HIP also reached many communities with hygiene and sanitation promotional messages and trained professionals in education, health, agriculture, and civil society in hygiene and sanitation. The WSSH activities and results of various HIP projects in individual countries in sub-Saharan Africa are described in the country entries that follow.

Central Africa Regional Program for the Environment (CARPE)

CARPE provides leadership in natural resources management and biodiversity protection in priority landscapes in nine countries in Central Africa. Large-scale landscape management plans are the principal means of decreasing the rate of loss of key species, and CARPE implements a comprehensive forest landscape and biodiversity planning and management system. The system integrates biodiversity monitoring with national legal, regulatory, and policy strengthening programs to support biodiversity conservation, including aquatic biodiversity among fish and reptiles, at the national and regional levels. In 2009, CARPE increased its total area under fully designed management plans from 12.5 million hectares to almost 22.5 million.



Fish pond aquaculture, Rwanda.

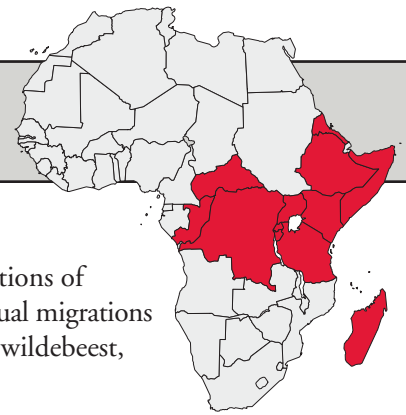
© STEPHEN GOLDSTEIN, COURTESY OF PHOTOSHARE

Radio and Internet for the Communication of Hydro-Meteorological and Climate-Related Information (RANET)

USAID/OFDA supported the RANET program in 16 African countries to make climate, weather, hydrological, and other information more accessible to remote populations and help them prepare for natural hazards. Developed by USAID/OFDA, the National Oceanic and Atmospheric Administration (NOAA), and various national, donor, and NGO partners, RANET provided communities and households with information and advice on hydrology, agriculture, and partnerships with organizations engaged in health, agriculture, education, and other development priorities. RANET stations in Mozambique, in particular, operated in some highly vulnerable and remote locations.

In addition to the above regional programs, the new Africa Regional SUWASA project held competitions among Missions for initiating programs in utility reform and expanded services for poor consumers, and the Advancing the Blue Revolution Initiative trained more than 65 USAID staff in WSSH activities in anticipation of scaled-up programming.

EAST AFRICA REGIONAL PROGRAMS



The USAID East Africa Regional Mission operates out of Nairobi, Kenya, and complements USAID’s bilateral Missions in its East Africa subregion. In 2009, its Transboundary Water for Biodiversity and Human Health in the Mara River Basin (TWB-MRB) program supported WSSH and WRM activities in the Mara River Basin along the Kenya-Tanzania border. In addition, the Regional Enhanced Livelihoods in Pastoral Areas program in southern Ethiopia and northern Kenya facilitated peaceful access to water and rangeland across borders.

Transboundary Water for Biodiversity and Human Health in the Mara River Basin

Home to 700,000 people and one of the most economically significant ecoregions in East Africa, the Mara River Basin is threatened by growing water scarcity due to upstream water extraction, poor land management practices, and discharge of untreated raw waste into the river. During the dry season, more than 70 percent of households in the basin take one hour or more to obtain water from various sources. The entire area lacks wastewater collection and treatment systems, and the only fecal disposal method available to the local inhabitants is pit latrines. A majority of residents do not have any knowledge of basic sanitation, hygiene, and water management. The basin encompasses Serengeti National Park and the Masai Mara National Reserve, a game reserve that has some of the

world’s highest concentrations of hooved animals, with annual migrations of more than 1.5 million wildebeest, zebras, and gazelles.

WSSH: The WSSH component of TWB-MRB focused on 1) improved access to and management of safe water and sanitation services; 2) community benefits of multiple uses of new safe water supplies; and 3) developing and disseminating health and hygiene information, education, and communication (IEC) materials, forming school hygiene clubs, and training local promoters of conservation, hygiene, and water treatment technologies. More than 16,000 people in the river basin area received access to clean drinking water. The majority were schoolchildren attending schools that lacked access. Another 4,500 people benefited from access to improved sanitation facilities, including ventilated improved pit (VIP) latrines in schools and demonstration community VIP toilets with water supply and handwashing facilities. The program increased the development and dissemination of IEC materials and initiated school hygiene clubs. Training activities included awareness raising of water, sanitation, and health issues for more than 90 people; training 50 teachers in methods to engage students and parents in hygiene and sanitation education; training 135 people in “participatory hygiene and sanitation transformation” (PHAST); hygiene and



Left to right: Ethiopian drought; visible effects of point-of-use water purifier, Kenya; coastal mangrove, Kenya; new water tank, Tanzania

Picture credits on page 115.



USAID's East Africa regional program supports water resources management activities in Kenya's Masai Mara National Reserve, which is home to millions of zebras, gazelles, and, shown here, wildebeests.

BALANTHOLANDI

sanitation training for more than 400 members of student drama groups; and training of six community masons in ecological sanitation toilet construction.

WRM: The program's activities focused on reducing threats to biodiversity and improving WRM practices in the ecoregion. During 2009, TWB-MRB facilitated the completion of a biodiversity action plan (BAP) and an environmental flows assessment (EFA) for the basin. The BAP identified biodiversity "hot spots" and threats to them and made recommendations about sustainable natural resources management. The EFA quantified the water needs of the Masai-Mara and Serengeti conservation areas and established an environmental flow prescription that can be incorporated into water management plans. Crucial to the completion of these two processes was their acceptance and adoption by the Lake Victoria Basin Commission of the East African Community, which represented high-level recognition of the need to engage and implement the TWB-MRB recommendations and that cross-boundary management of the basin is key to its long-term survival.

TWB-MRB's ground-level WRM activities in 2009 included training for more than 240 people in how to mobilize, organize, and run community-based organizations such as water user groups and committees for effective water fee collection and water resources management and governance. More than 90 people received awareness-raising training in watershed management and multiple uses of water, and five village savings and loan groups and water user associations were established.

East Africa Country Programs

■ Burundi

Burundi's water sector continues to recover from the destruction caused by the 1993–2005 civil war. New challenges have emerged from the rampant growth of urban areas spurred by the return of displaced peoples, with households forced to rely on unprotected water from rivers, lakes, water haulers, shallow wells, and unmanaged public standpipes.

WSSH: In 2009, USAID WSSH activities extended access to improved drinking water to nearly 130,000 people and access to improved sanitation facilities to more than 26,000. The Burundi maternal/child health program helped several health centers around the country gain improved WSSH.

WRM: USAID supported two WRM studies that identified environmental degradation, risks to public health, and ways to control water pollution caused by agricultural practices, and a third study that recommended consolidating the number of government authorities responsible for water. As a result, a national water authority was established to manage and resolve competing interests. Recommendations from the three studies were incorporated in the national water policy, which is in the process of being validated by the Council of Ministers.

WP: USAID conducted feasibility studies, including testing of water samples, at 17 coffee washing stations for interventions designed to reduce river contamination

from station wastewaters. Most of Burundi's coffee washing stations lack access to potable water and have no latrines, and their processing techniques threaten the local environment because their wastewater is not treated before it re-enters the groundwater and the nearby rivers. Resolving this contamination issue is important for the coffee industry, the safety of rural communities, and the ecology of Burundian rivers. In 2009, USAID/Burundi laid the foundation for future activities to reduce river and ground water contamination, reduce inappropriate use of fertilizers, and improve clean water access and hygiene and sanitation education in communities in the target areas.

■ Democratic Republic of the Congo (DRC)

**% access improved drinking water (rural/urban):
24/80**

**% access basic sanitation (rural/urban):
15/22**

DRC has abundant water resources, but in 2007 only 24 percent of the rural population had access to an improved source of drinking water (compared with 80 percent of the urban population). Access to basic sanitation is low in both urban (22 percent in 2007) and rural (15 percent) settings. In rural health zones, the lack of convenient access to water supply has strong gender implications, as time-intensive water collection often prevents women from taking up income-generating opportunities or girls from attending school. There is also a strong gender dimension to sanitation because of women's needs for privacy and safety.

WSSH: To reduce illness and death from waterborne diseases, the Ministry of Health's Healthy Village and Healthy School programs follow a community participation model, piloted under a former USAID project, that uses the PHAST methodology. In 2009, nine USAID-supported health zones implemented the Healthy Village program. An estimated 67,250 people received access to water from 269 water sources built or rehabilitated with USAID funding, and 87 latrines were constructed in health centers. In addition, USAID's AXxes Project conducted an evaluation that found that its water, sanitation, and hygiene (WASH) investments to date have focused on protecting a limited number of springs and building some latrines. To complement these investments, the evaluation recommended that USAID expand its future interventions to include promoting low-cost technologies for water supply (such as spring capping, manual drilling, locally manu-

factured durable rope pumps); water storage (rainwater harvesting cisterns); water quality (social marketing of POU water treatment technologies); handwashing stations; and a range of latrine options using locally available materials. A USAID/OFDA project initiated WASH activities in North Kivu that will benefit approximately 35,000 people, including 9,500 displaced persons, through hygiene promotion, water chlorination, rehabilitation of springs and other water systems, and the formation of community-based water management committees.

WRM: The tropical forest of the Congo River Basin remains relatively intact. It stores a massive quantity of carbon in its organic matter and plays a substantial role in regulating global and regional climate through the recycling of greenhouse gases and water. The destruction of forest through conversion to agriculture and pasture by cutting and burning old-growth forest releases massive quantities of greenhouse gases into the atmosphere. The largest contributor to this destruction in DRC is small-scale clearing of land by agricultural smallholders, and in 2009 USAID/DRC engaged in joint programming with the CARPE regional program to support sustainable agricultural activities in three different landscapes. Activities included conserving the use of trees in tropical production systems; increasing forest cover; reducing soil erosion and water degradation caused by slash-and-burn cultivation; maintaining and improving biodiversity habitat; planning, protecting, and managing natural forests; improving agricultural inputs; and planning with communities located near important conservation landscapes. USAID/DRC also commissioned a biodiversity assessment, as required by the foreign assistance legislation.



A pharmacy owner in the Democratic Republic of the Congo displays PUR water purifier.

© GREG S. ALLGOOD, COURTESY OF PHOTOSHARE

■ Ethiopia

% access safe drinking water:

38

% access improved sanitation:

12

Technical and financial limitations hamper Ethiopia from effectively harnessing its abundant water resources for improving health and food security. Only 38 percent of the population has access to safe drinking water and only 12 percent to improved sanitation. Lack of water and sanitation are major causes of illness and disease, contributing to more than 75 percent of outpatient cases. Diarrhea accounts for approximately 20 percent of all under-5 deaths, and 88 percent of diarrhea cases are attributed to water- and sanitation-related causes. In approximately 90 percent of households, women or girls shoulder the burden of water collection, often spending hours each day fetching water. For girls, water collection and lack of sanitary facilities in schools reduces their school attendance, and traveling hours to remote sources exposes them to possible gender-based violence.

WSSH: In 2009, USAID/Ethiopia's WASH program, implemented through the Millennium Water Alliance, supported NGOs that established or rehabilitated 96 protected water schemes (21 springs, 63 hand-dug wells, and 12 shallow wells). USAID programs built more than 15,200 pit latrines for household use and 114 VIP latrines for schools and health centers. Each water scheme established a WASH committee for overall management and sanitation and hygiene promotion. USAID trained 311 WASH committee members in water scheme operation, maintenance, and financial management, and trained more than 97,400 people in sanitation and hygiene education. The inclusion of women, who are disproportionately affected by the lack of and need for water and sanitation facilities close to their homes, contributed to better water source management and care. Through these and other efforts, more than 46,000 people now have access to safe drinking water and more than 76,000 have access to improved sanitation. Nearly 43,000 schoolchildren now have gender-appropriate latrines to use at school.

With Food for Peace funds, USAID also continued its support for the Ethiopian Government's Productive Safety Net Program (PSNP) and PSNP PLUS food se-

curity programs. PSNP PLUS helps PSNP beneficiaries graduate from permanent food aid by linking them to economically viable, market-driven interventions designed to increase household incomes. In 2009, PSNP PLUS added a WSSH component to help PSNP beneficiaries graduate by decreasing the incidence of disease and reducing the time needed for women and girls to fetch water, thus increasing their time for productive activities. The Food for Peace funds provided more than 90 hand-dug wells and nearly 2,000 community latrines. USAID also supported the establishment or reinstatement of water and sanitation committees through several trainings in rural communities.

In Amhara region, USAID's Hygiene Improvement Project (HIP) reached approximately 1.2 million people with hygiene and sanitation promotion activities, and 600,000 people realized the goals of no open defecation and total hygiene behavior change. Working with the World Bank's Water and Sanitation Program, HIP's approach reinforced handwashing and sanitation behavior change by combining innovative community- and household-level actions, including an approach for negotiating improved household hygiene behaviors through the outreach efforts of national health extension workers and seasonal farm extension workers. The project also provided training in "community-led total sanitation." Handwashing and hygiene were explicitly promoted in all sanitation activities, which encouraged the establishment of handwashing stations and use of water-saving devices like tippy taps to overcome barriers to handwashing. HIP also trained 348 workers from three Ethiopian NGOs to integrate WASH practices into their home-based care programs for people living with HIV/AIDS, who are at great risk of becoming sick from unsanitary conditions. This hands-on practical training focused on treatment and safe storage of drinking water, handwashing with soap or ash, and safe disposal of feces.

WRM: With phase II of its Pastoralist Livelihood Initiative entering its first year of operation, USAID helped improve pastoralists' access to water sources in regions often plagued by drought and overuse of water resources. The goal of the four-year project is to improve the livelihoods of more than 200,000 pastoralists and ex-pastoralists in Ethiopia's lowlands by improving their management of livestock and increasing livestock values and sales. Improved water management is one of the project's focal activities. In 2009, USAID in particular supported pipeline maintenance in Oromiya region and pipeline extensions to link irrigation sources with livestock markets in Afar region.

For sustainability, these projects closely collaborated with municipalities and provided training in water management, construction/reconstruction of pipelines and wells, and land use management.

DRR: In 2009, USAID/OFDA and the U.S. Forest Service began discussions with the Ethiopian Government’s Early Warning and Response Directorate on establishing an “incident command system” for mounting coordinated, rapid cross-sectoral responses to droughts, floods, and other emergencies.

WASH Practices Improve Health of Ethiopians Living with HIV/AIDS

People living with HIV/AIDS are at increased risk of having diseases related to poor hygiene, so practicing good water, sanitation, and hygiene (WASH) behaviors is especially important to their health. In 2009, USAID’s Hygiene Improvement Project (HIP) collaborated with HIV/AIDS care and support projects in Ethiopia to integrate WASH and HIV/AIDS activities. One of these projects, the Alemtena Care and Support Project, had already participated in USAID’s research in Ethiopia to identify small “doable” actions that people who have HIV/AIDS can adopt to improve their WASH practices. The Alemtena project sent some of their staff to participate in HIP training of trainers for WASH and HIV integration, and these trainers have since trained 40 HIV/AIDS home-based care (HBC) workers. The HBC workers visit clients and make sure they are taking their antiretroviral treatment medications and teach them how to take better care of themselves by improving their WASH practices, such as storing their drinking water



using the jerry can provided by the project, treating the water using Wuha Agar (a chlorine-based water treatment solution), using an improved latrine with concrete slabs provided by the project, and washing their hands

A home-based care worker demonstrates hand-washing technique using a tippy tap with built-in soap-on-a-rope.

R. BERRY, AED

with soap after using the latrine and at other critical times. Each HBC worker supports six to 12 clients who have HIV/AIDS or else are orphans or vulnerable children.

Emebet is one of the Alemtena project’s HBC workers. She has been working with the program for more than a year and a half. She supports 12 clients whom she visits each week, reminding them how to stay healthy by taking their antiretroviral medications and using good WASH practices. She travels as far as 40 to 70 kilometers to visit some of her clients, two of whom are bedridden. “I hold a coffee ceremony in each village I visit,” she said. “I eat with them and provide support. If they are sick I urge them to go to the clinic.” Once a month she returns to Alemtena’s church clinic and gets more supplies for her clients, including gloves, medications, and Wuha Agar.

Among Emebet’s clients are Bizunesh and her family, all of whom are HIV positive. They are making good progress with practicing the improved health and WASH behaviors they have learned from Emebet. The household stores its water properly in a jerry can, treats it with Wuha Agar, uses a nearby communal latrine, and practices handwashing at critical times – after using the toilet and before eating and handling food. “Before learning the WASH practices we were sick more often,” Bizunesh said. “Now we are almost never sick.”

■ Kenya

% access improved sanitation:
45

% access improved water supply (rural/urban):
40/60

Kenya is a water-scarce country. More than 80 percent of its territory is classified as arid or semi-arid. In 2008 and 2009, the country suffered its worst drought in 25 years, with crops failing in many parts of the country and livestock and wildlife perishing for lack of pasture and water. Today's annual renewable fresh water supply amounts to only 647 cubic meters per capita, an amount projected to fall to 235 cubic meters by 2025 as the population increases. Current improved water supply coverage is estimated at 40 percent for rural areas and 60 percent for urban areas, and only 20 percent in urban and peri-urban poor settlements. People in rural areas – often women or girls – walk long distances to get water, much of which comes from unhealthy sources. Sanitation also remains a challenge, with only about 45 percent of households having access to improved sanitation.

WSSH: WSSH activities in 2009 saw considerable progress in providing clean water supplies through rain water catchment at health facilities, installation of water tanks, and use of the WaterGuard chlorine-based purification agent to make water safe for oral rehydration therapy for diarrhea. USAID's efforts to provide WASH services

to poor and vulnerable populations increased access to water supply and sanitation services in needy communities and decreased the prevalence of water-related diseases through household hygiene. Results from a number of district-level projects included:

- Approximately 80,000 people gaining new access to potable drinking water
- Approximately 45,000 people gaining new access to improved sanitation
- Approximately 1.65 billion liters of drinking water purified
- More than 30,000 children treated for diarrhea

Much of USAID/Kenya's support to the water sector was integrated with Food for Peace programs in arid, semi-arid, and other food-insecure areas. Water-related activities in these programs involved developing new safe water sources for humans and livestock and promoting micro-irrigation systems and sustainable management of community water systems through users' fees, water/sanitation committees, and operations and maintenance training. USAID also implemented several humanitarian water and sanitation activities in drought-affected areas.

■ Madagascar

USAID support for Madagascar's water sector was severely curtailed in 2009 due to the suspension of assistance to



Kenya's "ecosanitation" program has installed clean public toilets and sanitation facilities in urban settings throughout the country. Some facilities average more than 1,000 users per day.

USAID/CARL MITCHELL

the Malagasy Government following the military coup in March. The U.S. Government redirected its technical and financial assistance to communities, civil society organizations, and the private sector, and USAID water programs continued to achieve positive results working with NGOs, religious groups, scouts, and private sector organizations.

WSSH: USAID/Madagascar continued to be a leader in the use of water purification treatments. In 2009, the USAID-supported social marketing program sold treatments for more than 2.2 billion liters of water, more than in any other USAID-assisted country worldwide.

Women and Water: A Perspective from Rural Kenya

“Women are the pillars of a healthy nation.” – lesson learned at USAID Kenya water and sanitation project

Meliyo Tompoi, 35 years old and mother of six children, lives in the Mara division of Narok district in southwest Kenya, site of a USAID-supported water and sanitation program implemented by the World Concern Development Organization (WCDO). She is a member of the local water committee, a leader of a women’s group, and the first resident to receive training as a health promoter. She is also trained in water and sanitation issues and wants to mobilize young mothers and old grandmothers to form village health clubs.

Meliyo states that many of the domestic uses of water in her society are traditionally carried out by women for social, religious, physical, and environmental reasons. Meliyo says she believes that water is life, but at the same time it can also be death. She knows that many of the diseases in her village are caused by dirty and contaminated water, sometimes leading to death from waterborne diseases.



Meliyo’s story reflects what many women in rural villages go through daily to get water. It is a clear picture of the survival of the fittest and of the risks of contaminated

Dirty or parasite-contaminated water contributes to significant waterborne disease incidence in rural Kenya.

WCDO

water at unprotected water points. Mara is one of Narok’s driest divisions and lacks water for drinking and cooking. On average, a household in Meliyo’s village requires about 40 liters a day, but the long distances to

water sources – up to 25 kilometers and six hours there and back – limits households to 15 to 20 liters. At times, people can only eat once a day due to the lack of water, and schools sometimes end their school year early because they lack water. Most of the area’s water points are dry. The few that are not are overcrowded by both people and animals, with cases reported of conflicts between people and wildlife. Occasionally people are killed by elephants or lions at the shared water points.

As a community leader, Meliyo participated in a needs assessment that identified water as the top community priority. As a result, WCDO excavated a shallow well just one kilometer away and struck fresh water. It now takes just 20 minutes to obtain water. Meliyo said that due to the nearby location of the well, women can now use the time they once spent fetching water on village development activities. Conflicts have drastically declined as well.

Through the USAID program, WCDO is helping communities throughout Narok and also in Lamu district in Kenya’s northeast coastal region address these problems. In the two districts, the project will ultimately benefit more than 150,000 people. In addition to providing new accessible sources of clean water, the project supports latrine construction, hygiene and sanitation practices, and community involvement through community development committees, water management committees, and training for health promoters and women’s groups.

Collecting water for household use from a river near Lac Aloatra in Madagascar.

WATSON/DAI



USAID supported numerous WSSH activities through the HIP program. Activities in Madagascar included pilot launches of market and taxi station sanitation and hygiene facilities, with a revolving fund system for increased investment in sanitation. Two privately managed fee-for-service public WASH facilities were designed and piloted under an innovative public-private partnership model. During the first month of operation, 2,800 people visited one of the facilities. USAID will support five additional facilities following this successful model.

To improve sanitation, USAID trained more than 300 local masons in the production, installation, maintenance, and marketing of Sanplat hygienic latrine slabs adapted to meet the special needs of Muslim communities. The masons became regular suppliers and maintenance technicians. Nearly 1,100 households purchased slabs. USAID also initiated a sanitation marketing program through small businesses and entrepreneurs, assisting them in producing, selling, obtaining, displaying, and promoting WASH products, including latrine slabs, soap, and water treatment products.

An annual behavioral outcome monitoring survey found that between 2007 and 2008 open defecation in USAID intervention zones decreased by more than 50 percent and that use of latrines to dispose of children's stool increased by 65 percent.

USAID programs stimulated demand for clean water through a variety of community-level activities. More

than 4,000 community health workers and representatives from a network of women's associations received training in leading individual and collective behavior change using theater, folklore, and puppets to transmit WASH messages. An additional 65 communities were identified as priority participants in WASH education and community mobilization activities and learned the interrelationships among health, the environment, and development.

Remote communities in rural areas benefited from construction of 85 boreholes and two rainwater harvesting systems; rehabilitation of a gravity flow water supply system; and training for community members. To ensure village-level operations and maintenance, community management structures were established to manage and maintain each newly installed or rehabilitated water point. USAID-trained entrepreneurs who sell, build, and install rope pumps attracted increased numbers of customers.

Late in the year, the Water for Progress activity of the Rural Access to New Prosperity: Health and Prosperity project got under way. Over four years, it will target 300,000 people in five regions of southern Madagascar and provide 130,000 people with improved sanitation.

WRM: USAID/Madagascar's integrated biodiversity program seeks to protect the country's unique biodiversity, which exists nowhere else on Earth, while also creating meaningful livelihood opportunities and changing unsustainable practices in rural communities. Activities also address the threats of deforestation caused by slash-



Handwashing with soap is one of the behaviors promoted by USAID's Hygiene Improvement Project in Madagascar.

TIMOPSON/AED

and-burn agriculture and unsustainable exploitation of natural resources in and around protected areas. During the program's five-year duration, 4.6 million hectares were placed under protection, with all of Madagascar's habitat types represented in the National Protected Areas system. These land and natural resource conservation activities served to protect watershed functions, increase water infiltration, reduce flash runoff, and helped maintain environmental ecosystem services in watersheds, especially freshwater groundwater recharge and seasonal surface water base flows. In 2009, USAID finalized and distributed the first comprehensive map and associated data system for the Protected Areas system. To capture and share the results of the past five years, more than 250 people from across the country participated in an assessment and disseminated a compilation of "lessons learned" for future use.

In 2009, USAID also strengthened community-based organizations and federations charged with comanaging specific conservation areas. Ten federations were operational, with 155 member associations and 10,000 affiliates covering 884,500 hectares. New management units and governance structures were created to provide coverage of the entire forest corridor, and 1.2 million hectares were put under global protection status, protecting the areas from mining and forestry exploitation. Simplified land management plans for implementing natural resource transfer contracts by communities were prepared for 45,505 hectares.

Twenty-two conservation action grants were allocated to local NGOs, who signed contracts with communities to

engage them in direct conservation and generate alternative income. Four grants targeted the conservation of species listed under the Convention on International Trade in Endangered Species by engaging communities in ecological monitoring of specific habitats using rigorous monitoring protocols. Other grants supported community ecotourism projects, produced communication tools for sustainable forest management and conservation, and increased outreach to communities in remote areas. More than 1,100 managers of protected areas, local stakeholders, and community members, including 192 women, received training in conservation and management planning, protected area governance, and marine reserve management. USAID supported partnerships between local organizations and fishing communities for creating five marine reserves, and 162 people received training. The results were compiled into a common methodology to be used as a tool across Madagascar.

DRR: USAID/OFDA supported the Multi-Use Water Source Development project in southern Madagascar to promote drought mitigation using multiple-use water sources for both agriculture and consumption. Intensive community education on basic hygiene practices and home vegetable gardening supported by small-scale irrigation systems was part of the project. Since its inception in 2007, the project has benefited more than 28,000 people in food-insecure communities, which have seen a 50 percent increase in access to improved water points, a 13 percent increase in household latrine use, and an increase in daily water use from five liters per person to 15.

■ Rwanda

% access safe drinking water:

73

% access improved sanitation:

< 25

Rwanda's water supply and sanitation sector has experienced dramatic improvements in service, sustainability, and coverage since sector reforms began in 2000. Around 6.9 million people out of the 9.5 million population (or 73 percent) had access to safe drinking water in 2008, and the Government's vision is to increase access to 85 percent by 2015 and 100 percent by 2020. Sanitation coverage is much lower, however, with less than a quarter of the population having access to improved sanitation facilities in 2006.

WSSH: USAID continued to support the scale-up of the Sur'Eau POU water purification treatment product. In 2009, more than 326.5 million liters of water were treated with Sur'Eau. Many organizations were trained to improve the market and promote and distribute Sur'Eau, especially in rural settings. At two rural coffee cooperatives, for example, adult and youth peer educators spoke to approximately 20,000 farmers and families about Sur'Eau, safe water, and proper hygiene.

Significant community mobilization and water promotion activities supported capacity building efforts. All major community radio stations broadcast safe water messages. With training, community outreach workers provided information on how to use Sur'Eau and how to provide messages about safe water practices. The Ministry of Health actively endorsed Sur'Eau nationwide and supported the integration of safe water campaigns in health care and treatment settings. These campaigns targeted vulnerable populations, such as people living with HIV/AIDS, and other groups, including mothers of children under age 5. During a nationwide vaccine campaign, for example, one free bottle of Sur'Eau was distributed to each mother who brought her children for vaccinations.

Health facilities supported the direct distribution of Sur'Eau during HIV counseling and testing and routine maternal/child health activities. The implementation in Rwanda of USAID's Regional Outreach Addressing AIDS through Development Strategies project included a safe

water and hygiene component to reduce the incidence of HIV/AIDS-related illness caused by poor hygiene practices.

Other USAID support included promotions of hygiene practices such as household water treatment, safe storage of water, handwashing with soap, and safe waste disposal. Integrated health messages addressed connections between malaria, child survival, and safe water, and interactive community events provided messages on handwashing, water purification, and improved hygiene to increase knowledge of waterborne diseases and their prevention and demand for safe water systems.

WRM: Population pressure, agricultural settlement, and firewood collection have contributed to significant deforestation in Rwanda. Over the last half century, the country has lost nearly two-thirds of its natural forests and one-third of its national parklands, both of which are significant sources of tourism income and ecosystem services. USAID's WRM activities have centered around Nyungwe National Park (NNP) and its buffer areas, a biological hot spot of more than 75 mammal, 278 bird, 120 butterfly, 100 orchid, and 200 tree species. NNP is also the source of nearly 70 percent of the country's water. USAID's Profitable Ecotourism through Improved Biodiversity Conservation in Rwanda project focuses on accelerating rural economic growth in and around NNP while improving biodiversity conservation and sustaining the Park as a source of water. In 2009, USAID mitigated threats to biodiversity in three park sites of biological significance through training,



Left to right: Public water source, Uganda; child fetching water in Kenya; water source in Kenya slum; water filtration unit in Ethiopian clinic

Picture credits on page 115.

awareness raising, and provision of equipment. The principal threats of fire, poaching, and mining declined by 20 percent during the year and 46 percent since the project's inception in 2006. Expanding conservation efforts to include communities and schools contributed to improved biophysical conditions in nearly 11,000 hectares, well above the target figure of 9,000.

USAID also supported ecotourism development through the development of NNP's infrastructure (visitor interpretation center, canopy walkway, tent camp, and observation tower) and support for two tourism ventures (Kinigi Community Walk and Kinigi Cultural Centre) in communities adjacent to the Volcanoes National Park.

■ Somalia

**% access safe water:
29**

Only 29 percent of Somalia's population is estimated to have access to safe water. Throughout the country, drought devastates communities that rely on rainwater ponds, shallow wells, and boreholes to provide for human and livestock needs. The persistent water shortage, exacerbated by the destruction and looting of water supply installations during the civil war, is worsened by the lack of system maintenance.

WSSH: About 120,000 people benefited from USAID WSSH activities, more than 80,000 from improved drinking water supply and nearly 40,000 from improved sanitation. In Baidoa town, USAID supported the establishment of a metered water supply system for 4,000 households and assisted in the formation of a public-private partnership to supply safe water services to more than 40,000 people. The project increased the volume of available water by nearly 400 percent, improved water quality, and reduced water costs by one-third for Baidoa's resident and displaced populations.

USAID-supported health programs in Bay and Bakool rehabilitated four clinics to provide improved access to safe water and sanitation and hygiene sanitation education to schools and communities. Water points were also provided at 23 schools. These activities benefited nearly 27,000 children and care providers. Maternal/child

health programs also distributed Aquatab water purification tablets for household water treatment during Child Health Days. Construction work at a maternal/child health clinic in Mogadishu that serves 15,000 people included water supply and construction of new latrines with running water.

USAID also supported the construction of 790 latrines and more than 80 handwashing facilities in schools attended by nearly 8,300 schoolchildren. These activities reduced school absenteeism due to waterborne diseases and increased school attendance by girls.

■ Sudan

**% access improved water/sanitation
(Southern Sudan):
< 20**

Poor access to potable water sources contributes to pervasive food insecurity in many regions of Sudan. In Southern Sudan, for example, less than 20 percent of the population has sustainable access to improved water and sanitation. In many areas, very limited access impedes the development of new water infrastructure.

WSSH: Sudan's WSSH program is USAID's largest in sub-Saharan Africa, involving total funding of almost \$39 million in FY 2009, with almost \$16 million from development accounts and nearly \$23 million from the International Disaster Account, the latter amount being primarily devoted to disaster response in Darfur.



Residents of a displaced persons camp in West Darfur, Sudan, look down a well they helped build.

© PAUL JEFFREY/ACT-CARITAS,
COURTESY OF PHOTOSHARE

Improving Learning Environments through WASH

At Biyo Dhacay primary school in central Somalia, the lack of drinking water and latrine facilities was a longstanding problem contributing to classroom absences by all students and declining enrollments among girls. Although the nearly 60-year-old school was connected to the town water supply, it had only one leaking concrete tank that did not store enough water for the school's 1,140 first through eighth grade students. Nearly a third of the students were girls, who were particularly affected since the local culture dictates privacy in latrine use. The school had six latrines – two for boys, two for girls, and two for teachers, all in very poor condition – and only the teachers' latrines had handwashing facilities. The latrine-to-student ratios (1:170 for girls and 1:400 for boys) fell far below the respective

“This program is a milestone that will contribute to improved education of our children in both quality and enhanced school learning environment in our schools. It is a program we welcome and support with all the resources we have.”

– Education Director General, Puntland, Somalia, July 30, 2009

1:30 and 1:60 recommended standards, and the school also fell far short of the standard of one washbasin per 50 to 100 students. These conditions seriously compromised hygiene and heightened disease risks. In addition, the hygiene practices of the pupils and the surrounding community were also poor, with lack of awareness and training on safe environmental sanitation.

The Biyo Dhacay school's water and sanitation situation was hardly exceptional in Somalia, but now it and many other schools across the country are benefiting from the USAID-supported School Environment and Education Development for Somalia (SEEDS) project being implemented by Mercy Corps and the government education and water ministries. Biyo Dhacay is one of 250 schools that will benefit from the water and sanitation services provided by SEEDS. The program seeks to improve access to basic education and water services, with a major focus on construction or rehabilitation of water and sanitation facilities. Ensuring proper sanitation, increasing the availability of potable water, and increasing knowledge of safe hygiene practices will improve the school learning environment for 20,000 pupils in the target schools and enhance school enrollments.

In its first nine months, from November 2008 through July 2009, SEEDS reached 6,200 pupils and 10,000 community beneficiaries in 50 schools through the rehabilitation/construction of 21 water structures, 120 latrines, 100 handwashing stations, and 15 rainwater harvesting tanks, as well as repairs to roof catchments for new classrooms.

When the Biyo Dhacay school opened for the new school year in September 2009, a new school with adequate water and sanitation facilities as well as rehabilitated classrooms greeted the returning students. Safe water supply was available at all times, with the water obtained from the local municipal system and arrangements made for systematic disinfection of the water. SEEDS also provided handwashing basins with clean water and soap in all toilet facilities, each of which is cleaned with soap or disinfectant at the end of each day. Safe disposal of refuse is also a new behavior encouraged by the school's new emphasis on sanitation and hygiene.

In 2009, 213,000 people in Southern Sudan gained access to potable water through rehabilitation of water infrastructure, drilling and repairing boreholes, and POU water chlorination products that provided more than 108 million liters for an estimated 170,000 regular users. Nine latrine blocks were constructed in schools and clinics, and 3,000 people gained access to private sanitation facilities. Nearly 560,000 individuals were trained in im-

proved health and hygiene behaviors. USAID resources were used to focus on capacity enhancement for local government authorities and to support the development of governance structures, community management, and effective behavior change communications.

USAID also completed the first phase of an urban WSSH program, which focused on a variety of quick-impact



Testing the handpump of a borehole in Eastern Equatoria, Southern Sudan.

PACT

projects to expand water and sanitation services to areas with large populations previously affected by cholera outbreaks. Projects included social marketing of POU water chlorination products, construction of three small water treatment stations along the Nile River, rehabilitation of 50 boreholes in Juba town, and an extensive hygiene promotion campaign. Hygiene outreach reached targeted populations through behavior change communication messages, health worker trainings, and sessions at local communities and elementary schools. In addition to quick-impact projects, long-term investments included construction of more than five kilometers of new water mains on the Muniki and Kator pipelines, the Kator booster station, 24 new public water taps at four locations in Kator, 150 new household latrines, and four new public ablution blocks. For the next phase of the urban program's expansion in 2010, USAID selected the town of Wau in Western Bahr el Ghazal, where it will rehabilitate the urban water treatment facility and strengthen the management and operational planning of the Wau Urban Water Corporation.

USAID also launched a rural water and sanitation program to enable state and county governments to meet the health needs of their citizens, including WSSH, in rural areas of Southern Sudan and the "Three Areas" region of Southern Kordofan, Blue Nile, and Abyei. The program undertook developmental approaches such as sector systems strengthening, WSSH governance at state and county levels, and operations and maintenance with associated cost recovery. In 2009, 69 boreholes were drilled, 180 hand pumps were repaired, and capacity was strengthened in 98 water user associations. USAID worked with the Government of Southern Sudan to explore innovative

partnerships and more cost-effective technologies for both potable water supply and sanitation including private sector supply chains for spare parts, hand-augured wells, and biosand filters.

In 2009, USAID also helped establish coordination mechanisms for all state and local officials with water and sanitation responsibilities and for development partners engaged in the sector. USAID chaired the WASH Donor Group, and USAID implementing partners actively participated in the WASH NGO Forum. Both of these groups were established to share information to ensure collaboration in developing future plans and reduce duplication of efforts.

WRM: Sudan has important ecosystems that, with sustainable management, can mitigate the effects of global climate change. Carbon emissions exacerbate the greenhouse effect that drives global climate change, and Southern Sudan's savannas and wetlands sequester enough carbon to affect areas beyond Sudan's borders. With an area of 3.8 million hectares, the Boma-Jonglei landscape is home to the largest intact savanna in the world and one of the world's two largest freshwater wetlands. In 2009, USAID's Conservation of Biodiversity across the Boma-Jonglei Landscape project helped the Government of Southern Sudan place more than 2 million hectares of savannas and wetlands under improved natural resources management in a comprehensive landscape-scale program. The project focused on sustainable land use, capacity building, and climate science-based decision-making. Activities included surveys, mapping of land and natural resource uses, a livelihoods component that increased and diversified economic opportunities for 120

people “living off the land,” and workshops for more than 60 people to build local community capacity to manage natural resources in a more sustainable way.

■ Tanzania

% access safe drinking water (rural/urban):
46/81

% access improved sanitation:
33

Only 55 percent of Tanzanians have access to improved drinking water. The substantial gap between urban and rural access to safe drinking water (81 percent urban vs. 46 percent rural) is due mainly to rural communities’ dependence on ever-dwindling natural resources. The sanitation situation is even worse, with only 33 percent of Tanzanians having access to improved sanitation. More than 60 percent of schools do not meet minimum targets for latrines, 65 percent have no water access, and 80 percent have no handwashing facilities.

WSSH: In 2009, USAID began implementing new WSSH activities and conducted a rapid assessment of Tanzania’s WSSH sector to inform an expanding portfolio of water activities in 2010. The activities provided access to improved drinking water to nearly 11,000 people in target areas and access to improved sanitation facilities for approximately 5,700 people. The Mission’s rapid assessment provided findings and recommendations for embedding a new integrated WASH program within the Mission’s Natural Resources Management/Economic Growth program.

WRM: Approximately one-third of Tanzania is arid or semi-arid, and frequent droughts afflict the majority of the country. Nearly 40 percent of the land is under various levels of protected status, but expanding agriculture poses a severe threat to the natural resource base, and there is a close linkage between poverty and environmental degradation. Tanzania’s forests are being cleared at an alarming rate of 400,000 hectares per year, the third-highest deforestation rate in Africa. The impact on watersheds has been devastating, and total watershed collapse is imminent in some cases.

WADA activities in Tanzania supported the Improved Community Livelihoods and Sustainable Water Management Program to assist watershed management and resolve water challenges in the Wami-Ruvu and Pangani river basins. These basins have large populations dependent on their water resources and are also critical for maintaining biodiversity and managing wildlife parks and marine ecosystems. While they have adequate freshwater to meet existing needs, more effective management is needed to meet the challenges of development, population growth, and environmental degradation. The program’s initiatives included village water committee workshops, geological and environmental assessments, planting of 6,650 trees and seedlings, and business assessments to ensure cooperation in green business practices. The program improved approximately 430,000 hectares of the Wami-Ruvu sub-basin. Community, industry, and government partnerships were critical to program success. For example, one sugar estate worked with the Tanzania Health, Environment and Sanitation Association to make sure wastewater and oil trap ponds remained in good order. The program also had a strong WSSH component, with significant impact on



A woman in Tanzania collects water with her livestock after walking five hours to a rehabilitated water pipeline that brings clean water from a protected mountain spring.

© PETER VERBISCAR-BROWN, COURTESY OF PHOTOSHARE

schools and communities. In area schools, it built sanitation and rainwater harvesting facilities and provided tap water connections, benefiting more than 8,000 pupils.

In 2009, USAID also supported water user groups in Tanzania and worked with the Government's Water Sector Development Program in the Ruaha-Rungwa River sub-basin, the Wami-Ruvu River Basin, the Pangani River Basin, and the Lake Manyara/Lake Natron Inland Basin to plan science-based water supply development. More than 200,000 Tanzanians benefited from these activities.

USAID's biodiversity programs in 2009 focused on improved land use planning and management, with an emphasis on stemming illegal logging and loss of forests and thus preserving critical landscapes and forests, with clear watershed conservation benefits. USAID also authored the first draft of "Climate Change Impacts in Tanzania: A Framework for Donor Coordination" and collaborated on a climate change stocktaking report that will serve as a model for donor support to climate change activities.

■ Uganda

% coverage safe drinking water (national):
63
% coverage safe drinking water (North):
40

Reported coverage for safe drinking water in Uganda is about 63 percent. People travel long distances to collect water, which reduces productivity and incomes, and children who fetch water are frequently absent from school. In

northern Uganda, safe drinking water coverage is about 40 percent, much lower than the national coverage, and this figure is expected to fall as residents of displaced persons camps return to their original homes, where two decades of conflict have degraded infrastructure.

WSSH: USAID's water program provided an estimated 83,000 people with access to an improved drinking water supply and nearly 68,000 with access to improved sanitation. Improving the operation and maintenance of the water supply systems in Kitgum and Pader towns were the principal activities. In Kitgum, USAID rehabilitated pumps, contracted a private operator to run and maintain the water system, and initiated the design of a water distribution network for the entire town. Coverage increased to 40 percent of the population, and the rehabilitated pumps are running at triple the previous capacity and bringing an additional 60 cubic meters of water per day to the town. The Ugandan Government demonstrated its support for the program by sending technical personnel to planning meetings to contribute expertise in water systems management and assist with planning infrastructure rehabilitation and development. USAID programs also disinfected more than 79 million liters of drinking water with POU water treatment products. USAID's HIP project developed a sanitation marketing strategy and guidance manual, and 60 masons received training in latrine construction.

Entertainers in Uganda perform at an event to launch the Aquasafe water treatment product.

© JENNIFER ORKIS, COURTESY OF PHOTOSHARE



SOUTHERN AFRICA REGIONAL PROGRAMS



Water scarcity is a growing concern throughout Southern Africa. Frequent floods and droughts leave many of the region's poor without access to adequate water supplies. Inadequate planning, poor distribution, and water losses, diversions, and contamination threaten to limit access to safe drinking water and economic growth. The region has 15 major transboundary rivers that represent approximately 70 percent of the available surface water. Major groundwater aquifers are also shared by neighboring states, and several nations are approaching the limits of their readily available water resources. This creates the potential for water-related conflicts between riparian countries and underscores the transboundary nature of these water issues.

Integrated River Basin Management

WRM: The Integrated River Basin Management (IRBM) project, which ended in May, succeeded in strengthening regional capacity for addressing transboundary water resource management in the Okavango River Basin shared by Namibia, Botswana, and Angola. The project was key to the establishment of the Secretariat of the Permanent Okavango River Basin Water Commission (OKACOM), which is now a permanent institution with a clear mandate to advise the three national governments on sound environmental management of the basin. The Secretariat organized two meetings on behalf of OKACOM and

supported and assisted a transboundary diagnostic assessment for the Global Environment Facility of the United Nations Development Program. The assessment will help define the future activities of the follow-on to the IRBM project, which is expected to begin in early 2010.

USAID biodiversity activities focused primarily on technical assistance to the Water Division of the Southern African Development Community and on developing a framework for transboundary land use planning in Kavango and western Caprivi in Namibia. Through the IRBM project, USAID worked with the Water Division to strengthen the capacity of regional institutions to manage transboundary riparian ecosystems and enhance community participation in resources management and biodiversity protection. OKACOM and the Kavango-Zambezi Transfrontier Conservation Area identified transboundary land use planning as a regional priority for managing river basin and area resources, and the Namibia Nature Foundation completed a consultative land use planning process.

DRR: USAID/OFDA supported three activities in the Zambezi River Basin subregion:



Left to right: Crop irrigation, Zimbabwe; school borehole, Zambia; South African girl collecting water; handwashing demonstration, Malawi

Picture credits on page 115.



USAID's Office of U.S. Foreign Disaster helps reduce vulnerability to flooding in the Zambezi River Basin in seven countries in Southern Africa.

MAYATHOLANDI

- The Zambezi River Basin Initiative is a three-year initiative of the International Federation of Red Cross and Red Crescent Societies (IFRC) and a World Meteorological Organization (WMO) program to reduce flood vulnerability in the seven Zambezi River Basin countries (Angola, Botswana, Malawi, Mozambique, Namibia, Zambia, and Zimbabwe). The Initiative helped vulnerable communities adapt to climate-related threats such as flooding through conservation-based farming techniques, soil conservation, water harvesting techniques, and reforestation.
- The Zambezi River Flood Early Warning and Mitigation project is a collaborative effort of IFRC, WMO, USAID/OFDA, other U.S. Government agencies, and national meteorological and hydrological services and disaster management entities to help riparian countries develop their flood early warning capacities and formulate consensus strategies. The project focused on basinwide cooperation and an integrated approach to flood early warning to address technical, institutional, and capacity building issues related to developing flood preparedness and early warning systems.
- USAID/OFDA supported the development of an atlas of the Zambezi River Basin through the Food for Peace program. The atlas will include baseline data, maps, graphs, and a variety of food security-related analysis of the basin's livelihoods and coping strategies, including the effects of normal seasonal and above-average flooding along the river.

Southern Africa Country Programs

■ Angola

% using toilets in rural areas:

15

**% under-5 deaths due to water-
or sanitation-related diseases:**

18

Nearly 30 years of internal conflict had devastating effects on Angola's water infrastructure, and institutional and human resource weaknesses further constrain sustainable WSSH programs. Although the country has abundant water resources, less than one-third of the population has access to safe water supply and sanitation services. In rural areas, fewer than 15 percent of households use toilets, with only 7 percent of these considered sanitary. Water- and sanitation-related diseases such as cholera, diarrhea, and typhoid contribute to 18 percent of deaths among children under age 5. Improved access to water and sanitation will reduce disease, hardship, and the time women and children spend carrying water, with positive consequences on child mortality, girls' school attendance, and women's economic productivity.

WSSH: The USAID-supported water purification program distributed approximately 218,000 bottles of the Certeza POU water treatment product, enough to treat more than 200 million liters of water. In addition, 171 WSSH outreach activities reached more than 27,000

people in public places around Luanda and in Cunene. Other USAID-supported activities helped more than 13,000 people gain access to improved drinking water. Despite flooding in Cunene province that displaced more than 22,000 people and affected nearly 160,000 people, community water points with laundry facilities were improved, and water and sanitation facilities were provided to four schools. These activities were integrated with emergency efforts to create a more sustainable and safe environment in the area, which is affected by floods every year. The United States also helped 12,000 people in Cunene gain access to clean water through support for the UNICEF water and sanitation program.

■ Lesotho

DRR: USAID/OFDA supported a one-year extension of the Lesotho Irrigation Project that focused on gravity-fed irrigation of field crops and homestead gardens that improve resilience to droughts. The project established new irrigation schemes to complement other agriculture and food security projects while expanding and enhancing community access to water for irrigation.

■ Malawi

% households access clean water:

64

% households lacking toilet facility/using pit latrine:

16/79

About 64 percent of Malawian households have access to clean water, 20 percent from piped water and 44 percent from protected wells. Modern sanitation facilities are not

yet available to large proportions of Malawian households – 16 percent of households have no toilet facility and about 79 percent use pit latrines. Typhoid, cholera, and dysentery are prevalent in unprotected water sources at the point of use, with the majority of contamination occurring at the household level.

WSSH: In 2009, USAID supported multiple mechanisms and partner relationships to expand the WaterGuard POU water treatment social marketing program, the goal of which is to “reduce diarrheal disease mortality and morbidity among children under age 5 by increasing consistent and appropriate use of POU water treatment products by primary caregivers.” Nearly 953 million liters of water were treated with WaterGuard during the year, an 89 percent increase from 2008. Promotional campaigns conducted during a cholera outbreak in early 2009 were a major factor in the increase. Ten schools in urban and semi-urban areas of Blantyre, Mzuzu, and Lilongwe conducted 17 demonstrations promoting WaterGuard and reaching 1,648 schoolchildren. In March, an evaluation of a pilot program to integrate WASH behaviors into home-based care for people with HIV/AIDS found that the program’s interventions were effective. The program promoted six target behaviors – handwashing at critical times, appropriate handwashing technique, POU water treatment, safe water storage, consistent latrine use, and safe disposal of feces – and found that vital factors for success included community volunteers to negotiate small “doable” actions, complementary interventions to improve access to basic services, and support of government officials and traditional leaders.

WRM: Malawi’s rich forest, wildlife, and fisheries play a major role in rural household economic activities and



A woman gathers water in a mountainous area of central Lesotho.

© DAVID SNYDER, COURTESY OF PHOTOSHARE

food security, especially during poor harvests. A rapidly growing population, limited arable land, and a rain-fed agricultural subsistence economy have resulted in the destructive use of the natural resource base, with widespread environmental degradation, severe deforestation, erosion, and water source contamination. As a result, Malawi has lost more than 15 percent of its forest cover over the past 20 years; experienced declining soil fertility; and had reductions in fish catches of 15,000 tons per year since the 1970s.

To counter these trends, USAID/Malawi developed its Community Partnerships for Sustainable Resource Management (COMPASS) II project to help protect Malawi's natural resource base. The project, which ended in mid-2009, put nearly 33,000 hectares of terrestrial land in areas of biological significance under improved management during its final year. Since its inception, the project brought improved management to more than 240,000 hectares of terrestrial land and more than 106,000 hectares in marine areas, with results showing improved biophysical conditions. The marine areas included Lake Chilwa, Lake Chiuta, Lake Chikukutu, a small portion of Lake Malawi in Nkhotakota, and the Bua River. COMPASS II also helped put more than 55,000 hectares under improved natural resource management. Most of the terrestrial areas were important watersheds containing forests important to rural communities that rely on them for ecosystem services such as water. About 2,400 communities adopted appropriate community-based natural resource management practices, and approximately 8,700 community members participated in community-based natural resource management training.



Staff at Queen Elizabeth Central Hospital in Malawi educate patients on the Water-Guard point-of-use drinking water treatment.

POPULATION SERVICES
INTERNATIONAL/MALAWI

Late in 2009, USAID/Malawi awarded two new grants on biodiversity that will build upon the achievements of COMPASS II and encourage the watershed management approach in five protected areas.

DRR: USAID/OFDA extended drought mitigation activities in irrigation promotion and conservation agriculture to three new districts. The project prioritized districts by terrain suitability for small-scale irrigation; need for conservation agriculture to prevent topsoil loss; and number of localized crop failures resulting from drought and flooding.

■ Mozambique

% access improved drinking water supply:
42
% access improved sanitation:
31

Mozambique has limited access to raw water supplies and receives roughly 50 percent of its surface water from transboundary rivers entering its borders from upstream countries. Approximately 75 percent of the population relies on groundwater sources. Only 42 percent of the population had access to an improved drinking water supply in 2006, and only 31 percent had access to improved sanitation. Contaminated water has a severe impact on health, food security, and living conditions. Adequate health infrastructure remains a significant barrier, with more than 80 percent of health facilities lacking water and electricity.

WSSH: USAID supported local manufacture of the Certeza POU water purification product for subsidized distribution through commercial organizations, NGOs, and community channels. Targeted vulnerable groups received newly developed materials promoting safe water storage for waterborne disease prevention, and mass media and interpersonal activities promoted Certeza. Community activists received training in diarrheal diseases and Certeza promotion and sales. USAID also supported provincial-level distribution of Certeza as part of the Ministry of Health's response to cholera outbreaks. More than 583,000 bottles of Certeza, enough to purify nearly 875 million liters of water, were distributed with USAID support. Social marketing sales in the commercial sector exceeded the target of 25,000 bottles per month, with actual monthly distribution averaging more than 48,000 bottles.



Three Mozambican women stand near a sign on Ibo Island that prohibits defecation on the nearby beach. Sanitation has become an important component of life on the island, both for the health of residents and for tourism.

© ANJA LENDVAY, COURTESY OF PHOTOSHARE

Other WSSH activities included improving access to water and sanitation services in maternal and other health care facilities in four provinces. In Nampula and Zambezia provinces, USAID’s cross-sectoral Strengthening Communities through Integrated Programming (SCIP) activity built on accomplishments under Food for Peace assistance to integrate health, agriculture, enterprise development, water, and sanitation. Water and sanitation activities included well construction and also encouraged agricultural technicians to incorporate water, sanitation, and hygiene messages into their interactions with farmer associations. In addition, USAID leveraged financing from the Coca-Cola Company for water sector investments under SCIP. In May, USAID conducted an assessment to develop a strategy for introducing more state-of-the-art multipurpose WASH activities into ongoing integrated programs in rural communities.

WRM: USAID supported efforts to conserve biologically important areas in northern Mozambique by demonstrating that ecologically responsible tourism can promote economic growth and job creation while improving the environment. Under the Northern Mozambique Tourism Project in Cabo Delgado, Nampula, and Niassa provinces, USAID helped establish coastal zoning plans for tourism development, management plans for ecologically sensitive development along coastal areas, and a conservancy to manage the use of Pemba Bay. This area is an endangered coastal region containing numerous

endangered species, including the dugong and sea turtle. Through a Global Development Alliance program with the World Wildlife Foundation and the Coca-Cola Company, USAID also assisted in developing a draft management plan for a national reserve area on Lake Niassa that will protect its unique ecosystem, which includes more than 1,000 species of fish (800 of them endemic to the lake) and rich bird life.

USAID also assisted a project to re-establish Gorongosa National Park (the site of Mozambique’s only rain forest) as a premier ecotourism destination, with the following results achieved during the project’s first nine months:

- A layout of monitoring points and important inflows to monitor in the floodplain
- An improved understanding of the Park’s hydrological issues from studies of isotopes, ground water quality, geophysics, lake properties, and river and stream bank maintenance
- An improved water system through the acquisition of generators and submersible pumps
- A comprehensive waste management plan, including the separation of organic and inorganic waste, composting, and improved waste storage

- Satellite imagery acquisition and reporting for a better understanding of and response to fires

DRR: USAID/OFDA's River Value program worked with local disaster risk management committees in flood-prone communities to utilize opportunities created by flooding to increase production of staple post-flood and cash crops, increase access to clean water, and promote hygiene and sanitation. In the Limpopo River Basin, the Mozambique Integrated Information Network for Decision-Making continued to strengthen early warning systems for cyclones and flooding and improve disaster management and contingency planning. Activities included flood risk mapping; community flood education, planning, and preparedness; and establishment of RANET stations in highly vulnerable remote locations. A project in Zambezia, Tete, and Sofala provinces targeted 44,500 beneficiaries to reduce their vulnerability to recurrent climate- and weather-induced disasters and increase resilience to poor harvests. The project promoted drought-tolerant agriculture and community-level disaster preparedness.

■ South Africa

South Africa has made significant progress toward achieving its drinking water Millennium Development Goal but still has large populations without access to running water and proper sanitation. The Government has the funds needed to achieve the goal but lacks the planning skills and technical knowledge needed to move complex water and sanitation programs forward.

WSSH: USAID's Increasing Sustainable Local Government Services program assessed water backlogs in Free State, Eastern Cape, KwaZulu-Natal, Northwest, and Limpopo provinces, and managed the design and implementation of WSSH infrastructure interventions. As a result of this assistance, nearly 2.63 million people are likely to receive improved access to drinking water supply and more than 256,000 people are likely to receive improved access to sanitation facilities (see box on page 38). Additionally, a Global Development Alliance project established a rural water supply system for 10 villages in an impoverished district in Eastern Cape. In December, USAID and the Coca-Cola Company launched a WADA initiative to bring access to clean drinking water to more than 12,000 people in three villages in Limpopo province.

■ Swaziland

DRR: USAID/OFDA supported strengthening food security through a community-based drought mitigation program in Shiselweni and Lubombo districts. The pro-

gram installed rooftop water harvesting systems at 14 primary schools, providing safe drinking water to nearly 7,000 schoolchildren, and supported hygiene training for students, school committee members, and parents. The program also provided training to nearly 700 farmers in conservation agriculture, a farming practice that promotes soil and water conservation and reduces losses during drought. Another program to reduce drought vulnerability got underway in southern Swaziland, combining agriculture activities with livestock management and water provision interventions, including rooftop water harvesting systems at schools and water management schemes that will enhance the sustainability of water supply activities.

■ Zambia

% access improved drinking water supply:

58

% access adequate sanitation:

55

Inadequate access to improved sources of water supply is a major constraint in Zambia and negatively affects agricultural productivity and basic hygiene. Although Zambia has more than adequate water resources, only 58 percent of the population (and only 40 percent of the rural population) has access to an improved source of water, and only 55 percent has access to adequate sanitation. The situation in schools is especially difficult. Only 9 percent of schools have sufficient number of toilets for girls, many of whom leave school because of lack of privacy. Only around half of rural Zambians wash their hands after using the toilet, and hardly any use soap or other cleansing media. Water supply constraints on agricultural production contribute to food insecurity, as do an advanced HIV/AIDS epidemic and frequent climatic shocks.

WSSH: USAID's water and sanitation program, implemented by a local NGO, began in March and provided nearly 7,000 people with improved drinking water supply and nearly 1,000 with improved sanitation. Targets for future years are much higher. The program also installed wells at 16 schools and constructed three latrine blocks. The program is designed to improve health and the school learning environment by providing WSSH facilities in critically underserved schools. It emphasizes water pump installation and repair and the construction of latrines that are suitable to both boys and girls. Special efforts are taken to ensure that female teachers and students are comfort-

USAID Program Helps South Africa Move Forward on Water and Sanitation Infrastructure

Despite progress in South Africa's water and sanitation sector, there are still substantial populations that lack water and sanitation access. The lack of planning and technical capacity within the Government for moving forward on major projects is one reason services have yet to reach these populations. To help the country meet its Millennium Development Goal of reducing by 50 percent by 2015 the proportion of people without sustainable access to safe drinking water, the

South African Government in FY 2008 requested assistance from USAID's Increasing Sustainable Local Government Services (ISLGS) program in assessing the water



A South African technician checks valve and pipe connections as part of water and sanitation infrastructure maintenance.

CHEMONICS INTERNATIONAL

backlogs in all priority water service authorities (WSAs) in five provinces and to manage the design and implementation of water and sanitation infrastructure projects. In FY

2009, USAID and the Government's Department of Cooperative Governance and Traditional Affairs collaborated on and completed assessments in 49 of the 55 priority WSAs, and project execution plans were prepared and approved for 16 municipalities. As a result, 28 water and sanitation infrastructure projects of a total value of \$46 million were unblocked, and nearly 3 million people will gain access to improved sanitation facilities and drinking water as a result of these projects receiving funding and moving forward. A further 35 projects worth \$50.8 million were expected to receive approval in 2010.

In FY 2009, the ISLGS program also concluded its efforts to establish a water demand management finance facility at the Development Bank of Southern Africa (DBSA) to address the critical lack of financing and technical support for municipal-level activities across the country. The ISLGS proposal, which calls for \$5.5 million in DBSA grant funding and a private sector fund of \$55 million initially but to grow to \$220 million over time, has been approved in principle, and DBSA technical staff are engaged in designing and implementing the facility. A memorandum of understanding between DBSA and the Department of Water Affairs and Environment regarding the facility was drafted by DBSA (with inputs from ISLGS) and scheduled for signing in FY 2010, with the facility launch targeted for mid-2010.

able with the water and sanitation facilities. The program also has a component on hygiene education, which developed teaching materials for distribution beginning in December 2009. In addition, under USAID health programming, 1.7 billion liters of drinking water – close to the target of 2 billion – were disinfected with the Clorin POU water purification treatment sold through social marketing.

WRM/DRR: In 2009, Food for Peace supported training for smallholder farmers in conservation farming that

enabled nearly 6,800 households (a total population of nearly 41,000) to move from dependence on food aid donations to sustainable farming. Conservation farming around water systems reduces soil erosion and runoff into water systems.

WP: In 2009, USAID supported irrigation schemes covering 180 hectares in Copperbelt province that enabled former miners to engage in agricultural production. The schemes diversified the economy away from mining, which has been the province's major economic activity, and also

increased access to drinking water for the beneficiaries. Dairy processing was also improved through new water quality testing and purification procedures, contributing to improved health and hygiene.

DRR: USAID/OFDA supported a project to build resilience to external shocks and improve food security for smallholder farmers in two drought-prone districts

in southern Zambia. The project's activities included promoting sustainable water management techniques and technologies such as drip irrigation and treadle pumps. USAID/OFDA also supported flood hazard risk reduction for peri-urban populations in Lusaka through community-led DRR programming. Project activities included drainage construction, canal clearing, and garbage removal.

USAID/OFDA Takes On Cholera in Zimbabwe

From August 2008 to July 2009, Africa's largest cholera outbreak in 15 years struck Zimbabwe, resulting in nearly 100,000 cases nationwide and 4,300 deaths. Poorly maintained water and sanitation infrastructure contributed to the scope of the outbreak, and Zimbabwe's fragile health system was unable to treat patients adequately.

In response, USAID's Office of U.S. Foreign Disaster Assistance (OFDA) in the Bureau for Democracy, Conflict and Humanitarian Assistance extended emergency assistance and committed more than \$7.3 million to support the provision of relief supplies, WASH and health interventions, humanitarian coordination, and information management to improve epidemiological reporting and analysis. The program targeted individuals in and around areas with high reported cholera rates and populations vulnerable to the spread of the disease. Its relief activities included:

- Hygiene promotion to raise awareness
- Social mobilization to increase community reporting of cholera cases and sewage system breaks
- Distribution of soap and other hygiene supplies
- Provision of water storage tanks and water containers to schools and homes
- Provision of water purification materials for community and household use

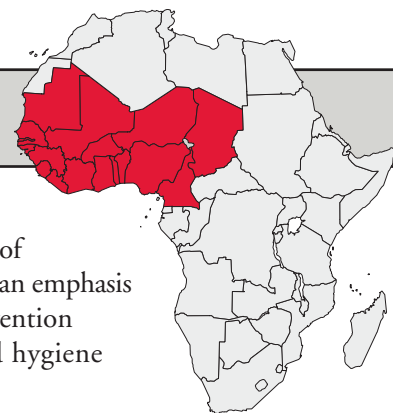
“The reason we managed to control cholera was the very high level of awareness.”

– Dr. Zanele Hwalina, Bulawayo Director of Health Services

When the outbreak began in 2008, OFDA was already supporting WASH interventions in parts of Zimbabwe because of its status as a “complex emergency” country in ongoing crisis. In the areas of OFDA support, the rates of illness and death during the 2008–09 outbreak were much lower than in other areas. OFDA was active in the metropolitan Bulawayo area, for example, since 2007, and this area recorded 445 cases and 18 deaths in the 2008–09 outbreak, compared with nearly 19,600 cases and more than 650 deaths in Harare and its suburbs. OFDA's ongoing WASH support was a key factor in keeping the number of cholera cases and deaths in Bulawayo far lower than in Harare – an approximate 40-fold difference in only a slightly smaller population. This striking difference bears out the wisdom of community-focused WASH programming as a means of limiting the scope and effects of a devastating disease.

In total, the OFDA assistance program procured, transported, and distributed 400 metric tons of soap for use in hygiene promotion programs, 30 million water purification tablets, 30,000 water containers such as 20-liter jerry cans for back-up storage of clean water, and 30,000 buckets. Late in 2009, USAID/OFDA also completed a survey of household water safety in Harare and Chitungwiza municipalities in preparation for a rooftop rainwater harvesting project and found that only 12 percent of water was safe for consumption and that 24 percent had fecal matter contamination.

WEST AFRICA REGIONAL PROGRAMS



Ensuring access to clean water and adequate sanitation is an essential component of sustainable and long-term development in West Africa, where large portions of rural populations lack access to potable water and sanitation services. These conditions contribute greatly to a high incidence of waterborne diseases, particularly in young children. Extreme weather conditions also afflict much of West Africa, and these combine with unstable food access and supply chains to increase malnutrition and food insecurity. An important aspect of planning for food security is the availability of timely information on weather and rainfall patterns and the distribution of vulnerable population groups and their nutritional status.

USAID's West Africa Regional Mission, located in Accra, Ghana, complements and enhances USAID's bilateral missions in the region.

West Africa Water Initiative

West Africa's poor rural and peri-urban populations benefit from WSSH, WRM, and WP interventions carried out by USAID's West Africa Water Initiative (WAWI). The Initiative's goals are to:

- Increase the level of access to sustainable safe water and environmental sanitation services among poor and vulnerable populations

- Decrease the prevalence of waterborne diseases with an emphasis on diarrheal disease prevention through evidence-based hygiene behavior change
- Ensure ecologically and financially sustainable management of water quantity and quality
- Foster a new model of partnership and institutional synergy to ensure technical excellence, programmatic innovation, and long-term financial, social, and environmental sustainability in water resources management.

Since its inception in 2002, WAWI has reached more than 800,000 people in Mali, Ghana, Niger, and Burkina Faso with activities in small-scale potable water supply; sanitation; hygiene; productive water use promotion; and WRM. WAWI's beneficiaries have raised their incomes and improved food security with multiple-use water systems and low-cost technologies and approaches that permit small-scale productive water use and income-generating activities.

In 2009, WAWI provided improved access to potable water and sanitation facilities to 37,500 people (17,500 more than anticipated). To increase access to improved water supply in Niger, WAWI supported construction of



Left to right: Wastewater overflow, Mali; village well, Ghana; digging ditches for water pipes, Ghana; river water source, Nigeria

Picture credits on page 115.



Farmers in Burkina Faso work on the White Volta River to prevent bank erosion and potential flooding.

© SUSANNE RIVELES/LUTHERAN WORLD RELIEF, COURTESY OF PHOTOSHARE

38 boreholes and 37 pumps. Well aprons were also constructed and installed, and five pumps were re-installed with increased water output.

Agricultural Hydrometeorology

USAID/West Africa also supported the Agricultural Hydrometeorology project that provides information to the Permanent Interstate Committee for Drought Control in the Sahel (CILSS) to plan and implement food security programs. This information includes regular reliable assessments of rainfall, planting conditions, the current food situation, and the distribution of vulnerable groups in CILSS countries and the region as a whole; identifies geographic zones that are facing a high risk of food insecurity; and enables countries and organizations in the region to plan for and intervene in national food production plans and prepare themselves for any emerging food crises.

Biodiversity Conservation

West Africa regional programs on global climate change supported biodiversity conservation in threatened hot spots in the Upper Guinea ecosystems of Guinea and Sierra Leone, the transboundary river regions of Ghana and Cote d'Ivoire, and the Mano River Basin region of

Guinea, Liberia, and Sierra Leone. Results in 2009 showed improved biophysical conditions and natural resource management on nearly 33,000 hectares in the Mano River Basin. Participating communities in Guinea and Sierra Leone received 31,000 seedlings from 23 newly established nurseries, and more than 1,100 hectares of previously degraded land were replanted. The activity improved collaboration among communities, thereby reducing conflicts over natural resources.

Gambia-Senegal Sustainable Fisheries Project

The West Africa Regional Program launched the Gambia-Senegal Sustainable Fisheries Project to focus on artisanal fisheries and sustainable management of coastal ecosystems. The project will involve fisher folk in decisionmaking and attain increased social and economic benefits to artisanal fishing communities.

In addition to the above programs, USAID/West Africa supported the construction of dikes and a water harvesting dam and the rehabilitation of wells and pumps in Mauritania. The activities were part of the community infrastructure component of a USAID food security initiative that operates in four regions of the country and benefits approximately 110,000 people annually.

West Africa Country Programs

■ Benin

**% households with children < 5 years
that treat their water:**

6

Findings from Benin's 2006 Demographic and Health Survey indicated that the incidence of diarrhea among young children was closely associated with poor access to potable water and use of water from unprotected or untreated sources. Only 6 percent of households with children under age 5 treat the water they consume. Diarrhea incidence in the country spikes both in the rainy season, when rain water creates flooding and runoff that contaminate wells, and in the dry season, when water can be hard to find and people use polluted river water.

WSSH: Activities under USAID/Benin's integrated diarrhea prevention and treatment program include promotion of Aquatabs, a household water purifier. The program increased access to Aquatabs – an entirely new product in Benin – at public health facilities, private sector pharmacy wholesalers, and retail sales points in market stalls and boutiques. In 2009, enough tablets to purify more than 60 million liters of water were sold. Local NGOs, community-based educators, and health professionals also conducted behavior change activities focused on use of Aquatabs and improved hygiene be-



An extensive media campaign in Benin promoted the use of Aquatabs water purification tablets.

ABT ASSOCIATES/VICKI MACDONALD

haviors such as handwashing with soap and safe storage of treated water. Community outreach activities reached nearly 184,000 people, while more than 46,000 radio spots reached thousands more. USAID's implementing partners conducted more than 500 water purification demonstrations in schools and markets for World Water Day.

■ Burkina Faso

WSSH: Poor-quality drinking water is a major source of waterborne diseases in Burkina Faso. About one-quarter of the population does not have access to potable water and many others frequently resort to drinking water sources that do not supply fully potable water. In 2009, USAID provided support for 21 community wells that supplied potable water to 6,900 people, more than double the original target of 3,300.

■ Chad

% access potable water:

42

Access to potable water supply in Chad increased from 17 percent of the population in 2000 to 42 percent in 2008. Unlike most of its neighbors, Chad has one agricultural zone where annual rainfall reaches 1,000 mm, sufficient to grow staple food crops. It also has the potential to compensate for drought, particularly in the semi-arid north, through more rational use of surface and subsurface water.

WSSH: Resources generated by the Food for Peace program helped develop a water harvesting technology to impound or divert runoff from intermittent water courses that flow sporadically for two to three months each year and use the water to grow cereal crops and vegetables during the off season. To improve the quality of drinking water, USAID promoted several simple techniques of water treatment and hygiene. A USAID/OFDA-supported project in eastern Chad benefited more than 31,000 displaced or previously displaced persons, permanent residents, and nomads through the construction or rehabilitation of wells, wash houses, and other infrastructure. The project also supported hygiene promotion campaigns, the formation of water and hygiene committees, and training for committee members.

A boy uses a homemade cart to collect water at a displaced persons camp in Chad.

© STEPHEN GWYNNNE-VAUGHAN,
COURTESY OF PHOTOSHARE



■ Ghana

% access potable water supply:

65

% access sanitation facilities:

< 20

Ghana faces challenges in providing its population with access to clean drinking water and sanitation facilities. In 2009, 65 percent of Ghanaians had access to potable water but fewer than 20 percent had access to sanitation facilities. The country has made significant progress toward its Millennium Development Goal of 76 percent coverage for access to potable water by 2015, but it is far behind the goal of 65 percent coverage for access to sanitation. As a result, diarrheal diseases contribute significantly to high mortality among children under age 5.

WSSH: Through the Food for Peace program, USAID provided 16,000 people in target areas with access to improved drinking water supply and sanitation facilities. Because the program was in its final year, USAID also trained 316 members of 40 community water and sanitation committees in operating, maintaining, and monitoring and evaluating the facilities, and linked the committee members to district assemblies. Increased access to safe drinking water led to an expansion of small-scale food processing industries, which enhanced food security among benefiting communities. USAID also promoted the use of hygienic sanitation facilities to reduce diarrheal diseases and the spread of guinea worm. The “Purified

Water: A Better Life” campaign promoted water purification and handwashing with soap. It trained and stocked 162 vendors, who sold 600,000 water purification tablets – enough to disinfect 12 million liters of drinking water. USAID/Ghana also developed a new water and sanitation strategy and project to start in 2010.

■ Guinea

DRR: In Guinea’s Forest region, USAID/OFDA supported cholera preparedness programming that encouraged coordination between the health system and humanitarian organizations and focused on WASH training and capacity building for local organizations assisting at-risk populations.

■ Liberia

Liberia’s WSSH sector seriously deteriorated during 14 years of civil war and requires almost complete rehabilitation. Rapid population growth in Monrovia, the capital, has severely stressed its marginally functional WSSH system, while other urban systems have fallen into complete disrepair. Rural areas remain relatively unpopulated and devoid of functional facilities. With approximately 80 percent of the population living in absolute poverty and 54 percent in extreme poverty, the WSSH sector will be reliant on outside donor assistance for years to come. Challenges include management of local water resources, conflict resolution, and maintenance, operations, and cost recovery related to water infrastructure.

WSSH: In 2009, USAID’s new Rebuilding Basic Health Services project supported water supply in health facilities, hygiene promotion in clinics and schools, safe

This woman in Ghana's Northern region obtains her family's water from a local reservoir contaminated with guinea worm. To keep the parasite out of the home water supply, she fits a filter over the water urn.



© CHRISTINE GIRAUD, COURTESY OF PHOTOSHARE

water storage, POU water treatment, and handwashing in seven counties targeted as operational areas for measurable WSSH improvements. The project conducted two virtual workshops on site selection, water supply, rainwater catchment, and latrine selection and construction. As women and children do most of the drawing and carrying of water in Liberia, the project emphasized women's involvement at every level of implementation as critical to success and sustainability and included women as trainees in community pump maintenance and management.

■ Mali

**% households with water source:
< 50**

**% under-5 deaths hygiene-related:
50**

Fewer than half of households in Mali have a water source in the household compound. Diarrhea is the third leading cause of visits to health facilities, and most diarrheal disease is a direct consequence of poor-quality water. Diarrhea and other preventable hygiene-related diseases cause about half of all deaths of Malian children under age 5.

WSSH: USAID provided support for access to safe water and basic sanitation through POU water treatment and promotion of handwashing with soap. In July, USAID helped promote use of the Aquatab water purification product at an official launch on Water Disinfection Day. The launch was followed by radio and TV promotions

and a collaboration with local women's groups to demonstrate water disinfection and distribute communication materials such as advertising flyers and "For Sale Here" stickers. As a result, 950,000 Aquatab capsules were sold in just three months, enough to treat more than 19 million liters of water. USAID also supported Global Handwashing Day celebrations participated in by 10,000 schoolchildren, school authorities, parents, government officials, donors, religious leaders, transportation companies, civil society organizations, and private sector stakeholders. Mali's president, accompanied by 10,000 children, demonstrated proper handwashing techniques in the country's second largest stadium, and celebrities danced and sang songs to convey messages on three key handwashing behaviors – washing after using a toilet, after cleaning a child's bottom, and before handling and eating food – to prevent the spread of diarrheal illnesses. Activities also included information sessions at day care centers in Bamako to raise employee awareness. USAID also encouraged appropriate soap prices; helped increase soap availability; provided educational institutions with soap and handwashing training; financed public relations activities; and encouraged partnerships between the Government and Malian soap producers.

WRM: With land increasingly used for agriculture and pasturing livestock, Mali's wildlife habitats have shrunk by two-thirds. To maximize economic return while preserving the environment, USAID/Mali integrates activities to mitigate declines in biodiversity with activities that promote sustainable tourism and increased agriculture productivity. Activities in 2009 included the continuation of the Global Sustainable Tourism Alliance (GSTA) project; land management in shea plant areas with the Peace Corps; and the new Integrated Initiatives for Economic Growth in Mali (IICEM) project.

- **GSTA:** The project secured wells for watering plant nurseries in the central region that is home to the ethnic Dogon tribe and where one of GSTA's objectives is to protect natural resources with special attention to biodiversity conservation as a tourism byproduct. USAID collaborated with government technical agencies (forestry and agriculture agencies), Dogon communes, NGOs, traditional environmental protection groups and organizations, and traditional healers to manage rare and important plants left in the area.
- **Shea plant:** Shea is a protected plant and also a popular cosmetic ingredient. USAID support to the Peace Corps for improving both land management in shea-



Women washing clothes in the Niger River in Mali.

© SARA A. HOLTZ, COURTESY OF PHOTOSHARE

growing areas and local livelihoods resulted in 9,318 improved hectares, with 117,500 people increasing their incomes.

- **IICEM:** The IICEM project conducted a biodiversity inventory covering 771,742 hectares in the Bougouni-Yanfolila, Bagoé River, Touperé, and Samori forests, and the Inner Niger Delta and Sourou floodplains. All are important eco-areas where several rare and endangered species were identified. In the Bougouni-Yanfolila Forest, for example, the inventory identified 15 rare and six threatened mammal species, eight threatened flora species, three threatened bird species, and two rare species of turtle. The Sourou floodplain also had threatened species, including the dwarf hippo and some fish species thought to have disappeared from Mali. The study also revealed that the Inner Niger Delta still meets the international RAMSAR criteria for conservation and sustainable utilization of wetlands and that the Sourou floodplain is a candidate for RAMSAR status. The next step is to devise a strategy to protect those sites and manage them in a manner that will also benefit local communities economically.

WP: In 2009, USAID also supported the development or rehabilitation of land under irrigation. Eight village perimeters were developed in Mopti, four in Timbuctu, and three in Gao. Three microbarrages and water harvesting infrastructures were built in Sikasso, which made 1,259 hectares of land available for agriculture production, compared with 750 hectares in 2008. This effort, combined with improved agricultural practices and seed supplies, resulted in a nearly 50 percent increase in yield

in the rice subsector. USAID supported training in soil fertility and water management and provided 150 women with access to land for cultivation. Another activity introduced improved agricultural practices, including water conservation, new processing and marketing technologies, and new varieties of sorghum and millet to small producers in 964 rural villages, compared with 500 in 2008.

■ Nigeria

% access piped water:

17

% access adequate sanitation:

30

Fewer than half of Nigerians have access to improved sources of water. Only 17.2 percent are served by piped water, and only 30 percent have access to adequate sanitation. Nigeria is one of only eight countries in the world where rural water coverage is dropping. Access to improved water and sanitation is a daily challenge for most Nigerians, especially in rural areas of northern Nigeria. This situation leads to a high prevalence of waterborne diseases, threatens the livelihoods of smallholder farmers, and contributes to low levels of school enrollment, especially among girls.

WSSH: In Kano state in northern Nigeria, the Improved Health and Livelihoods in Nigeria's Rural Communities project of the USAID/Coca-Cola Company WADA activity benefited 22 communities with a comprehensive approach to water supply, productivity, sanitation, and hygiene. More than 66,000 people gained access to clean



Nigerian women carry heavy buckets of water over long distances for household chores.

© JULIANNA KOHLER, COURTESY OF PHOTOSHARE

drinking water, while 52,800 gained access to improved sanitary facilities. Implemented by the Women Farmers Advancement Network, the project drilled 37 boreholes and built VIP latrines and 22 handwashing facilities with rainwater harvesting in communities and schools. The improved school facilities led to an increase in girl's attendance, with one school reporting an increase from fewer than 50 girl students to more than 240. The project conducted training on hygiene and sanitation behavior in 18 communities and established 22 water, environment, and sanitation clubs of 30 students each. It also trained 400 community members, including women, in rainy and dry season farming, and, with a focus on sustainability and productive use of water, taught pump repair and maintenance. The project provided additional training in "community-led total sanitation," which created awareness about the dangers of open defecation. Four clinics and 18 schools received training and mobilized to improve hygiene and sanitation practices.

WRM: Over the next few decades, climate change is likely to have a major impact on Nigeria, causing greater weather variability along with gradual warming and more intense short-duration rainfalls. The predicted rainfall patterns may lead to droughts, unless investments are made for more water storage and later release through ir-

rigation schemes. Flooding is expected from storm surges and seawater intrusion on the coast, where 20 percent of the population lives.

Nigeria is also a major contributor to global climate change through natural gas flares from oil wells in the Delta region, the second-most concentrated source of greenhouse gas emissions in the world. In addition to the harm done to the global environment, these conditions result in local environmental degradation, health problems in the Delta, and massive revenue losses. Through the International Food Policy Research Institute, USAID played a major role in 2009 in helping the Government, and especially the Ministry of Water Resources, understand the implications and importance of these issues. This was critical to the successful signing of a compact under the Comprehensive Africa Agriculture Development Program that will make climate change a Nigerian-led initiative. USAID also supported analysis and institutional capacity building to encourage solutions; worked to strengthen the Independent Power Producers Association, a group of power producers interested in using the natural gas to increase Nigeria's electric supply; and engaged a management and technology consulting firm to work with oil producers and the Government on the problem.

■ Senegal

**% infant caregivers washing hands
after fecal exposure:**

< 10

**% students not washing hands after going to the
bathroom or before eating:**

74

The Government of Senegal began reforming its WSSH sector in 1996 and since then has made substantial im-

provements in coverage and sector organization. Senegal is on track to meet its Millennium Development Goal for water by 2015, but it is less likely to meet its sanitation goal. In 2005, Senegal developed its Millennium Potable Water and Sanitation Program, which has been instrumental in setting a progressive WSSH sector policy. Given Senegal's high prevalence of diarrheal diseases, progress in WSSH is important in decreasing morbidity and mortality, particularly in children under 5 years of age. Diarrheal-related illnesses are the second leading cause of death among Senegalese children under age 5. Less than 10 percent of mothers and guardians of infants report washing

Focusing on Handwashing and Hygiene Promotion in Senegal

Senegal has a high prevalence of diarrhea-related illnesses, but few mothers, caregivers, and children know of and perform basic hygiene practices such as handwashing with soap after using the toilet. Informing people about hygiene is thus a sure step toward curbing the occurrence of diarrhea-related disease, and the USAID/Senegal health program took on this challenge in 2009 through intensive handwashing promotion campaigns in four target zones. The campaigns emphasized knowledge of key times for handwashing and proper handwashing techniques and included awareness-raising activities such as community meetings, individual and group demonstrations and discussions, listening groups for the health radio drama series, and partnerships with 48 elementary and religious schools. Combined, the campaigns carried out the following activities:

- 376 advocacy sessions
- More than 1,400 group talks and learning sessions reaching more than 66,000 people
- Nearly 9,000 home visits reaching more than 40,000 people
- Three interactive radio programs
- Nearly 13,000 individual interviews on handwashing knowledge and behaviors
- Nine social mobilization activities to promote public knowledge of the advantages of handwashing
- Local celebrations of Global Handwashing Day on October 15



In addition, health and hygiene education and sensitization campaigns carried out by USAID/Senegal's vulnerable school

Handwashing demonstrations are part of Senegal's hygiene promotion campaign.

CHILD FUND

program in northern Senegal targeted not only students but entire communities and their leaders. The program worked closely with nine schools to facilitate improved health and

hygiene for students and improve their living and learning conditions. Through seminars focused on health-related messages and publicity for community leaders' participation in health-related activities, the program reached more than 3,800 students, with successful and positive impacts on the students and their communities. Thierno Dauda Tall, the teacher at Bode school near the border with Mauritania, sees the direct benefits of the program. "In our hygiene and health program, we have seminars that address different themes and permit students and the community to understand and change their behavior," he explained. "Positive behavior change is good. For example, students now conscientiously wash their hands before eating."



Women dancing and singing in rural Senegal to express their appreciation of water and sanitation activities funded by USAID.

AARON BROWNELL

their hands after exposure to fecal material, and 74 percent of schoolchildren do not wash their hands after going to the bathroom or before eating.

WSSH: Activities in 2009 helped 8,400 people gain access to improved drinking water supply and 7,200 students gain access to improved sanitation facilities at their schools. Health interventions included promotion of improved hygiene and sanitation practices and improved access to clean drinking water. Community health educators reached nearly 220,000 people with messages about how waste disposal sites can become breeding grounds for mosquitos without proper drainage and water run-off. The USAID-supported network of more than 1,300 “health huts” promoted healthy hygiene and sanitation behaviors, including the importance of handwashing, environmental sanitation, and proper waste disposal. The program also worked with primary schoolchildren and children attending Koranic schools to encourage healthy hygiene and sanitation habits for the children to share with their families and influence behaviors at home.

USAID/Senegal also embarked on new WSSH initiatives in 2009 that will bear results in the coming years. These included:

- **WASH initiative:** This initiative, coordinated with the Government and other donors and stakeholders, will improve sustainable WASH access in targeted small towns and rural and peri-urban areas. An estimated 179,000 people will gain access to improved drinking water supplies, and 93,000 people will gain access to

improved sanitation facilities. USAID helped plan the initiative’s integrated approach to social, governance, economic, health, ecological, and sustainability challenges in the WSSH sector. The program will increase demand for sustainable WASH services and install and rehabilitate improved drinking water and sanitation infrastructure. It will also strengthen participatory governance and the capacity of small-scale service providers, water users associations, and the private sector.

- **POU water treatment:** In July, USAID engaged a private corporation to begin social marketing promotion and sales of the Aquatab POU water purification tablet. The five-year project, to be launched nationally in 2010, aims to provide clean drinking water to approximately 1.3 million individuals (260,000 families). The program will also develop nonpharmaceutical and community-based distribution networks, a training program, and IEC materials to bring about behavior change for people without access to safe water.

USAID ensured that gender remained a prime consideration in the planning and implementation of ongoing and new programs. Senegalese women and girls are the main collectors of water for household use, with enormous costs in time and labor that have significant negative impacts on school attendance and participation in productive economic activities. Women and girls are also the primary caretakers of sick family members suffering from water-borne diseases. USAID’s design and planning of WSSH infrastructure ensures that female stakeholders are empowered and involved in decisionmaking and management.

WP: In its second year, USAID/Senegal’s “Wula Nafaa” agriculture and natural resources management activity laid the groundwork for future programming in water use efficiency in agriculture. The activity’s WP component focuses on irrigation system efficiency with an emphasis on small-scale irrigation and water management systems, including rainwater harvesting; new wells; pump installations; drip irrigation; and water retention ponds for agricultural uses. It also supports research to develop improved irrigation and agricultural technologies that increase yields while reducing water demand.

■ Sierra Leone

Some progress has been made in reducing maternal and infant deaths in Sierra Leone, which consistently records maternal and infant mortality rates that are among the worst in the world. The U.S. Government is helping Sierra Leone further improve the health of mothers and children as a component of the Food for Peace program.

WSSH: As part of USAID’s maternal/child health programming, environmental sanitation messages were included in health and nutrition education for more than 20,500 pregnant or lactating women at outreach clinics and community health clubs. Safe water and environmental sanitation were also included in training provided to nearly 10,000 community health and village development health committees. USAID helped six communities build wells and latrines and form community water management committees to manage them.



Left to right: Pipes for water supply project, Ghana; community well, Chad; Niger River, Mali; school latrine project in Ghana supported by USAID’s West Africa Water Initiative

Picture credits on page 115.

Asia

A man paddles his boat in the Lang Sen Wetland Reserve, Long An, Vietnam.



©TRAN GIA AN, COURTESY OF PHOTOSHARE

According to WHO estimates, more than 1 billion people in Asia lack access to safe water and 1.5 billion lack access to basic sanitation. These conditions contribute to more than 500,000 deaths of young children each year from waterborne illnesses. Poor households face a disproportionate impact from inadequate access to water services, and, as Asia's urban populations continue to grow, water service providers are ill equipped to meet the growing demand. Water shortages also heighten regional tensions, increasing the likelihood of conflict. Environmentally, the Asia region includes the harsh, dry terrains of Central Asia, the glacial mountain settings of North India and Nepal, and the tropical seas and coastlines of the Southeast Asian island nations. Many areas are susceptible to water-related natural disasters such as cyclones, typhoons, and flooding.

In FY 2009, USAID water funding allocations in its Asia region amounted to \$180.8 million, almost 30 percent of the year's total worldwide water allocations. Approximately \$114 million, or 63 percent, of this total was directed toward WSSH expenditures; \$36.1 million, or 20 percent toward DRR; and \$30.6 million, or 17 percent, toward

WRM and WP activities. In USAID-assisted countries, approximately 2.6 million people gained access to improved drinking water supply; nearly 831,000 people gained access to improved sanitation facilities; and more

than 131 million liters of drinking water were disinfected by POU treatment.

ASIA REGIONAL PROGRAMS

USAID's Regional Development Mission-Asia (RDMA) operates out of Bangkok, Thailand, to support bilateral programs in countries without USAID Missions, such as Burma, China, the Lao People's Democratic Republic (Lao PDR), Papua New Guinea, and Thailand, and to manage regional programs in Asia and the Pacific. Water sector activities supported by RDMA took place mainly through its Environmental Cooperation-Asia (ECO-Asia) program; the Water, Sanitation, and Hygiene Enterprise Development (WaterSHED) project; and the Coral Triangle Initiative (CTI), which is described in the box on page 53.

Environmental Cooperation-Asia

ECO-Asia's water and sanitation component seeks to improve access to clean water and sanitation for poor populations in Asian cities primarily through its WaterLinks program. In 2009, WaterLinks implemented seven

twinning partnerships and pilot projects with cities and utilities in six countries, resulting in improved access to water and sanitation for more than 95,000 persons; adoption of 29 improved laws, policies, and plans for water and sanitation service delivery; increased capacity of nearly 800 water sector practitioners; and mobilization of nearly \$1.5 million in non-USAID resources. These partnerships resulted in new water supply for the urban poor in Indonesia and Sri Lanka; safeguards against waterborne diseases in China, Thailand, and Vietnam; continuous water supply provision in India; and sustainable sanitation services in Indonesia. ECO-Asia also promoted a microwater financing strategy to sustain small water businesses and help the poor access water. The WSSH activities and results of various ECO-Asia partnerships are described in the individual country entries that appear later in this chapter.

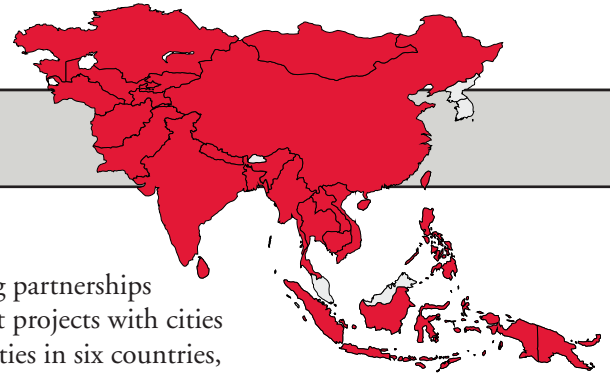
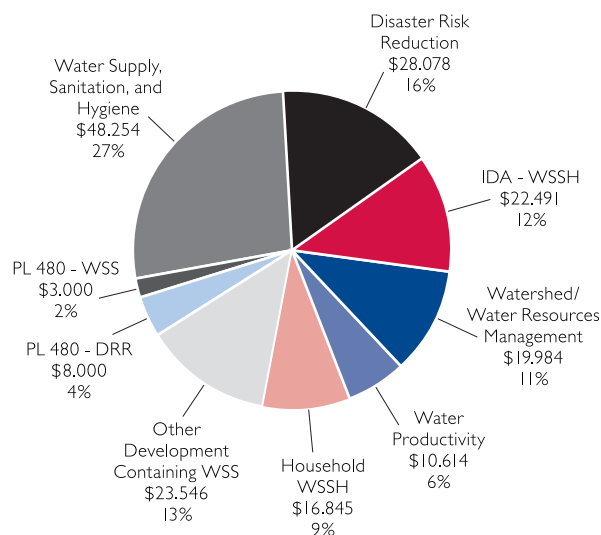


Figure 12: USAID Budget Allocations for the Water Sector by Theme, Asia Fiscal Year (FY) 2009
\$180.812 (28% of World Total)
Millions of Dollars



In 2009, ECO-Asia supported assessments of septage management policies and practices throughout South and Southeast Asia. In many Asian cities, septic tanks, latrines, and other forms of onsite sanitation provide basic wastewater services for 60 to 90 percent of residents. Most cities do not manage the build-up of septic tank waste, or septage, and most countries treat less than 10 percent of their septage. Untreated waste is often dumped in waterways, landfills, and vacant land, leading to potentially harmful environmental and public health impacts. ECO-Asia's multicountry appraisals in India, Indonesia, Malaysia, the Philippines, Sri Lanka, Thailand, and Vietnam focused on key challenges and good practices in policy development, capacity building, finance, and public awareness. The study found that most Southeast Asian countries have national policies and some septage treatment facilities, but most programs were only partially operational. It found that South Asian countries have limited policies and no treatment facilities. The assessment recommended that countries strengthen existing programs through



ECO-Asia projects in the Philippines complement their sanitation and wastewater activities with safe drinking water programs in schools, like this one in Marikina City.

AECOM INTERNATIONAL DEVELOPMENT

operator partnerships focused on sharing good policies and practices, including engaging private operators and initiating service promotion campaigns.

The WaterLinks program was recognized by the Global Water Operator Partnership Alliance, operated by UN-HABITAT, as the regional partnership network for Asia. WaterLinks showcased its capacity building and networking approaches at key international events, including the World Water Forum and Singapore's International Water Week. In September, WaterLinks held its first regional forum in Bangkok, Thailand, which attracted more than 160 participants from 24 countries and focused on sharing outcomes and impacts of twinning partnerships as well as on creating new partnerships.

ECO-Asia's WRM component promotes regional environmental governance and transboundary cooperation. Its principal activity in 2009 was to continue its work with the Mekong River Commission in promoting regional cooperation among the Commission's member countries of Cambodia, Lao PDR, Thailand, and Vietnam. ECO-Asia helped establish a transboundary committee of stakeholders from Cambodia and Lao PDR to identify solutions to issues in the Strung Treng-Champasak wetlands on the Cambodia-Lao PDR border. Key issues include illegal and destructive fishing, threats to the critically endangered Irrawaddy dolphin, environmental pollution, and tourism.

Water, Sanitation and Hygiene Enterprise Development

RDMA launched WASH marketing programs in Cambodia, Lao PDR, and Vietnam through the Global Development Alliance WaterSHED project, which resulted in improved access to water and sanitation for more than 130,000 people. The project promoted private sector approaches for achieving sustainable access to water and sanitation. Programming areas included access to WASH products and services, enterprise and supply chain development, product innovation, and financing. In 2009, WaterSHED introduced one clean water product, designed four sanitation products, signed a filter distribution agreement, incubated a commercial enterprise, launched a financing partnership, and scaled up an output-based aid sanitation program. WHO assisted by analyzing the potential for commercializing household water treatment systems in Lao PDR and Vietnam.

Water Users Association Support Project

The landlocked countries of Central Asia require strong networks of organizations to maintain and manage irrigation systems to improve their agricultural productivity. In recognition of this need, USAID initiated its five-year Water Users Association Support Project (WUASP) in 2004 in the Central Asian republics of Kyrgyzstan, Tajikistan, and Uzbekistan. The project's objective was to create and strengthen water users associations (WUAs) that would enable farmers to operate, manage, and invest

Coral Triangle Support Program Assists Southeast Asia-Pacific Marine Resources Initiative

In 2009, USAID initiated the U.S. Coral Triangle Initiative Support Program to provide support to the the Coral Triangle Initiative (CTI) launched in May by the leaders of the six “coral triangle” (CT6) countries of Indonesia, Malaysia, Papua New Guinea, the Philippines, the Solomon Islands, and Timor Leste. The Coral Triangle is the global epicenter of the Earth’s marine life abundance and diversity. It contains resources that help sustain the region’s 363 million people, 120 million of whom live in coastal communities directly dependent on local marine and coastal resources for income, livelihoods, and food security. The USAID Regional Development-Asia (RDMA) serves as the program lead as it assists the CT6 countries in improving the management of biologically and economically important coastal and marine resources and ecosystems. Improved management will in turn improve food security, livelihoods, biodiversity conservation, and climate change resilience across the region. Results achieved or assisted by RDMA in 2009 included:



Coral reefs are an important part of marine ecosystems throughout the Coral Triangle.

MEAWATERS

- Support for the establishment and operations of an interim Regional CTI Secretariat to coordinate the efforts of the CT6 countries
- Development and launch of a regional plan of action
- Establishment of national coordinating committees
- Strategy development for improving ecosystem approaches to fisheries and marine protected area management
- Donor coordination to leverage additional investment in CTI
- The first regional exchange of the CT6 countries, attended by 25 CT6 country representatives
- A signed agreement with NOAA to increase the CT6 countries’ coastal and marine resource management capacity by providing scientific information, training, technical assistance, learning exchanges, and other tools
- Completion of reference tools to guide implementation of the Sulu-Sulawesi Marine Ecoregion Conservation Plan in Indonesia, Malaysia, and the Philippines
- Multilateral discussions on management of transboundary resources between Indonesia and Timor Leste

in irrigation and drainage improvements and bring economic benefits through more efficient irrigation, increased crop yields, and less waste of water resources. In 2009, WUASP assisted nearly 100 WUAs in the three countries. While the Uzbekistan program ended, the Kyrgyzstan and Tajikistan programs were extended until 2011, with positive results seen in improved water availability, improved irrigation and drainage infrastructure, increased agricultural productivity, and increases in par-

ticipating farmers’ incomes in all three countries. In Tajikistan, USAID modeled an effective, replicable, and sustainable model for local-level water management that empowers local communities. In addition to providing dramatic economic gains, the model provides a forum for other community development priorities and allows association members to negotiate with the government. Other donors adopted the model because of its success.

Asia Country Programs

■ Afghanistan

% access clean water supply:
22

% open defecation in rural areas:
89

In 2006, Afghanistan ranked worst in the world for clean water supply, with only 22 percent of the population having access to a sustainable source of clean water. Across rural Afghanistan, 89 percent of people defecate in the open, 75 percent drink contaminated water, and 10 of 100 children die from preventable waterborne diseases before reaching age 5. These indicators persist even though the country has significant water resources. To optimize the social and economic benefits of these resources, improved infrastructure, governance, and management of existing and new services will be key areas for future interventions.

WSSH: USAID’s private sector water program promoted POU water treatment with the chlorine-based Abpakon solution. In 2009, the program sold enough Abpakon to treat more than 712 million liters of water. The program also trained 40,000 people, including doctors, midwives, pharmacists, community health workers, NGO staff, shopkeepers, and mullahs, in clean water and chlorine use. The project also engaged mullahs to promote Abpakon during Friday prayers.

Under a new activity launched during the year, USAID promoted the commercialization of water sector utilities in four municipalities as part of the Government’s water sector reform agenda. Grants were provided to support water infrastructure rehabilitation, equipment purchases, and training in commercial accounting, English language, and computer operations. Another new activity focused on water and sanitation issues in rural areas of southern and eastern Afghanistan. USAID also supported technician training on operating and maintaining water distribution systems.

WRM: USAID contributed to the protection and conservation of forest ecosystems through activities such as terracing to prevent soil erosion and water run-off and planting more than 4 million trees to reforest watersheds. As a result, more than 2.2 million hectares came under improved management. To build capacity for managing natural resources, 43,000 community and extension

Table 6: Asia, Top Receiving Countries, WSSH Funding, * FY 2009

Receiving countries	\$ (millions)	Percent
Pakistan	50.3	44.1
Afghanistan	22.6	19.8
Indonesia	13.0	11.4
Timor Leste	5.0	4.4
Bangladesh	4.7	4.1
India	4.0	3.5
Philippines	2.6	2.3
Sri Lanka	2.2	1.9
Cambodia	1.3	1.1
Other (4 countries, 2 regional missions)	8.3	7.4
Total WSSH/Asia**	114.1	

* Budget allocations and commitments
** Country figures and percentages may not add to total or 100 due to rounding.

workers received training in sustainable management of forests and protected areas, including threats to watersheds.

USAID also worked with the Ministry of Energy and Water on its water sector strategy and with numerous other ministries and government agencies on sustainable water resources development and management and drought management.

■ Bangladesh

% no access safe drinking water:
> 25

% no access hygienic sanitation:
> 60

Bangladesh has a myriad of water problems that pose significant development challenges. More than 25 percent of the population is still in need of access to safe drinking water, and more than 60 percent is in need of access to hygienic sanitation systems. Naturally occurring arsenic contaminates wells, threatening to reverse earlier trends in reducing diarrheal disease. During the monsoon season, between 30 and 70 percent of the country regularly floods, while in the dry season one-third of the country suffers



Afghan village children gather water from a USAID-installed communal water tap.

© USAID/LGCD

from water scarcity for both irrigation and domestic use. In the southern coastal belt, saline water intrusion, which contaminates drinking wells, is an additional challenge.

WSSH: Using Food for Peace program resources, USAID assistance programs in 2009 installed deep tube wells and piped water, constructed latrines, provided education about arsenic in drinking water, and conducted formal awareness raising sessions on hygienic sanitation. These programs provided access to safe drinking water for more than 388,000 people, substantially exceeding the target of 217,900 because the area made available for constructing tube wells increased considerably after communication campaigns sensitized communities to the benefits of clean water. The programs also provided access to hygienic sanitation for more than 423,000 people.

USAID WSSH activities also significantly changed community water and sanitation practices. Community members are using latrines instead of crop fields. Many locally elected representatives declared using fields to be against community law, with violators subject to fine or censure. Over five years, health education, coupled with the installation of hygienic latrines and wells, resulted in a 53 percent increase in the use of hygienic latrines and 49 percent increase in access to safe drinking water in 407,000 households.

In 2009, USAID also used maternal/child health funds to promote water-related hygiene activities. USAID implemented activities through its health clinics program to create awareness about the use of safe water for preventing waterborne diseases, with an emphasis on childhood

diarrhea. The awareness campaign targeted mothers and caretakers of children and encouraged handwashing with soap before preparing food, before eating, before feeding a child, and after using the toilet. The campaign reached more than 1.5 million people with messages of handwashing and safe water use. USAID's Safe Motherhood and Newborn Care Project trained 2,300 staff and community members in counseling skills and reached about 60,000 married women with messages promoting handwashing for prevention of infections in pregnant mothers and newborns. The project also trained traditional birth attendants who conduct most of the deliveries in targeted areas. USAID provided the birth attendants with safe delivery kits, including soap, in order to practice proper handwashing before conducting child deliveries. This successfully reduced the high risk of maternal and newborn infections.

In addition, a protected area management project renovated and maintained 26 hand pumps, providing access to safe drinking water to more than 1,000 poor villagers.

WRM: Ninety percent of Bangladesh's forests and 50 percent of its freshwater wetlands are being lost or degraded due to population growth, over-extraction of resources, poor environmental planning, and a general lack of understanding of ecosystems and their contribution to economic growth. The country also faces a real threat from global climate change, with studies showing that a 2° C rise in global temperatures would submerge around 20 percent of the country and affect 70 million people living in coastal areas. Another 8 million people in other parts of the country would be affected by seasonal droughts.

USAID/Bangladesh's WRM activities in 2009 brought more than 183,000 hectares of forest and wetlands under improved management. The Integrated Protected Area Comanagement project's collaborative approach with the Government and local communities generated increases in fish production and other aquatic resources and more effective aquatic biodiversity conservation. USAID also trained communities in adapting to climate change. Nearly 250,000 people living in and around protected areas reduced their dependency on the resources of these forests and wetlands and increased their capacity to adapt to climate variability.

DRR: In 2009, USAID funded the construction of small-scale infrastructure to protect against water-related disasters and trained communities in disaster preparedness. Infrastructure components included primary schools designed to provide safe havens; wave protection walls to protect against erosion; embankments to delay flooding; and land and home elevations to maintain dry living space and reduce the risk of illness and forced evacuations. Approximately 1,400 communities completed protective infrastructure projects with USAID support, exceeding the target by 18 percent, and approximately 2,600 people received training in disaster preparedness. USAID also helped the Government develop a flood forecasting model that provides flood warnings 10 days in advance rather than three.

USAID/OFDA supported WASH interventions as part of the emergency relief response to Cyclone Aila, which hit Bangladesh in May and affected 500,000 people in 14 districts. In the immediate response, USAID partners mobilized OFDA water purification units and in the longer term installed water and sanitation facilities at 2,900 transitional shelters in three of the most affected districts.

■ Burma

WSSH: USAID/OFDA supported the construction of rainwater harvesting systems and pond cleaning in 43 villages (4,375 households) in Burma's delta region, where the sea surge from Cyclone Nargis contaminated drinking water ponds with salt and caused severe water shortages. Water committees were formed in the villages, and 174 committee members received training in cleaning and maintaining the rainwater harvesting systems. Villagers also received training in good hygiene and water storage practices to avoid contamination.



In Bangladesh, a Garo tribal woman with her daughter carries water on her head. Rural families depend on natural sources for household water.

© AMIO ASCENSION/
PATHSHALA-DRIK, COURTESY OF
PHOTOSHARE

■ Cambodia

Outside of major cities, many Cambodians rely on temple ponds, rivers, wells, and rainwater to meet their daily water needs. These waters, however, are often polluted with human and animal wastes or agriculture and industrial chemicals, and this unsafe water contributes greatly to diarrheal disease, other illnesses, and even premature death. Water issues particularly impact women and girls, who shoulder most of the responsibility for gathering water and caring for the sick.

WSSH: In 2009, USAID's WSSH activities focused on providing communities with access to clean drinking water and sanitation facilities and on encouraging good hygiene behaviors, such as handwashing. In primary and lower secondary schools, USAID support provided 39 new or renovated toilets, 11 wells, and 22 water systems. USAID promoted diarrhea-preventing behaviors by integrating handwashing and clean water messages into community health education. More than 12,000 people participated in WASH education; more than 200,000 liters of drinking water were disinfected; and nearly 600 water filters were sold through the health program. In a community of 500 floating households, USAID helped build a large-scale biotech water filtration system that provides clean water and produces up to 7,200 liters of drinking water per day.

A USAID-supported water business forum brought together almost 100 private water service providers, users, and government officials to improve the understanding and regulation of private sector water issues. USAID signed

26 memoranda of understanding with service providers, under which they will expand access to safe water by extending existing piped water systems or by upgrading water treatment facilities to meet national standards.

WRM: More than 220,000 hectares of natural resources were protected in 2009 as a result of USAID-assisted biodiversity advocacy and improved natural resource management activities. More than 1,100 people received training in biodiversity conservation and resource management. The Prey Lang Forest watershed, which supports more than 80 percent of Cambodia's rice production, was a focal area of these activities.

■ China

WSSH: The ECO-Asia Water and Sanitation Program implemented twinning partnerships that resulted in the adoption of six improved WSSH-related laws, policies, and plans; increased capacity for more than 300 water sector practitioners, 29 percent of whom were women; and mobilized more than \$150,000 in non-U.S. Government funds. In Jiangsu province, ECO-Asia support helped develop the Guidelines for Participatory Planning of Township Water Aggregation and Improvement Projects, which provides an innovative approach to planning water services projects that meet community needs through water and sanitation systems that are socially acceptable and bring benefits to the local community. Also in Jiangsu, an ECO-Asia partnership with a Philippine utility enabled the Yancheng city water company to develop a customer feedback system that allows it to monitor customer satisfaction, improve service quality,

and reduce public health risks. In Guangdong province, the Shenzhen water utility also developed a customer feedback system to strengthen customer outreach and quality monitoring through a partnership with the Los Angeles Department of Water and Power. In Yunnan province, ECO-Asia helped pilot a participatory process for obtaining stakeholder feedback to support planning and decisionmaking for sanitation projects.

WRM: To reduce pressure on forests and support watershed conservation, USAID assistance supported reforestation and sustainable use of forest resources through tree planting and installations of biogas units. Trash collection systems were put in place and regulations established to enforce watershed management. More than 30,000 people, including more than 5,000 nomads, received training in natural resource management and conservation and watershed management.

■ India

% communicable disease resulting from contaminated water:

> 20

Estimated child deaths per year from diarrhea:
500,000

India's growing population and expanding economy have generated increased demand for basic infrastructure, particularly water and sanitation services in urban areas. More than 20 percent of communicable diseases in India result



Left to right: Collecting water, India; mangrove seedlings, Philippines; multiple-use water source, Vietnam; watershed management project, India

Picture credits on page 115.

Slums in India Gain Water and Sanitation Services

Two of the biggest challenges facing development in India are 1) replicating successful interventions on a scale that will serve a country of 1.1 billion people, and 2) institutionalizing new innovations within a bureaucratic and poorly managed government system. USAID's Financial Institutions Reform and Expansion for Debt/Infrastructure (FIRE-D) project is helping India take on these challenges by diagnosing, planning, and implementing demonstration projects, including water and sanitation projects.

USAID/India has been promoting innovative financing approaches and sector reforms in financial and municipal institutions through FIRE-D and related projects since the 1990s. As part of these efforts, USAID successfully assisted in the issue of the first municipal bond in India for water and sanitation infrastructure. Cumulatively these efforts have succeeded in increasing source revenue by more than \$622 million in 11 municipalities for water and sanitation projects.

In 2009, in partnership with the Michael and Susan Dell Foundation, FIRE-D tested the feasibility of extending water and sewer infrastructure into three slums of 1,000 people in Bhubaneswar, the capital of Orissa state, which is one of India's least developed but fastest-growing states. For a variety of legal, discriminatory, and financial reasons, utilities in India are usually reluctant to extend infrastructure into slums, but FIRE-D worked closely with the local water utility, a microfinance institution, and the city government to show that households were capable of and willing to pay for household connections and monthly user charges. Households borrowed from microfinance lenders to build toilets to connect to the sewer system. This community-based process yielded better infrastructure services to settlements, increased the values of slum dwellers' homes, improved public health, and ensured better management of household

finances. Open defecation in the streets dropped from 90 percent to approximately 20 percent of the population in the first phase of construction and is expected to drop more because nonparticipating families know about improvements in the community.



USAID's FIRE-D project helped connect this child's home in an Indian slum to water and sewer systems.

USAID/INDIA FIRE-D

FIRE-D intends for lessons learned from its projects to be applied elsewhere and for its successes to sustain themselves for long-term benefits to local populations. The Bhubaneswar slum project met these goals, as indicated by the following developments:

- The state government decided to simplify regulations for connecting to water and sewer infrastructure. Slum populations benefit the most from this decision, since they have the most difficulty complying with regulations. Additionally, connection fees for poor households decreased from \$70 to \$11 per household for water and from \$33 to \$7 for sewer.
- The utility decided to replicate the approach on its own in two other slums located near piped infrastructure. The utility offered "fast track" water connections to all households who were willing to pay. Although microfinance loans were not offered in this case, more than 400 households (2,000 plus people) applied and paid the connection fees.
- The state government asked FIRE-D to help it formulate a policy for slum upgrading. The government, including the Chief Minister, was very receptive to FIRE-D's suggestions, and the policy, which is awaiting approval, is probably the most progressive in all of India.
- The utility designed the infrastructure for the third slum on its own and is proposing to submit a funding request to the state government. This step represents a radical shift from a donor-driven initiative to a utility-led practice.

A woman in India pours water from a Pureit filter. POUZN has partnered with the manufacturer to provide quality filters.

POUZN PROJECT



from contaminated water, and nearly half a million children die every year from diarrhea. Only a small proportion of wastewater is treated, and much of the extensive water system of rivers and tributaries has become polluted with sewage. Constraints on delivering water services include scarce local government resources, inability to access financing, limited skills in project structuring, and inadequate operation and management skills. Although these constraints affect all citizens, the poor disproportionately suffer. In urban settings, slums arise as the poor remain disconnected from public services and cannot pay for private alternatives.

WSSH: To reduce diarrhea incidence, USAID's Point-of-Use Water Disinfection and Zinc Treatment (POUZN) project entered its second phase in 2009, targeting 600,000 residents in 930 rural villages and 520,000 in 480 urban slums as potential users of POU water disinfection products, including chlorine solution and water filters.

USAID's Financial Institutions Reform and Expansion for Debt/Infrastructure (FIRE-D) project helped provide improved drinking water for nearly 305,000 people; improved sanitation facilities for more than 22,000; and solid waste services for 370,000. In Orissa and Madhya Pradesh states, FIRE-D designed water and sanitation infrastructure for 12 slum settlements of 17,000 people and facilitated capital funding from other donors. At the institutional level, FIRE-D drafted policy reforms and guidance to improve services to the poor, manage technical aspects of urban services, and access capital market financing. This effort yielded \$93.8 million in water and sanitation infrastructure investment. In Orissa state, FIRE-D helped transform the bureaucratic and financially weak

Public Health Engineering Department into a public company that manages water and sewer systems while incentivizing good customer relations, full cost recovery, and service improvements. The institutional reforms were coupled with water and sanitation projects to expand coverage in urban areas, which demonstrated that poor populations in slums can be good utility customers.

In addition, USAID/OFDA supported WASH interventions for populations in Bihar state displaced by the flooding of the Koshi River in 2008. Activities included procuring and distributing health and hygiene kits, water purification tablets, and tools and materials for hand pump rehabilitation, and training in water point maintenance, safe drinking water, and hygiene. The project established 337 protected water points serving nearly 33,000 people, increased both the quantity and quality of available water, and trained more than 400 community hygiene promoters.

WRM: In 26 villages in the Wakal River Basin of Rajasthan state (one of India's most water-stressed regions), USAID's Global Water for Sustainability (GLOWS) program helped establish or revive village water committees to address water issues, supervise the development of water resources, and assist in the planning and management of village water programs. Committee members received training in governance, service delivery, and integrated water resources management. GLOWS support helped increase knowledge about the quality and quantity of groundwater supplies; improve sustainability of rainwater harvesting techniques; and ensure safeguards to protect water quality between multiple uses of water.

■ Indonesia

Population without safe drinking water:
> 100 million
% urban households piped water:
< 35

More than 100 million Indonesians do not have access to safe drinking water. Unsafe drinking water is one of the leading causes of diarrhea, the second leading killer of Indonesian children under age 5. Less than 35 percent of urban households have piped water connections. Poor households suffer most because of prohibitively high connection fees and regulatory barriers to supplying water to informal settlements. Only about 69 percent of urban households have access to basic sanitation. Open

defecation remains the standard practice among almost 20 million urban Indonesians living without access to sanitation facilities.

WSSH: USAID focused its WSSH assistance on technical support to government water utilities. This assistance improved operational efficiency and creditworthiness; increased access to piped water for poor urban populations; improved watershed management for a steady supply of water; and promoted healthy WASH behaviors. Technical support to 27 water utilities and six communities improved the delivery of safe water to more than 280,000 people and provided nearly 20,000 with improved sanitation facilities. USAID also helped five city governments develop sanitation strategies and started four new programs in eastern Indonesia.

WSSH access increased considerably for poor urban populations through the establishment of community master meter systems; partnerships between water utilities, communities, and banks; and “output-based aid” for water utilities. These three mechanisms formed the foundation of a “Water for the Poor Toolkit” launched late in 2008 and available to cities throughout Indonesia. USAID’s regional ECO-Asia program used the community master meter system in Medan to help the city connect 3,800 households to piped water and to begin installing connections for another 3,500. ECO-Asia also supported a

promotional campaign in Medan for improved sewage service that resulted in 750 households signing up for a sewer connection. In Surabaya, ECO-Asia helped the city improve its management of water pressure and flow in order to supply 3,500 families, or an estimated 17,500 people, with a continuous water supply.

A study of the promotion of five healthy WASH behaviors – household water treatment, handwashing with soap, safe food handling, elimination of open defecation, and safe solid waste management – in communities and schools found that program sites achieved a 23 percent increase in improved health and hygiene practices and a more than 10 percent decrease in diarrhea incidence over two years.

WRM: USAID/Indonesia’s watershed protection programs preserve some of the world’s most high-conservation-value forest. In 2009, USAID watershed management activities facilitated the rehabilitation of 223,653 hectares of degraded land to stabilize water flow and improve water quality and improved the management of 216,268 hectares of biologically significant area. In areas that contribute to the protection of raw water supplies for water utilities and urban populations, USAID completed 47 water resource protection and watershed management plans and worked with local governments, communities, utilities, and the private sector to develop and implement



Indonesian children wash their hands at a sanitation facility in a Jakarta school. The facility is part of a program to introduce healthy and hygienic lifestyles to the school community.

MEAWATERS

Three Tools for Success from Indonesia's ESP Program

With the dual objectives of water resource protection and clean water delivery, USAID/Indonesia's Environmental Services Program (ESP) achieved impressive results during its five-year tenure (which was extended in 2009 for six months into 2010). These results included:

- Increased access to clean water for 1.25 million Indonesians
- Improved sanitation services for 60,000 people
- Strengthened performance by more than 40 water utility companies
- Improved conservation management of nearly 80,000 hectares of forest area
- Rehabilitation of more than 50,000 hectares of degraded land to support the conservation of water resources
- In 2009, development of 31 community-based sanitation systems benefiting 7,670 people



Three important tools ESP used to achieve these results were: 1) community master meters, 2) microcredit for household connections to piped water, and 3)

USAID/Indonesia's ESP program used field schools and field days to mobilize community awareness and activities to improve water ecology as it affects the environment and health.

USAID/INDONESIA, ESP

field schools and field days to mobilize communities to support water resource protection and demand and obtain improved clean water and sanitation services.

Community master meters are a key element of a system for providing very poor families with piped water to their homes from a single metered access point (the "master meter"). The meter is installed by the water utility company and managed by a community organization, which enters into an agreement with the utility and takes responsibility for a network extending piped water to individually metered household connections. The organization collects fees from all families, pays the water company, and maintains the entire system. In Medan, around 100 master meter systems now provide reliable, clean water to more than 35,000 poor people, who are paying only 15 percent of what they used to pay water vendors.

Microcredit for household water connections is another effective approach that enables poorer households to pay their connection fees in monthly installments rather than as a single payment up front. This requires building partnerships between water utilities and local banks. ESP pilot initiatives stimulated 22 master agreements between utilities and local banks, and an agreement with one of Indonesia's leading banks may foster similar arrangements nationwide. More than 12,000 low-income households now have access to clean water thanks to microcredit support.

Field schools and field days provide an avenue to community mobilization for understanding and taking action to improve water ecology as it affects health and the environment. Based on principles of adult nonformal education, field schools build the capacity of community groups to effectively advocate for improved services. Field days bring community groups together with local government agencies, water utility companies, and the private sector to help them leverage the support necessary to achieve improved service delivery. ESP has trained more than 7,800 Indonesians at more than 400 field schools.

water resources protection and land/forest rehabilitation. With USAID facilitation, four local governments worked on developing joint raw water management schemes, the first time four local governments in Indonesia formally worked together to safeguard and improve their raw water sources. In addition, to protect biodiversity in water catchment areas, USAID/Indonesia's Environmental Services Program supported training and the development of a national collaborative conservation management policy guide with an integrated watershed management framework. Over five years, the program helped improve conservation management of 78,144 hectares of forest area and rehabilitated of 52,561 hectares of degraded land to support the conservation of water resources.

■ Nepal

% access piped water:
17

% access improved sanitation:
31

Only 17 percent of Nepal's people have access to piped water, and only 31 percent have access to improved sanitation. As in other countries, unsafe water is a major contributor to child mortality and morbidity, causing an estimated 13,000 child deaths annually.

WSSH: USAID's Nepal Hygiene Improvement Project (NHIP) ended early in FY 2009, and a new social marketing program was being designed for launch in 2010. Since 2006, NHIP engaged in extensive consumer research, promotion, and product marketing in support of POU water treatment and handwashing, reaching 500,000 households. The project trained 4,000 female health workers; 5,500 other frontline workers in flood-prone areas; and staff and children's club members in 200 schools. Mass media campaigns reached more than 1 million people and included radio campaigns targeting rural populations. Village promotions included street dramas seen by an estimated 70,000 people, and door-to-door promotions by trained staff reached 180,000 households. Water treatment options included two POU water treatments products, solar disinfection, and water filters.

DRR: With the largest concentration of glaciers outside the polar regions, Nepal is vulnerable to an increase in global temperatures, which will result in loss of glaciers, reduced freshwater availability, an increased likelihood of flooding, and a greater susceptibility to disasters such as



An adolescent girl carries a bottle of water in Nepal.

© KRIT PONGPIRUL, COURTESY OF PHOTOSHARE

glacial lake outbursts and seasonal droughts. Evidence suggests that the rate of flooding in the Himalayan region is already increasing as a result of warming. In 2009, USAID disaster recovery and relief support helped communities rebuild after floods and be better prepared for similar disasters in the future. Activities included building bridges and flood barriers and strengthening river embankments.

■ Pakistan

% households lacking piped water (rural/urban):
78/38

Estimated child deaths per year from diarrhea:
100,000

An estimated 78 percent of Pakistan's rural population and 38 percent of the urban population do not have piped water, although in 2009 nearly 1.4 million people gained improved access to a drinking water supply, including supplies from standpipes and wells, through USAID-supported programs. A very large percentage of those with access to an improved water source regularly receive contaminated water, however, so improving the quality of drinking water is a high priority for the Government. Improving water indicators faces significant constraints – rural settlements lack sanitation facilities, drinking water is generally scarce, and the depletion of the groundwater table in the fall renders many pumping schemes nonfunctional. Maintenance of existing water supply systems remains inadequate, resulting in contaminated, dysfunctional, and damaged systems.

Pakistan: Applying a Framework for Broad-Based, Long-Term, Sustainable Success

USAID implemented the three-and-a-half-year Pakistan Safe Drinking Water and Hygiene Promotion Project (PSDW-HPP) from 2006 to 2010 as part of its goal to improve basic health services for the Pakistan population and help Pakistan achieve the Millennium Development Goal of reducing the percentage of its population without access to safe water by 2015 by 50 percent. With a geographical scope of 40 districts/agencies in Sindh, Baluchistan, Punjab, and North-West Frontier provinces, the Federally Administered Tribal Areas, and Azad Jammu and Kashmir, the project reached a population of 40 million.

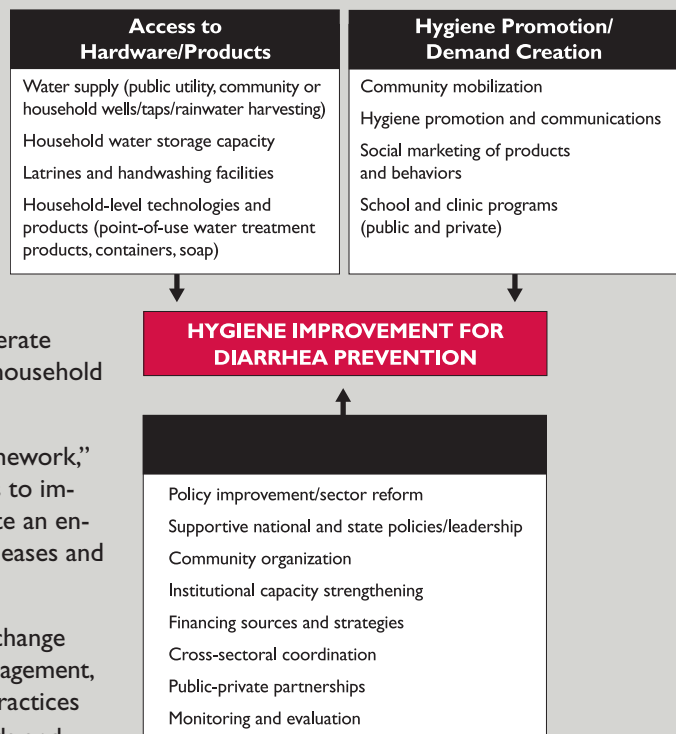
PSDW-HPP's focus was to increase the effectiveness and sustainability of the Government of Pakistan's clean drinking water program through complementary hygiene and sanitation promotion activities, community mobilization, and diverse capacity building activities. Specifically, the objective of the project was to improve the health of vulnerable populations and increase the use of proven interventions to prevent waterborne infectious diseases, such as diarrhea. The project focused on helping local governments and communities safely maintain and operate water treatment systems and promote personal and household water hygiene to maximize health benefits.

The project followed the "Hygiene Improvement Framework," which has demonstrated that integrated interventions to improve access to hardware, promote hygiene, and create an enabling environment are key to preventing diarrheal diseases and improving hygiene. Its components include:

- Developing, implementing and evaluating behavior change communication activities to improve safe water management, handwashing behaviors, and household sanitation practices
- Providing technical review on water testing methods and household water treatment technologies
- Strengthening local capacity to manage and operate water treatment plants in a sustainable manner

In applying the Framework's integrated interventions, PSDW-HPP provided technical assistance in hygiene and sanitation promotion, community mobilization, and capacity building to complement Pakistan's investments in safe drinking water hardware such as water supply systems, improved sanitation facilities, household technologies and materials, safe water containers, and effective water treatment. It demonstrated how social mobilization can lead to better management of filtration plants by communities and provided training on operation and maintenance of treatment facilities, water quality testing, and protection of water sources.

Under the Framework's hygiene promotion component, PSDW-HPP targeted four key stakeholder groups (the community, schools, the media, and the private sector) to reach large-scale critical audiences with behavior change messages and activities. PSDW-HPP also provided support to governmental agencies, NGOs, and communities through capacity building and training in planning, cost recovery, and water resources management to create the enabling environment that will ensure investments in hardware and promotion are sustainable in the long term. As Pakistan moves toward its safe water Millennium Development Goal, the Hygiene Improvement Framework, as applied by PSDW-HPP, can be regarded as its formula for success.



WSSH: Under the Pakistan Safe Drinking Water and Hygiene Promotion Project (PSDW-HPP), USAID and 51 local partners promoted hygiene and built WSSH capacity nationwide. The project trained nearly 39,000 primary school teachers and education staff; 150,000 mothers and fathers; and 2,500 women volunteers, health care providers, and religious leaders on hygiene promotion and education. Pakistan's largest cellular telephone company disseminated, free of charge, 3 million short messages on safe water and hygiene promotion. In nearly 12,000 schools in 23 districts, PSDW-HPP supported hygiene products and promotion, including bars of soap and media materials such as stickers and posters, and nearly 400,000 fourth-graders completed school hygiene activities. The project also piloted community-based sales and distribution of water purification chlorine tablets, marketing more than 185,000 tablets in direct sales to nearly 9,000 customers and distributing more than 28,000. PSDW-HPP also facilitated the formation of 82 community-level water user committees and, in 41 district-level workshops, trained more than 1,600 people in the operation, maintenance, and financial sustainability of water filtration plants. With the help of partner NGOs, 21 nonfunctional filter units underwent repairs.

To decrease the incidence of child diarrhea, USAID's maternal/child health program supported nationwide media campaigns and trained female safe drinking water and hygiene promoters who conducted more than 12,000 information sessions.

■ Philippines

% lacking piped water connection:

56

% no access toilets/adequate sanitation:

24

Inadequate water supply and poor sanitation continue to be major problems in the Philippines. Nearly 18 percent of Filipinos (or 5.4 million people) lack access to an improved water supply system, 56 percent lack piped connections, and 24 percent lack access to toilets or adequate sanitation. Poor sanitation in the country is evidenced by the persistent high incidence of diarrhea, which is reported at more than 700,000 cases a year. The country is also vulnerable to the effects of climate change because of its location in the path of tropical storms – in 2009, three successive storms brought huge economic and human losses. As a result, communities along Laguna Lake remain under water, with

contaminated groundwater sources and inadequate sanitation facilities exposing communities to hazardous environmental and health conditions.

WSSH: In 2009, USAID's WSSH assistance resulted in increased access to improved water supply for nearly 117,000 people. The USAID-supported Philippine Water Revolving Fund project provided improved water access to nearly 40,000 of these beneficiaries, while more than 70,000 benefited from USAID's direct provision of water supply infrastructure in conflict-affected communities in Mindanao. USAID assistance also brought improved sanitation services for nearly 356,000 people, mainly through technical assistance in more than 10 municipalities for building wastewater treatment facilities, improving toilets, and improving septage collection and treatment. To promote proper hygiene behavior, USAID also helped develop a 10-step tool kit that six local governments adopted for use.

WRM: The Philippines land area is drained by 421 principal river basins or watersheds. Aside from supplying water, these watersheds provide economic opportunity for at least 20 million people, provide habitats to biologically important plant and animal species, minimize the occurrence of floods and droughts, and help mitigate the adverse effects of climate change. In many, however, water quantity and quality are seriously jeopardized by decreasing forest cover resulting from poor management and law enforcement.

To address these threats, in 2009 USAID helped the Philippine Government strengthen forest management and improve watershed health in 13 watershed forest reserves, two of them important sources of hydropower. With USAID assistance, more than 28,000 hectares of natural forest were placed under improved management. To identify and reduce land-based sources of pollution in coastal areas, river basins, and estuaries, USAID supported wastewater assessments in more than 12 local government units (LGUs). USAID also assisted the development of three priority watersheds in Negros Oriental province to ensure a sustainable supply of potable water. On nearly 500 hectares of watershed area in various locations, USAID supported permanent crop planting or agroforestry activities. Other WRM activities included helping Philippine environmental law enforcement agencies clear illegal structures from the Pansipit River and Taal Lake marine areas in Batangas province and helping LGUs, communities, and the private sector in Mindanao respond to threats to the Davao Gulf.



Fish has always been a mainstay of the Philippine diet, but human population growth has resulted in overharvesting, and the supply of fish has dropped dramatically.

© LIZ GILBERT/DAVID AND LUCILE PACKARD FOUNDATION, COURTESY OF PHOTOSHARE

WRM activities also supported biodiversity conservation. The Philippines is among the world's 17 countries where more than two-thirds of the world's biological diversity is concentrated. It is also one of 25 biodiversity hot spots, with 90,000 hectares of forest being lost annually and fishery production declining rapidly. In 2009, USAID technical assistance to 54 LGUs and five inter-LGU alliances in coastal and maritime governance led to improved management of more than 96,000 hectares in areas of biological significance in 16 marine protected areas. A national network of academic and NGO support groups chose two areas assisted by USAID as the country's top two marine protected areas.

WP: USAID addressed WP issues in 2009 in four major Philippine ecosystems by conserving marine biodiversity, as measured by a 10 percent increase in fish stock abundance from a 2004 baseline and by the maintenance of coral reefs, seagrasses, and mangroves that support fisheries with environmental services. USAID assistance helped establish 32 marine protected areas covering 1,913 hectares of reefs and set up fisheries management systems in 17 LGUs. In addition, USAID supported small hydroelectric projects. In Mindanao, USAID installed four micro-hydro facilities to provide power to approximately 400 households and four mosques in four remote conflict-affected villages considered uneconomical for power line extension. The systems ensured power supplies for local economic activities, including corn milling, coffee grinding, drying, and bakeshops.

■ Thailand

WSSH: Under the ECO-Asia regional program, a partnership with the Wastewater Treatment Division of King County, Washington, helped the Wastewater Management Authority of Thailand develop standard operating procedures for every wastewater treatment facility in the country, many of which are not operational under local government control. The procedures should enable the facilities to operate on a more sustainable basis and promote cleaner waterways. Another ECO-Asia activity helped a provincial water authority pinpoint operational deficiencies, refurbish its treatment plant and distribution network, and stabilize chlorine concentrations in order to reduce the potential for waterborne disease outbreaks among its 12,000 customers.

■ Timor Leste

% access improved water supply:
55

% access improved sanitation:
40

WSSH: Access to water (55 percent) and sanitation (40 percent) in Timor Leste are the lowest in Southeast Asia. Much of the country's infrastructure was destroyed during the separation from Indonesia in 1999, and a 2008 survey found that 75 percent of the systems created in the postconflict years were at best partially functional. In



Family members collect fresh water for the day in Timor Leste.

© STEVEN NOWAKOWSKI,
COURTESY OF PHOTOSHARE

2009, USAID initiated WSSH support and in less than a year provided access to an improved drinking water supply to nearly 1,100 people. USAID also laid the groundwork with the Timor Leste Government, local NGOs, and the targeted communities for expanded, accelerated programming in the future.

■ Vietnam

WSSH: Under the ECO-Asia program, the Danang Water Supply Company (DAWACO) improved safe water distribution for nearly 20,000 people. Through a partnership with the Manila Water Company, DAWACO addressed low chlorine levels that were putting residents at risk of waterborne diseases. Manila Water helped DAWACO develop and institute a pipeline cleaning program and assisted with a long-term strategy for pipe maintenance and water quality management, including proper sampling and quality monitoring. With the water quality management program in place, chlorine levels increased to meet WHO standards.

Europe and Eurasia

This section of the Dzhimndan River on Russia's Sakhalin Island was spared from burning during major forest fires. It provides high biodiversity for fish and wildlife species. USAID is financing a United State Forest Service activity that is carrying out fieldwork to develop restoration plans for the watershed.

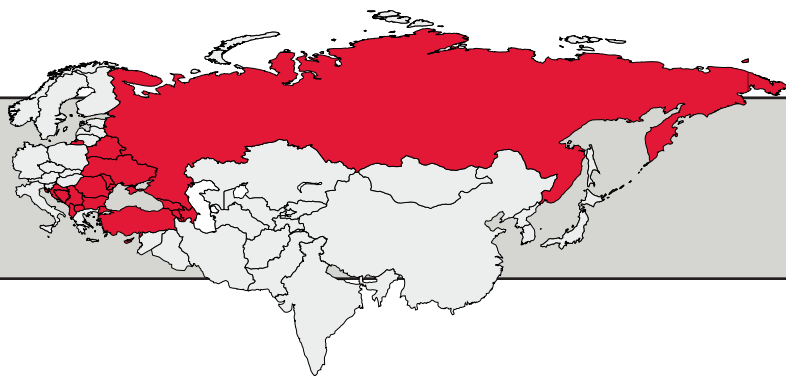


DAVE HELLER, USFS

The populations of USAID-assisted countries in the Europe and Eurasia (E&E) region have far better access to improved drinking water sources and improved sanitation facilities than the populations of most USAID-assisted countries in sub-Saharan Africa and Asia. Improved drinking water coverage is 90 percent or better in nearly all E&E countries, and most countries have improved sanitation coverage of 75 percent or better, with many 90 percent or higher. Nonetheless, many E&E countries face issues of water quality; aging, outdated, and deteriorating infrastructure; management and financing inefficiencies; and water-related environmental concerns.

In FY 2009, USAID water funding allocations in the E&E region amounted to almost \$2.5 million, less than one-half of 1 percent of the worldwide total. WSSH activities included water supply rehabilitation in Armenia; management and regulatory reforms in Georgia; small infrastructure improvements in Kosovo; community-level WSSH activities in Moldova; and water quality projects along the Amur River in far eastern Russia. USAID also assisted watershed management activities in Georgia and Russia.

EUROPE AND EURASIA COUNTRY PROGRAMS



■ Armenia

**% water lost through leakage or illegal connections:
80**

Armenia's water and sanitation sector has achieved great progress, but it remains vulnerable. An estimated 80 percent of water is lost through network leakages and illegal connections. Many water networks outside of the capital Yerevan receive only a few hours of water supply each day, and some receive water only on alternate days. Almost all sewage is discharged into rivers untreated.

WSSH: In 2009, USAID completed the renovation of water supply networks in the town of Artashat and 27 surrounding villages. Over two years, the project rehabilitated and improved the quality of water supplies for 100,000 people. As USAID/Armenia's largest capital investment initiative, the project installed approximately 50 kilometers of new water mains and distribution lines; built a new 4,000 cubic meter reservoir; rehabilitated two existing reservoirs; and transferred oversight of the reservoirs to the Armenian Water Company. USAID also helped the Armenian Government develop strategies and financing mechanisms for investments in the water and sanitation sector and a business plan for establishing a water sector revolving fund.

■ Georgia

**% water lost through deteriorated networks:
50**

Georgia's water supply, sanitation, and wastewater networks are highly deteriorated, leading to estimated water losses as high as 50 percent. Maintenance and repair are desperately needed. Water delivery is sporadic, and most wastewater is discharged directly into open water bodies. The spread of infectious diseases by contaminated water supplies and inadequate sewage treatment systems remains a major health challenge.

Figure 13: USAID Allocations for the Water Sector by Theme, Europe & Eurasia Fiscal Year 2009
\$2.458 (0.4% of World Total)
Dollars in Millions

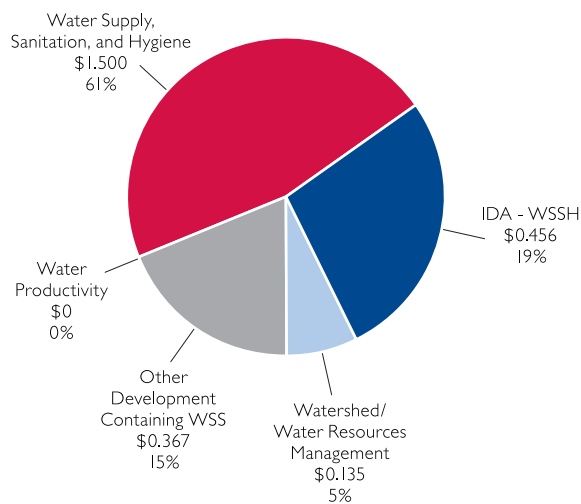


Table 7: Europe and Eurasia Countries Receiving WSSH Funding,* FY 2009

Receiving countries	\$ (millions)	Percent
Armenia	1.21	52.2
Georgia	0.96	41.4
Russia	0.15	6.5
Azerbaijan	0.01	0.4
Total WSSH/Europe and Eurasia**	2.32	

* Allocations and commitments
**Country figures and percentages may not add to total or 100 due to rounding.

WSSH: USAID/Georgia's school rehabilitation project in Shida Kartli, an area affected by the 2008 conflict with Russia, added a water and sanitation component, identifying 10 schools in need of indoor lavatories with water and sanitation facilities. USAID will construct the lavatories and facilities in 2010. USAID also provided WSSH products to communities in western Georgia

whose drinking water supplies were disrupted by spring flooding in April and May.

USAID supported the Georgian Government's reform efforts in the water sector through advisory assistance to its water reform commission, preparing two reports analyzing the consolidation of 62 municipal water agencies into larger regional ones and summarizing the proposed reforms and their financial implications. USAID also helped the Government implement a new method for setting water rates and establish customer relations rules for water utilities and consumers.

WRM: In watersheds adjacent to small U.S. Government-funded hydropower facilities, USAID promoted conservation efforts to ensure regular water flow and reduce sedimentation that can damage hydroelectric turbines. USAID prepared integrated natural resource management plans with four communities adjacent to the hydropower plants and assisted with demonstration projects to enhance the long-term viability of the plants and serve as road maps for mobilizing resources to support sustainable natural resource management. USAID also conducted an assessment of Georgia's watersheds for a watershed management program to begin in fiscal year 2010. One objective of the program will be to increase the number of people with access to safe drinking water.

■ Kosovo

**% access safe drinking water:
73**

Water supply and sanitation services in Kosovo face many challenges, including inadequate sanitation and sewage distribution systems; contamination of drinking water, well water, and rivers; sewage pipes in need of repair; lack of connections to public sewage systems, with most households relying on septic tanks; direct disposal of wastewater and industrial effluents into rivers and lakes; absence of wastewater treatment systems; and difficulties in operating water supply companies, including lack of funds, electricity problems, billing and collection issues, and daily water interruptions. Only 73 percent of Kosovo's population has access to safe drinking water, far below the 91 percent rate in neighboring Albania.

WSSH: In 2009, USAID/Kosovo developed and designed a three-year Small Infrastructure for Water and Sanitation activity to help, on a cost-sharing basis, five municipalities of 85,000 people improve their quality of and access to potable water and sanitation. During its first year, the activity reached more than 19,300 people in the five municipalities, exceeding the target of 18,000 set for the



A village in Armenia awaits its first running water as a worker makes final preparations to pipes that will deliver water from a nearby source.

© PAUL PERRIN, COURTESY OF PHOTOSHARE

year. A community outreach program held 25 meetings to inform residents of the activity, its cost-sharing component, and the importance of community participation and sustainable cost recovery mechanisms.

In addition, USAID's Kosovo Water Institutional Sector Reform Program helped two water companies strengthen capacity and service quality through technical assistance and infrastructure improvements.

■ Moldova

WSSH: USAID used small grants to civil society organizations in rural and urban areas to increase access to drinking water. Community groups received training in management of water and sanitation services and decision-making on health-related issues, including improved sanitation conditions. Participants included teachers, youth, entrepreneurs, farmers, and NGO members. Community revitalization grants for small projects pursuing energy efficiency supported upgrades of water systems to use gravity to improve the flow of water.

■ Russia

WSSH: Through phase II of its Amur Initiative, USAID implemented projects to support water monitoring and improve drinking water quality in seven settlements along the Amur River in Russia's far eastern border region with China, where contamination of the transboundary water basin poses health and environmental threats. The projects benefited more than 25,000 people. Combined, phases I and II of the Initiative provided clean drinking water to more than 40,000 rural residents and increased awareness of Amur River water quality issues for more than 1 million people living along the river. Investments were also made to support municipalities and businesses providing water to six more settlements.

WRM/WP: In addition to supporting United States Forest Service activities on Sakhalin Island (see box), USAID also assisted with plans to establish protected areas for the Koppa and Nimelen Rivers in Khabarovsk.

Watershed Restoration in Russia's Far East

With USAID funding, the United States Forest Service (USFS) in 2009 continued to carry out watershed restoration and habitat protection activities on Sakhalin Island off Russia's east coast. Under the USFS Sustainable Forest Resource Management in Russia activity, funds were used to develop a conservation strategy for the island's Langry-Bolshaya watershed and also an island-wide salmon monitoring plan. The area is a high-biodiversity habitat and home to a range



of fish and wildlife species. USFS has helped establish five watershed councils – community-based organizations representing the varied interests of watershed populations, users and

Along a tributary to the Dzhimdan River on Russia's Sakhalin Island, students learn how to estimate stream flow.

DAVE HELLER, USFS

visitors – in Russia's Far East. Increasing stakeholder involvement through watershed council training was one focus of this activity. USFS also supported fieldwork to develop restoration plans and training in stream ecology and water quality. In the salmon monitoring activity, USFS convened a working group to develop a Sakhalin-wide monitoring approach for salmon ecosystems in order to improve salmon monitoring practices and restore and protect rare salmon habitat. The activity is part of the the Sakhalin Salmon Initiative, a public-private partnership that brings together business, communities, and NGOs in an effort to conserve wild salmon, promote sustainable fisheries, and build conservation capacity on the island.

Latin America and the Caribbean

Coastal wet forests on Nicaragua's Pacific coast.



© D. HINRICHSSEN, COURTESY OF PHOTOSHARE

As in the E&E region, WSSH coverage rates across much of USAID's Latin America and Caribbean (LAC) region are relatively high. Nearly all countries have 90 percent or better access to improved drinking water sources, and only Bolivia and Haiti have lower than 50 percent coverage for access to improved sanitation. However, WSSH progress has not been even across the region or within countries, especially in areas where rural indigenous or poor urban populations remain excluded from advances in infrastructure and services. The region's topography, which includes the Amazon Basin and the Andes Mountains as particularly important features on the South American continent, contributes to this uneven development progress. The Andes, the Amazon, and the Caribbean Sea also figure significantly in water-related environmental resource issues in the region.

In FY 2009, USAID water funding allocations in the LAC region amounted to \$32.2 million, or about 5 percent of the worldwide total. Reflecting the relatively high levels of WSSH coverage through much of the region and its above-mentioned environmental features, a greater portion of these funds were obligated in the WRM (17 percent) and WP (23 percent) subsectors than in other regions.

LATIN AMERICA AND THE CARIBBEAN REGIONAL PROGRAMS



Conservation of Central American Watersheds

USAID initiated its Conservation of Central American Watersheds (CCAW) program in 2007 in response to mass tourism and cruise ship traffic in the Bocas del Toro watershed in Panama and Costa Rica and the Gulf of Honduras watershed in Belize, Guatemala, and Honduras. CCAW's objective is to improve the management of these fragile yet economically critical watersheds. Program achievements include nine regulatory reforms or municipal agreements, two regional and 25 private land use plans, 11 protected area management plans, and 13 monitoring plans. The program has brought nearly 493,000 hectares of land under improved management and generated \$1.7 million from public-private partnerships to fund tourism linked to conservation of critical areas of biodiversity. In 2009, CCAW supported geo-tourism initiatives for improving sustainable tourism while supporting biodiversity conservation in both watersheds.

Eastern Caribbean Regional Program

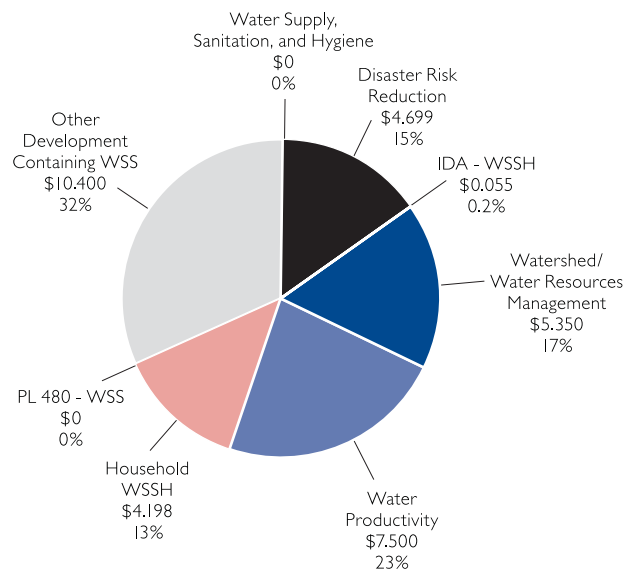
USAID's Eastern Caribbean regional program, based in Barbados, undertook two biodiversity activities in 2009: the Protecting the Eastern Caribbean Region's Biodiversity (PERB) activity and the Biodiversity Threats Abatement in the Eastern Caribbean activity. PERB developed regulations for marine protected areas, including the Levera wetlands in Grenada, which supported Caribbean Challenge regional efforts to bring 20 percent of coastal and marine habitats under protected status by 2020. The Biodiversity Threats Abatement activity, which began in April and also supports the Caribbean Challenge goal, developed a marine zoning plan for areas of St. Kitts and Nevis. The plan will increase coral reef conservation and sustainable use of fishery resources and include mapping and database entry of reefs, mangroves, seagrass beds, beaches, and fishing areas.

Initiative for Conservation in the Andean Amazon

Deforestation in watersheds that are important sources of water for major cities in the Andean Amazon is demonstrating the need for better water resource management in the region. Deforestation causes increased soil degradation and sedimentation that in turn cause stream

clogging, deterioration of water quality, and increased threats of flooding. Protection of forest cover around rivers is crucial because forest cover helps maintain watersheds and moderate river levels. Although USAID's regional Initiative for Conservation in the Andean Amazon (ICAA) seeks primarily to conserve biodiversity, it also works to build local capacity and commitment for effective stewardship of key watersheds to improve water availability and water quality for local populations. In 2009, ICAA partners worked with educators, NGOs, local communities, and governments to support participatory planning for improved watershed management in Pando, Bolivia, and Madre de Dios, Peru, and to develop in the latter a framework for joint watershed management planning by municipalities. ICAA also trained hundreds of coffee producers, cacao producers, and ecotourism operators on more efficient water use and better management of solid and liquid waste, helping decrease impacts on the quantity and quality of water re-

Figure 14: USAID Budget Allocations for the Water Sector by Theme Latin America & the Caribbean Fiscal Year 2009
\$32.202 (5% of World Total)
Millions of Dollars



sources in the project areas. In addition, ICAA produced 79 bulletins about drought and rainfall conditions in Pando to provide early warning for possible civil defense responses to fires and floods.

Latin America and the Caribbean Country Programs

■ Bolivia

% arable land:
< 5

Bolivia is one of the LAC region's poorest and most isolated countries, with more than 60 percent of the population living below the poverty line. Less than 5 percent of the land is arable, and environmental constraints, including extreme temperatures, frequent droughts, and infertile soils, limit agricultural productivity. Rural population density is extremely low, and one of the most commonly identified priorities for impoverished rural communities is access to potable water and basic sanitation.

WSSH: Water supply and sanitation was a critical element of USAID's Food for Peace program, which focused on creating opportunities and enhancing health and well-being for impoverished families in Bolivia's poorest regions. In 2009, nearly 48,000 people in Food for Peace target areas received access to improved drinking water and/or sanitation as a result of USAID assistance.

Other WSSH results included the following:

- In the coca-growing regions of Yungas, USAID's Integrated Alternative Development program constructed four potable water systems that improved living conditions for approximately 1,270 families and 44 bathroom facilities serving 761 families.
- A 10-month WSSH activity in Cochabambas department reached almost 900 families with potable water and sanitation systems and/or intensive training in their operation and maintenance, water use, and good hygiene practices. Two potable water systems (with 67 connections in four communities) and two dry latrine projects (with 98 dry latrines) were installed. The project provided direct access to clean water and appropriate sanitation connections to 161 families, surpassing

Table 8: Latin America and the Caribbean, Top Receiving Countries, WSSH Funding,* FY 2009

Receiving countries	\$ (millions)	Percent
Haiti	4.8	32.9
Ecuador	3.0	20.5
Bolivia	2.8	19.2
Nicaragua	1.4	9.6
Peru	1.3	8.9
Other (4 countries, 1 regional mission)	1.3	8.9
Total WSSH/ Latin America and the Caribbean**	14.6	

* Budget allocations and commitments

**Country figures and percentages may not add to total or 100 due to rounding.

the project goal. Another 160 families benefited from the rehabilitation of dysfunctional potable water systems. More than 1,500 training sessions were held in 39 communities on sanitation issues and administration and maintenance of community water systems. As part of an effort to reduce waterborne diseases, nearly 600 families received training and outreach in sanitation education, hygiene, and environmental themes.

- In coordination with municipal governments and local water cooperatives, the Municipal Strengthening Activity initiated six sewage collection systems that included household connections in the peri-urban area of El Alto and the metropolitan area of Santa Cruz, with more than 7,000 families benefiting.
- USAID's Community Health Project worked to improve community, household, and school hygiene habits to prevent water-related diseases. The project trained 1,000 teachers in 30 municipalities in water treatment, safe water storage and handling, handwashing with soap, proper water consumption, waste disposal, and proper use and maintenance of bathrooms. These training sessions were then replicated at schools, reaching around 20,200 children.

WRM: Bolivia faces serious threats to its water resources. Watersheds are heavily degraded, with high levels of soil erosion and lack of vegetative cover. Increased glacier melt, reduced levels of rainfall, poor water retention, and local extraction rates all contribute to declining water

availability. In the Altiplano region, home to about 1 million people, rapid unplanned growth and industrial and human waste have contaminated water resources and soils and affected the Lake Titicaca watershed. To safeguard the biodiversity of the lake ecosystem and improve the health and well-being of local populations, USAID's El Alto-Lake Titicaca Pollution Management Activity worked in 2009 on near-shore pollution prevention and mitigation in Lake Titicaca and targeted industrial pollution prevention activities in the nearby city of El Alto.

■ Brazil

WRM: The USAID/Brazil Environment Program seeks to improve natural resources management, landscape monitoring, and conservation of biodiversity in the Amazon forest ecosystem, protected areas, and indigenous lands. Program activities specific to water resources in 2009 included mapping of two critical watersheds in Acre state (southwest of the Amazon region, at the border with Peru and Bolivia) and assessments of their vulnerability, fire risks, and potential for sustainable use. USAID also supported training for more than 1,600 people from local communities, indigenous populations, and government agencies in natural resource management, including watershed management, fire prevention, and early warning of floods and fire.

■ Colombia

WSSH: In 2009, USAID supported construction or improvement of 19 water systems and sanitation projects (including water treatment plants, waste disposal networks, waste treatment plants, sewage and aqueduct systems in rural and urban areas, sanitary units for schools and housing, and basic sanitation for housing projects) in 19 municipalities in 11 departments. The projects benefited more than 5,800 families (nearly 29,000 people), 80 percent of them in urban and rural communities of largely vulnerable populations such as indigenous peoples, Afro-Colombians, or displaced persons. To ensure sustainability, the projects also received technical assistance and training on business management practices in administration, financial management, and system operation and maintenance.

■ Dominican Republic

WSSH: Many people in the Dominican Republic face health risks due to poor access to safe drinking water. This is particularly true in the *batey* communities of sugar workers. In 2009, the USAID-funded *Batey* Community Development Project continued to provide *batey* residents access to clean water and sanitation (see box on

page 75). In 2010, the project will implement activities under the new Rotary International/USAID International H2O Collaboration, which in 2009 selected the Dominican Republic as one of its three pilot countries.

WRM: Tourism provides substantial benefits to the Dominican Republic's economy, but its unregulated growth threatens to destroy the coral reefs and clean beaches with clear water that attract tourists in the first place. Sea turtles, humpback whales, dolphins, birds, and other animal and plant species are disappearing because of the destruction of natural habitats and lack of protection. In 2009, USAID helped improve community-based microwatershed management, environmental protection services, and sustainable tourism programs, and promote sustainable management and conservation of designated protected areas. Work began on developing a national list of endangered species and a national sea turtle management plan. In Samaná Bay, an important biodiversity site, work began on the design and implementation of a marine zoning proposal, with a focus on helping local fishermen associations promote sustainable fisheries practices.

■ Ecuador

WSSH: In 2009, USAID built 25 potable water systems and 11 sanitation systems in border communities. As a result, more than 20,100 people gained access to potable water, and 2,050 gained access to improved sanitation services. USAID built more water systems and fewer sanitation systems than planned because of border communities' greater need for water systems. USAID worked with government counterparts to identify water and sanitation



This plastic container designed for drinking water displays colorful illustrations of behaviors needed to maintain safe water, with the message "always drink clean water." Shops in the Dominican Republic sell the containers to local families.

© MANOFF GROUP, COURTESY OF PHOTOSHARE

Dominican Republic: *Batey* Community Development Project Brings Water and Sanitation Improvements

The USAID-funded *Batey* Community Development (USAID-BCD) Project strives to improve conditions in eight *bateyes* (company towns for sugar workers) in the eastern Dominican Republic through community-based projects in education, health, water and sanitation, and emergency preparedness. USAID-BCD undertakes several different and complementary activities to improve water and sanitation:

- Community water distribution systems – Improving wells, storage tanks, distribution systems, and use points in communities and schools
- Sanitation conditions – Building latrines, training communities on environmental hygiene, and supporting bimonthly community cleanups
- Water and sanitation conditions in schools – Building or improving bathrooms, handwashing facilities, and water storage tanks



In the eight *bateyes*, USAID-BCD has provided all households and primary school classrooms with ceramic water filters to ensure access to clean drinking water for families and students.

A workman repairs a community water tank as part of water supply and sanitation improvements supported by the USAID-funded Batey Community Development Project.

USAID-BCD

It has also formed and trained water committees in each of the participating communities, and these are gaining certification and being incorporated into the National Water Institute's rural water association program.

In 2009, USAID-BCD assessed water quality across the eight *bateyes* and found that the quality of well and tap water was generally poor. The wells in some *bateyes* were located in low areas of microwatersheds or close to sources of contamination such as latrines. USAID-BCD thus placed 25 biosand filters and 40 ceramic filters in the communities and then provided 900 more ceramic filters, which were well accepted and produced better water than the biosand filters. USAID-BCD also replaced water pumps in two *bateyes* and identified households without access to latrines or bathrooms to receive these facilities.

To date, USAID-BCD has achieved the following results:

- Six improved and repaired community water systems
- Improved bathrooms and handwashing facilities in four primary schools
- Improved environmental health conditions and solid waste management in eight *bateyes*
- New access to potable water for 3,000 *batey* residents and 800 students
- Installation of one community water purification system
- Creation and training of eight community water committees

In 2010, USAID-BCD will finish three more water systems, repair bathrooms and handwashing facilities in another school, and build approximately 250 latrines. It will also implement activities under the new Rotary International/USAID International H2O Collaboration.



Seemingly lush, this farmland overlooking Ecuador's Cayambe volcano has been plagued by drought. In hopes of gaining a stable water supply, community leaders have proposed an extensive system of cisterns. The cisterns will eventually be joined to a larger municipal water project that will bring glacial melt to Ecuadoran towns and cities.

© JUSTIN FAHEY, COURTESY OF PHOTOSHARE

priorities; balanced priorities through cost-benefit analysis to reach the most people possible at reasonable cost; and helped ensure the sustainability of new systems by creating and strengthening community water management boards. USAID created 11 new boards and strengthened the capacity of 31 existing boards. Training for board members included water system operation and maintenance, tariff setting, billing and collection, water quality, and watershed protection. To promote sustainability, USAID supported contests to find the most successful water management boards and the best and most innovative practices.

USAID also combined WSSH activities with hygiene education aimed at mothers, teachers, health promoters, child care providers, and children age 5 and under, with a major emphasis on good practices such as handwashing with soap. In 2009, nearly 81,000 people (including 485 health promoters and more than 1,000 teachers, 7,000 mothers, and 14,000 under-5 children in border communities) received hygiene promotion messages in schools, in child care and community centers, and through the media. Surveys found that 50 percent of targeted children reported washing their hands before eating and that diarrhea episodes in young children in project areas declined by 31 percent from the year before.

WRM: Ecuador is highly vulnerable to climate change because many of its population centers rely on alpine glaciers and high-elevation grasslands for water. It also has one of the highest deforestation rates in Latin America. In 2009, USAID's Flood Recovery in Protected Areas project worked with local communities and the government of Manabí province to plant 235,000 native trees in

five coastal protected areas and their buffer zones and to establish nurseries with wild seedlings from the Chongón-Colonche Mountains. Deforestation in these areas has contributed to severe flooding in the past, especially in El Niño years. The project trained 111 park guards and naturalist guides and 28 young farmers and local leaders from Manabí and gave short-term employment to 778 people from local populations affected by coastal flooding to improve infrastructure and vegetation in and around protected areas. Infrastructure improvements included trails, community tourism hostels, kiosks, museums, toilets, drainage channels, and shelters for tourism and surveillance in nine coastal sites. Nearly 5,000 people benefited either directly from employment or indirectly from the project activities.

In June, USAID's five-year Coasts and Forests project began work to strengthen management and improve livelihoods in and around six protected areas along Ecuador's coast, including coastal watersheds, and mangroves. The project prepared a work plan for using activities and mechanisms such as small-scale fisheries, tourism, adaptation to climate change, and payments for ecosystem services as economic incentives for conservation and sustainable management of coasts and forests.

Ecuador's USAID-supported Fund for the Protection of Water helped four new water funds become fully operational. Five water funds received assistance for institutional strengthening, resulting in improved management of more than 300,000 hectares, mostly alpine grasslands in biologically significant watersheds. USAID leveraged nearly \$2 million in contributions from municipal water companies, hydroelectric companies, NGOs, the French

Institute for Development Research, and the “Life for Quito” Corporation to protect basins that supply water to millions of inhabitants in Quito, Paute, Zamora, Tungurahua, and Riobamba.

USAID/Ecuador continued to support its Protecting Water Sources to Conserve Biodiversity cooperative agreement, which extends until September 2012. The project directly links urban water users to the conservation of protected areas that provide their drinking water through conservation fees and school-based education programs. In 2009, the project increased conservation activities in the Quito watershed and five new watershed sites and included small grants for environmentally sound productive activities, park guards, environmental education, and reforestation programs. Activities also strengthened the program’s management, monitoring, and reporting capacity. The program brought 100,000 hectares under improved management and benefited 1,000 residents economically.

To benefit communities and organizations outside of USAID’s major projects, USAID/Ecuador also financed eight grants of up to \$5,000 each to low-income groups in urban and rural areas. Activities supported by the grants included watershed and coastal management.

■ Guatemala

WSSH: USAID/Guatemala’s WSSH activities in 2009 centered on the repair of water systems and the education

of families about healthy practices for collecting and purifying water. Through an alliance with the Council of Companies, Foundations and Institutes of Guatemala, USAID trained women of reproductive age in two of the country’s poorest departments in healthy practices and nutritional behaviors, including home-based water purification methods, water chlorination activities, and waste management. In 2009, the program also disinfected 16.8 million liters of water, thereby improving the supply of healthy drinking water.

WRM: As part of its support for biodiversity programming and to enhance the sustainability of hydrological ecosystems, USAID supported a water fund initiative in Sierra de las Minas.

■ Haiti

% access improved water:
54

Potable water is becoming an increasingly scarce resource in Haiti. Only 54 percent of the total population has access to improved water supplies. Water scarcity and the effort to ensure a minimal daily supply contribute to illness and limit socioeconomic development, especially in rural areas. More than 8 percent of Haitian children die before age 5, many as a direct result of preventable diarrheal disease caused by unsafe water or poor sanitation.



Left to right: Water filter production, Nicaragua; sanitation conditions, pre-earthquake Haiti; water delivery via tanker, Guatemala; rain-soaked alley, Santo Domingo, Dominican Republic

Picture credits on page 115.

Haiti's January 12, 2010, earthquake severely disrupted water and sanitation systems, posing major human health risks. Sanitation (safe excreta disposal) and solid waste disposal are considered the most urgent priority. As of May 2010, it was estimated there was only one latrine for every 190 people in the displaced person camps. Proposed post-earthquake activities have been to:

- Increase the quantity of available water and quality of drinking water
- Increase the use of sanitary facilities for human excreta disposal
- Improve key hygiene behaviors
- Increase the capacity of government water, sanitation, and hygiene (WASH) officials and institutions at local levels to apply low-cost WASH technologies and improve WASH services
- Increase the capacity of private enterprises in the WASH sector

Moreover, the massive movement of displaced persons to already economically vulnerable rural areas has further increased the pressure on scarce water resources. USAID is currently working on expanding current programs in order to address the needs of people who have gone back to their home towns and villages with employment and economic growth activities, infrastructure investments, and other assistance.



Early in the response, people lined up for water delivered directly by trucks.

USAID/GLOBAL WATERS

The Haitian Government lacks the financial resources to upgrade aging water supply systems, train staff to implement water and sanitation programs, ensure water system operations and maintenance, and administer fee collections.

WSSH: In 2009, USAID health programs supported the use of a safe water treatment solution that provided Haitian households with more than 49 million liters of treated water at a cost of only \$0.90 per person. U.S. assistance also leveraged matching funds that helped train more than 1,000 teachers in improved hygiene practices and installed water filter systems in more than 550 schools, 90 clinics, and 400 homes, benefiting more than 50,000 people. USAID programs also provided access to safe water for more than 10,000 HIV/AIDS-affected households in 10 departments, benefiting an additional 50,000 people.

Other USAID programs to rehabilitate infrastructure completed 47 clean water activities in six hot spot cities and improved sanitation facilities at more than 50 schools. More than 400 water points of systems destroyed by hurricanes in 2008 were rehabilitated. These activities increased access to clean water for more than 1.3 million persons. New latrines benefited more than 22,000 schoolchildren, and more than 86,000 households gained easier access to clean water. Environmental improvements cleared and rehabilitated 85 kilometers of urban drainage canals that had become public toilets, garbage disposal sites, and breeding grounds for insects, with increased risks of diarrheal diseases, malaria, and dengue fever. Seeking to improve water delivery, USAID also assisted 80 water users associations.

In addition, USAID's new Watershed Initiative for National Natural Environmental Resources (WINNER) project provided 25,000 people in Bassin Mangnan with access to potable water (see box on page 79).

WRM: Haiti's watersheds are experiencing increasing floods, heavy soil erosion, loss of biodiversity, and increasing food insecurity as a result of years of poor land use management. Many hillsides are barren, scoured of their natural vegetation. In 2009, USAID/Haiti's watershed management program continued to promote sustainable natural resource management, hillside stabilization, and economic development, focusing on both coastal/marine and terrestrial resources. The program added two watersheds to its coverage, bringing the number covered to four. Along the Arcadin Coast, an area with extensive coral reefs and the habitat of diverse endangered species,

An Overview of Haiti's WINNER Project

Decades of unplanned and unsustainable tree cutting, agricultural clearing, and livestock cultivation have thrown Haiti's environment into crisis, exacerbating the effects of hurricanes and floods. Much of the cover of Haiti's hillsides has been replaced by annual crops, resulting in increased flooding, erratic water supplies, and threatened livelihoods for thousands of Haitians. At the same time, ground water levels in the plains have dropped substantially due to growing urban demand, with water becoming brackish as seawater replaces fresh water.

Understanding the importance of healthy watersheds in reducing the impacts of natural disasters and in supporting the agricultural economy, USAID/Haiti launched its Watershed Initiative for National Natural Environmental Resources (WINNER) in May 2009. The Initiative's main objectives are to protect Haiti's most densely populated areas and productive infrastructure from flood damage and to enhance agricultural productivity.

WINNER simultaneously implements livelihood, infrastructure, and governance activities in the same locations to reinforce their effects. The project targets farmers, who are the driving force behind the revitalization of Haitian watersheds, and is developing partnerships in six major agricultural value chains – sugar cane,



This water pump serves an entire village in the mountains of Haiti. Families, livestock, and crops depend on it. USAID's WINNER initiative targets farmers, who are the driving force behind the revitalization of Haitian watersheds.

© KATHRYN BOLLES, COURTESY OF PHOTOSHARE

maize, mangoes, coffee, poultry, and tomatoes – to enhance farmers' livelihoods.

WINNER's infrastructure projects have targeted hillside stabilization and flood control both in upper and lower watersheds. In upstream areas, the project focuses on reducing, retaining, and redirecting the flow of water to the downstream area. In downstream areas, WINNER focuses on population protection, improved drainage, and preparedness and response capacity. WINNER's approach gives stakeholders a sense of responsibility, a desire to protect the watersheds, and a commitment to the laws governing natural resource management. In 2009, WINNER assisted nine governing bodies, including a canal chiefs program to support the use and maintenance of rehabilitated canals in Croix-des-Bouquets.

In 2009, WINNER provided 25,000 people in Bassin Mangnan access to potable water through a rehabilitated potable water system that was destroyed by hurricanes in 2008. The project rehabilitated the system by reinforcing the intake, building a new storage basin of 25 cubic meters in a more environmentally sound site, and installing new pipes designed to better resist tropical storms. The rehabilitation was paired with development of a potable water governance system. By the end of the year, WINNER had also rehabilitated irrigation canals, dredging the equivalent of 14 kilometers of canals, removing 39,000 cubic meters of sediment, and rehabilitating masonry walls. The canals now provide water to more than 4,000 hectares of land, and the increased productivity may mean more than \$4.3 million in revenues for local bean farmers in 2010.

including marine turtles and manatees, USAID supported a watershed assessment and facilitated the drafting of a presidential decree creating Haiti's first marine protected area. USAID also supported the re-establishment of a 175 hectares mangrove swamp at the mouth of the

Limbé River, where substantial deforestation in the upper watershed has increased sedimentation. Unsustainable fishing practices in both these areas pose a serious threat to the ecosystems and livelihoods of fishing communities. As both areas have high potential for beach and ecotourism,

USAID supported an ecotourism assessment of Islet Limbé and had discussions with private sector groups on a potential ecotourism enterprise. USAID also funded assessments of sensitive biological areas in inland watersheds and helped establish a community-managed natural area around the Etang Bois Neuf, a small lake near Montrouis that serves multiple uses for farming and fishing and is a principal migration point for North American birdlife.

In the Montrouis and Limbé watersheds, USAID's Economic Development for a Sustainable Environment (Développement Economique pour un Environnement Durable, or DEED) project expanded its activities to include additional producer groups and community mapping exercises; strengthened community-based producer groups, associations, and enterprises; analyzed government natural resource management policies; increased areas under improved management; developed watershed restoration plans; and adapted a crisis modifier/rapid response mechanism. In the long term, DEED will lead to improved natural resource management and create protected areas for significant biodiversity resources in both watersheds.

Other USAID/Haiti programs also carried out WRM activities in 2009, including microwatershed restoration and protection, flood and soil erosion control to protect water supply systems, and cleaning of drainage canals to reduce pollution of shallow aquifers.

WP: In 2009, USAID/Haiti continued to facilitate the efficient, productive use of scarce water resources, critical for food security and sustainable development. USAID WP programs, some of them part of the new WINNER project, rehabilitated irrigation systems, promoted alternative sustainable livelihoods, and improved agricultural/natural resources management technologies and practices. USAID focused on poorly maintained, highly deteriorated irrigation systems in four of the most vulnerable watersheds and supported labor-intensive rehabilitation of more than 64 kilometers of irrigation canals. This brought immediate income to laborers and also brought 6,000 irrigated hectares of land back into food production. In Montrouis, USAID supported improvements in four irrigation systems covering another 700 hectares by providing matching funds to the Ministry of Agriculture for repair/construction work. The rehabilitation of these systems permitted double-cropping. USAID also initiated studies to renovate and extend two other large irrigation systems in the Cul de Sac watershed.

USAID programs also helped popularize fish farming in the watersheds. In the Limbé watershed, USAID supported technical assistance to producer groups, the construction of a test pond, and feasibility studies to examine additional opportunities. A grant was awarded to promote fish and vegetable production using water from the watershed's fish pond, providing economic alternatives to erosive hillside cropping patterns and permitting the return of these hills to permanent cropping with fruit trees. The USAID grant supported enterprise development and marketing services for 12 vegetable and fish producers. Services included support for loans for constructing and stocking fish ponds and for marketing expertise for selling fish and vegetables to nearby and regional markets,

The regular and emergency Food for Peace programs also contributed to WP activities in 2009 through the repair of 3.5 kilometers of irrigation canals, which brought nearly 800 hectares into agricultural production.

Honduras

WSSH: The Food for Peace program complemented USAID/Honduras health programming by providing water and sanitation services to more than 3,950 households, benefiting nearly 24,000 people.

WRM: The USAID/Honduras Integrated Watershed Management program, which focused on 12 watersheds to conserve biodiversity, improve natural resource management, improve disaster response, and accelerate economic growth through environmentally safe products and



Community water tank for indigenous villagers, Honduras.

© TODD SHAPERA, COURTESY OF PHOTOSHARE

services, concluded in 2009. Ongoing WRM activities included reforestation in microwatersheds. Because of Honduras' vulnerability to tropical storm-related disasters, USAID also supported training in weather monitoring; training and equipping of community-based volunteer emergency committees; and the establishment of early warning systems, risk mapping, and evacuation plans. These activities increased the capacity of municipalities in vulnerable areas to manage flood and landslide disasters. Food security activities under the Food for Peace program included technical assistance and training for small farmers in constructing small irrigation and drainage systems.

■ Mexico

WRM: In 2009, USAID/Mexico's WRM activities focused on biodiversity. They included:

- Working with a Mexican NGO to establish a network to promote conservation and sustainable biodiversity in the Usumacinta watershed in southern Mexico
- Supporting fisheries in the Gulf of California and the Colorado River Delta to reduce pressure on threatened marine biological resources
- Mitigating threats to biodiversity such as forest fires, landslides, and floods in critical watersheds
- Training for Government of Mexico and NGO personnel on best practices in watershed management

These water filters, made of local clay, are used in a cholera-prone region of Nicaragua to naturally filter harmful bacteria from water.

© KELLI M. DONLEY, COURTESY OF PHOTOSHARE



- Supporting ecotourism training on sustainable wetlands for government officials and representatives from communities living near Ramsar Convention of Wetlands of International Importance sites

■ Nicaragua

WSSH: In 2009, USAID/Nicaragua's main agricultural activity funded 65 wells for supplying water for domestic consumption, 560 water filters for home water consumption, and 150 latrines, benefiting nearly 2,800 families. USAID's community health program developed safe water activities in 446 communities, benefiting nearly 16,400 families. Each family disinfected four liters of water daily through chlorination, filtering, solar disinfection, or boiling. Nearly 3,000 community, NGO, and Ministry of Health personnel received training on disinfection methods, and nearly 16.3 million liters of water were disinfected under the program. Almost 450 communities benefited from safe water strategies, and there was a decline in acute diarrhea incidence from 5 to 2 percent of children. Another USAID health program disinfected more than 1.8 million liters of drinking water with POU treatment products.

WP: USAID continued to provide assistance to rural communities to increase access to water for productive uses. Under the Mission's main agricultural activity, almost 1,900 farmers benefited from increased access. The expansion of irrigation system infrastructure included 34 ponds, 11 reservoirs, and 26 mini-aqueducts to transport and supply water. The installation of drip irrigation systems allowed some farmers to increase yields by as much as 30 percent. These systems contributed to better use of water and enabled crop cycles to be organized relative to market demands, particularly in communities with serious water availability problems.

■ Panama

WRM: USAID/Panama's WRM activities in 2009 were aimed at preserving the biodiversity of key areas in the Panama Canal Watershed using a watershed management approach. A threats analysis identified unsustainable and unplanned development as the main pressure on biodiversity and guided interventions such as participatory biodiversity monitoring, best practices to mitigate impacts of economic activity, improved protected area management, and the promotion of policy reforms or new policies for biodiversity conservation. Activities also included the promotion of a policy on soil conservation, the establishment of watershed management councils, and best agricultural and ranching practices to preserve water quality.

■ Peru

WSSH: USAID WSSH activities in 2009 included support for handwashing, safe drinking water, and improved hygiene and sanitation at the community level. In 514 communities in 54 districts in USAID/Peru priority areas, the rate of safe water consumption increased from 27 to 66 percent substantially. The Healthy Communities and Municipalities activity provided water purification kits as part of its health programming for children under age 2 in targeted communities, and community leaders and members were sensitized to improving their water and sanitation systems. Through the USAID-supported World Bank Water and Sanitation Program, 19 public-private handwashing partnerships promoted correct handwashing practices and reached more than 100,000 mothers with training and promotion activities. The Alternative Solutions for Sanitation Program, a joint USAID-World Bank program, helped build at the national, regional, and local levels a network of approximately 150 public, private, and civil society partners committed to improving sanitation. The Program's market-driven approach started to produce results in finding low-cost, market-driven solutions for household sanitation; in strengthening supplies and service providers; and in devising financial products such as loan programs for funding household improvements.

WRM: With tropical glaciers in the central Andean region melting at an accelerating pace, Peru is extremely vulnerable to climate change. These glaciers are frozen water storage reservoirs, but they are rapidly shrinking. They provide short-term water surpluses that portend long-term water scarcity, with significant reductions in river flows predicted as early as 2030. In 2009, USAID began a new activity that will strengthen the knowledge base for two watersheds (the Santa and Piura Rivers); reduce uncertainties about the future in the face of climate



Girls in Peru demonstrate their handwashing skills.

DR. JAIME CHANG, OFFICE OF HEALTH, USAID/PERU

change, glacier loss, and threatened freshwater supplies; and build the capacity of stakeholders to better adapt to climate change. As a first step, USAID partnered with Peru's Ministry of Environment, the U.S. National Science Foundation, and others to hold an international climate change conference and workshop to strengthen linkages among scientists, national and local policymakers, and communities to improve adaptation to climate change and glacier loss. The conference highlighted Peru's vulnerability to climate change and approved a research priority action plan to be coordinated through Peru's National Science and Technology Council and Ministry of Environment.

Middle East

Wastewater treatment plant, As Samra, Jordan

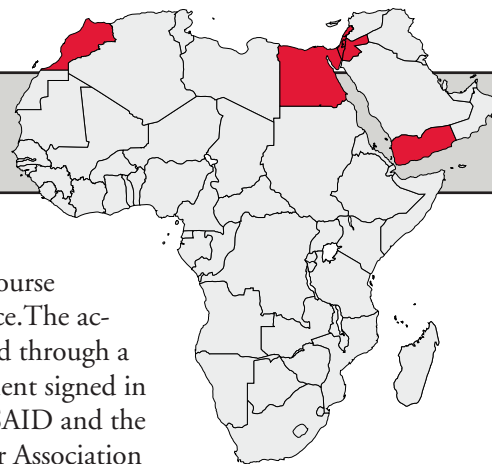


MEAWATERS

Far more than other USAID regions, the Middle East region is characterized by arid conditions, water scarcity, and a shortage of freshwater resources. Population growth puts extreme pressure on water resources and generates local and transnational disputes that exacerbate political tensions. Weak institutions and inadequate management compound water scarcity issues. Reforms in decisionmaking, resource allocation, program implementation and monitoring, and staff training and management are essential, and a sound water governance framework for comparing performance among countries in the Arab region is also needed.

In FY 2009, USAID water funding allocations in its Middle East region amounted to about \$191.5 million, or about 31 percent of the worldwide total. WSSH activities accounted for more than 90 percent of this funding, while WRM and WP accounted for 5 and 3 percent, respectively. WSSH activities connected 838,000 people to an improved drinking water supply and almost 2.2 million people to improved sanitation facilities.

MIDDLE EAST REGIONAL PROGRAMS



Office of Middle East Programs

USAID’s Office of Middle East Programs (OMEP) implements regional water activities to alleviate water conflicts and improve the performance and accountability of water management. OMEP pursues these goals through three activities focused on:

- 1) Regional water governance benchmarking
- 2) Training future leaders in water governance
- 3) Using satellite remote sensing data to provide information on water use

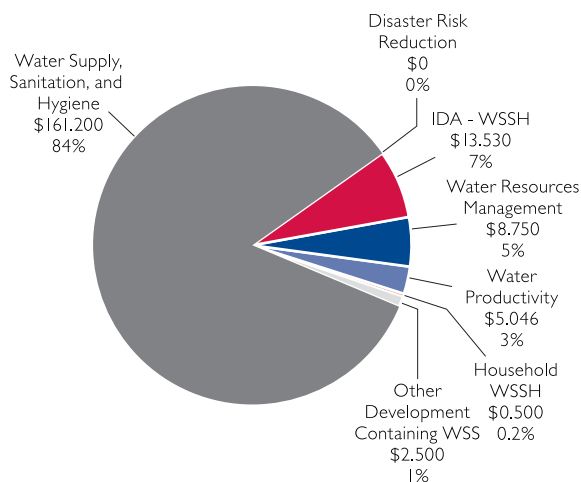
In 2009, the benchmarking activity tested and revised its methodology for generating national water governance ratings. A searchable database of policy and legal documents from the participating countries (Egypt, Jordan, Morocco, Oman, and Turkey) was indexed and posted online. The activity was the subject of a seminar at World Water Week in Stockholm, showcasing accomplishments and generating interest among potential partners.

The training program for future leaders in water governance partnered with the Arab Water Academy to develop

and implement a course on water governance. The activity was supported through a partnership agreement signed in March between USAID and the International Water Association to strengthen water utilities in the Middle East and North Africa regions. The program held its first workshop in June with 25 participants from Egypt, Jordan, Morocco, and Oman.

The satellite data program made substantial progress in refining its model of a “land data assimilation system” for the Middle East region. This model uses NASA satellite data, surface observations, and publicly available meteorological analyses to provide estimates of hydrological conditions and flows relevant to water resources. When completed, it will generate time-series maps describing the water cycle, e.g., groundwater storage, soil moisture, river runoff, groundwater fluctuations, and water consumption by crops and vegetation (evapotranspiration). The overall objective is to inform water policymakers and improve water management decisionmaking processes. In 2009, test runs of the model were performed for the region and preliminary output maps were produced and analyzed, including data on evapotranspiration and total water storage.

Figure 15: USAID Allocations for the Water Sector by Theme, Middle East Fiscal Year 2009
\$191.456 (31% of World Total)
Millions of Dollars



Middle East Country Programs

■ Egypt

% town and village residents connected to sanitation:
11

In spite of significant water sector investments over the last 25 years, many Egyptians still lack adequate access to basic water and sanitation services, to the severe detriment of public health. While the Government reportedly provides drinking water to approximately 100 percent of the population, services are not reliable and water quality often does not meet basic health standards. On the sanitation

side, approximately 100 percent of city residents were connected to sanitation services by the end of 2007, but only 11 percent of town and village residents had access to these services.

WSSH: In 2009, USAID/Egypt continued to assist the Egyptian Government with sector reform to improve WSSH services and their financial sustainability. USAID provided assistance to several major activities, including:

- A draft water law for the Prime Minister
- A service provider tariff application procedures and users manual
- Classification and rating systems for water and wastewater plants and operators
- A ministerial decree forming a water and wastewater operators certification board
- Business planning processes for five water companies
- Training courses covering many areas including financial and cost accounting, operations and maintenance, geographic information systems, program management, asset management, inventory control, and computer skills

USAID/Egypt's program to expand WSSH services in underserved rural areas in six governorates achieved significant progress during 2009, with construction completed on four of 16 projects begun since late 2006 and good progress continuing on the others. Five of the governorates receiving this assistance are in Upper Egypt, the poorest region of the country. In two of the poorest and least served governorates, USAID helped newly established water and wastewater companies select projects and award contracts for engineering services for 16 new wastewater collection and potable water projects.

USAID/Egypt also supported mass media communications, publicity events, and interpersonal activities to improve knowledge and practice of safe water and hygiene behaviors and promote household hygiene messaging in schools and local communities. These activities contributed to continuing reductions in the spread of disease caused by inadequately treated drinking water and wastewater.

WRM/WP: To increase water productivity and quality and ensure equitable distribution among users, USAID/Egypt extended its support for integrated water resources management until 2012, with a focus on establishing multiple canal systems, implementing methods for water reuse, and job training.



Women wash clothes in a canal in Saqqara, Egypt.

© DEBORAH S. DOYLE, COURTESY OF PHOTOSHARE

Table 9: Middle East Countries Receiving WSSH Funding,* FY 2009

Receiving countries	\$ (millions)	Percent
West Bank and Gaza	102.2	57.5
Jordan	53.5	30.1
Iraq	13.3	7.5
Lebanon	6.5	3.7
Egypt	1.6	0.9
Yemen	0.5	0.3
Total WSSH/ Middle East**	177.7	

* Budget allocations and commitments
 **Country figures and percentages may not add to total or 100 due to rounding.

■ **Iraq**

WSSH: USAID addressed the needs of internally displaced persons in Iraq, and the communities hosting them, through a multisector emergency program aimed at ameliorating their living conditions. Improved access to clean water and sanitation were among the program’s goals. In March, the program reached 440 students with hygiene awareness activities carried out in schools in conjunction with World Water Day and later in the year reached more than 3,000 people at 45 hygiene awareness workshops in four governorates. All participants received information on water and sanitation management (water storage, water purification, and solid waste disposal) and



A displaced Iraqi family receives a household water purifier.

ACTED

waterborne diseases (diarrhea, typhoid fever, dysentery, cholera, and hepatitis A). The program also distributed household and school hygiene kits through these activities. Under its sanitation component, the program targeted urban and rural areas with high concentrations of displaced persons for the selection of small-scale water and sanitation infrastructure, including sanitation facilities in schools, in need of rehabilitation after years of neglect. The program also identified 27.55 kilometers of water supply systems in need of restoration.

■ **Jordan**

% increase in water consumption, 1985–2005: 50
Expected % increase, 2010–2020: 100

Enhancing the productivity of water in general is vital to meeting Jordan’s development needs. Jordan is one of the driest places on Earth, and water affects all economic and social sectors and contributes to stability. With limited rainfall, receding aquifers, and rapidly growing population and water needs, Jordan’s water sector faces daunting challenges, especially as vested interests continue to maintain inefficient water allocation patterns.

WSSH: In 2009, USAID/Jordan completed significant WSSH infrastructure improvements that resulted in government water services being permanently provided to more than 2 million people. Several regional sanitation infrastructure projects serving more than 100,000 people, and some ensuring that more residents of small communities are connected to sanitary networks, were also initiated. Other WSSH activities included grassroots community action in remote areas in support of water conservation and reuse and improvements in institutional capacity in water sector management. Community-based initiatives included meetings that targeted women as the key stewards of household water resources. Development continued on two new regional wastewater treatment plans, and a program to engage civil society saved significant quantities of water while providing training, raising public awareness, and supporting small loans. In Amman, USAID support for the water company improved service to more than 2 million residents, reduced water losses, produced a comprehensive water tariff analysis, and initiated three consulting contracts for addressing non-revenue water.

USAID Helps Jordan Confront Water Scarcity

As one of the world's driest countries, Jordan has been a major recipient of USAID water sector assistance – \$567 million between 1999 and 2009, more than any other assistance sector. Water scarcity impacts every aspect of life, and water demand will grow with Jordan's population. After rising by 50 percent from 1985 to 2005, water consumption is expected to double by 2020. Current renewable water supply only meets about half of total water consumption. Shortages are made up by unsustainable groundwater extraction, including illegal private wells. While the country is developing more renewable water sources and rehabilitating inefficient water networks, more action is needed on the demand side to conserve and allocate water resources more efficiently.

With major infrastructure and many good policies in place, USAID is now helping the Government of Jordan with implementation and better water demand management at the household, institutional, and industrial levels to address the looming water crisis. USAID helps the Government on multiple fronts:

- 1) Policy, legal, and institutional reforms:** Goals include greater capacity to restructure and strengthen water sector institutions and frameworks; restructured tariffs and best commercial practices in water utilities; increased private sector participation; new infrastructure investments; and greater water use efficiency.
- 2) Innovative technologies:** Goals include expanded wastewater treatment and reuse and technologies and practices for utilities and homes to reduce water use.
- 3) Increased awareness among decisionmakers and the public:** Goals are to change behavior to increase water use efficiency; engage people in water demand management; demonstrate water conservation and reclaimed water programs; and build community-based alliances for stewardship of shared water resources.



The scarcity of water makes water demand management and water productivity priority issues in Jordan.

MERCY CORPS

Efforts along these fronts have produced tangible outcomes, including six new water/wastewater treatment facilities and networks that make fresh water available and provide sanitation services for more than a third of the population; public acceptance of treated wastewater (previously perceived as impure) as a viable water resource; water demand forecasting systems that enable utilities to better plan for meeting future needs; a graduate program in water management; the inclusion of conservation in primary and secondary school curricula; and 165 grants in 135 communities to alleviate water shortages.

Since 2006, USAID's Pollution Prevention for Environmental Health Protection project has worked with the Water Authority of Jordan and the Ministry of Health to reduce groundwater and drinking water contamination; improve farm water use; increase awareness of pollution prevention; improve watershed management; and share information between government water quality laboratories. The project has rolled out pilot or demonstration activities to introduce field laboratories for water testing and protect new water sources. Four pilot programs in watershed management have conducted watershed assessments, assisted with watershed management plans, conducted school outreach programs on water pollution, and completed sewer projects that provided 130 household sewer connections and nearly six kilometers of sewer extensions. The project also prepared a flood control master plan for the Aqaba Special Economic Zone that performed extensive hydrologic, hydraulic, and sediment transport modeling and provided analyses of existing flood control facilities, detention/aquifer recharge basins, drainage facilities, and at-risk infrastructure. The project is now finalizing the flood early warning system design for implementation.

WRM/WP: USAID worked in close collaboration with the Royal Water Committee to continue momentum on reforms. With USAID technical support, the committee completed Jordan's National Water Strategy through 2022 and an action plan to implement it. The King signaled his renewed determination to move forward with improved water management by extending the committee's mandate to include monitoring of how the strategy and plan are implemented. USAID assisted with support for policy reforms in water demand management, irrigation efficiency, and septic systems; promoted new agreements on municipal management of sanitation facilities; and provided models for demand forecasting and efficiency measurement to regional water authorities. USAID/Jordan's Instituting Water Demand Management project placed second in the 2010 Global Water Awards competition, sponsored by United Kingdom-based Global Water Intelligence, for the greatest contribution in 2009 toward improving water efficiency. The USAID project is a wide-ranging program of water demand management initiatives aimed at helping Jordan drive down water usage. It has achieved 15 to 40 percent reductions in water demand through outreach and implementation of new building codes in high-rise developments.

In 2009, USAID technical assistance strengthened local capacity in water source protection; treatment for septage; development of codes; improved waste management; safe application of sludge in agriculture and grazing; and continued promotion of natural resource management. More than 2,600 people (including urban householders, rural agricultural producers, and industrial users) received training in such areas as watershed management, wastewater reuse, water use efficiency, water conservation, water use audits, and compliance and enforcement. Reuse of treated wastewater was promoted for agriculture and industry, and water demand management was promoted across the country. In its second year, USAID/Jordan's Operations and Maintenance Training program agreed on a policy framework for certifying operators in the water and wastewater sector; supported an observational tour of a certification and training program in the United States for officials from Jordan's water sector; and developed training materials and curricula.

USAID also launched a project to help Jordan's water sector procure information technology services and consolidate information technology functions. In its first year, the project established collaboration technologies at

13 server sites to enhance document management, knowledge management, task tracking, and workflow automation. The project will also facilitate interagency collaboration and decisionmaking.

DRR: In cooperation with the Aqaba Special Economic Zone Authority, USAID completed a draft watershed management and flood protection plan and initiated installation of an early warning system in the area.

■ Lebanon

Lebanon has relatively abundant water resources but faces a likely severe water deficit within the next 25 years. In order to generate and sustain broad-based growth, Lebanon must develop its water sector at all levels, from water supply and demand management to water quality protection.

WSSH: USAID assistance addressed water pollution, mostly in rural areas, and focused on improving health and sanitation conditions by protecting water quality through construction of community-level wastewater treatment plants. In 2009, USAID completed the construction and commissioning of two plants to treat raw sewage flowing directly into the Litani River and assisted communities in managing and operating the facilities. An estimated 20,000 people benefited from the plants in 2009, and 35,000 will eventually benefit from them. USAID also started work on the construction of two more plants that will treat additional domestic wastewater flowing into the Litani River; 45,000 people will benefit from these two new facilities. Two programs were launched to support four water establishments, the Ministry of Energy and Water, and the Litani River Authority.

■ Morocco

WRM/WP: In Morocco, economic growth and social development take place in a water-constrained environment. In the poorest rural areas, where agriculture constitutes the sole source of income, water resources are already showing significant signs of strain. In 2009, USAID worked with cooperatives and water users associations to improve the efficient use of water resources by shifting to higher value-added crops, especially in regions where water is scarce and where other sectors, such as tourism and industry, consume and compete for water.

USAID also helped the Ministry of Agriculture employ appropriate water policies regarding efficient irrigation systems.

■ West Bank and Gaza

**% living on less water
than WHO recommendations:
50**

**% water clean enough to drink:
5-10**

Limited water supplies force an estimated 50 percent of Palestinians to live on less than half of the WHO-recom-

mended 120 liters of water per day for people in developing countries. In some areas of the drought-ridden West Bank, Palestinians survive on as little as 10 to 15 liters a day. In Gaza, where Palestinians rely on an aquifer that is increasingly saline and polluted, only 5 to 10 percent of the available water is clean enough to drink. Raw sewage is typically discharged directly into dry riverbeds, causing health problems. Deterioration of sewage collection pipes causes frequent leaks, and violence between Palestinian and Jewish settlers continues to damage Palestinian water and sanitation systems.

WSSH Infrastructure a Focus of Palestinian Development Strategy

After years of conflict and economic stagnation, public infrastructure in the Palestinian territories of West Bank and Gaza is poor in quality and coverage. A viable Palestinian state must include public and private infrastructure that supports a growing economy, but years of disinvestment, combined with a rapidly growing population, have created crisis conditions. In the water and sanitation sector, the crisis conditions are compounded by summer droughts that exacerbate an already severe water shortage, inefficient and insufficient potable water distribution systems, and a lack of potable water to support economic growth and general welfare of the population. About 10 percent of Palestinian households have no access to running water, and low-income groups must purchase tanker water at prices four times higher than those who pay for piped water from the Palestinian Authority or Israeli sources.



USAID's strategy for addressing the crisis is founded on the provision of vital broad-based

Infrastructure projects under USAID's WRI initiative included this 500 cubic meter reservoir tank to serve Bureen village in the northern West Bank.

USAID

infrastructure, including WSSH infrastructure and access to drinking water. This water and

infrastructure strategy supports Palestine's goals to develop a sustainable infrastructure and become an independent, viable Palestinian state living in peace with Israel.

To help achieve these goals, the USAID West Bank and Gaza Mission is implementing its Water Resources and Infrastructure (WRI) initiative, which promotes economic growth; improves roads, water systems, schools, and public buildings; creates jobs; and builds Palestinian capacity. Given the dire WSSH situation, USAID places a high priority on providing essential WSSH services, and WRI, through its Emergency Water and Sanitation (EWAS), Infrastructure Needs (INP), and Emergency Jobs (EJP) programs, undertakes both large-scale well-drilling and water pipeline projects and smaller village- and municipal-scale potable water delivery and storage projects.

In 2009, EWAS benefited more than 13,000 people in need of WSSH facilities or services and is currently implementing 31 activities. INP will complete nearly 30 large-scale water projects during 2009 and 2010 that will benefit more than 1.4 million people, while EJP has employed more than 600,000 Palestinians in small infrastructure projects. Combined, the three WRI programs maintain the high priority the U.S. Government puts on addressing the development and humanitarian needs of the Palestinian people and continue the scale of USAID investment – more than \$670 million since 1994 – in Palestinian infrastructure to meet these needs.

WSSH: In 2009, USAID completed 12 activities to increase access to safe water for Palestinians in the West Bank, including:

- Construction of two major water systems
- Rehabilitation of seven water networks
- Construction of one small network
- Installation of one rainwater drainage system
- Upgrade of water and sanitation facilities at a school for girls

Phase II of USAID’s Emergency Water and Sanitation and Other Infrastructure Program conducted most of these activities, while the Infrastructure Needs Program of USAID’s Water Resources and Infrastructure initiative completed a new water system consisting of 21 kilometers of water pipelines, a pump station, and a 500 cubic meter water reservoir in an underserved area. The new system provided 4,000 residents with access to clean and affordable drinking water and will eventually serve 20,000. In total, USAID installed or rehabilitated 68.8 kilometers of pipes and provided Palestinians with 5,600 cubic meters of additional water per day. An estimated 88,000 West Bank residents benefited from these improvements.



Left to right: Pump station rehabilitation, Iraq; irrigation infrastructure, Morocco; wastewater-treated landscape, Jordan; wastewater treatment plant, Egypt

Picture credits on page 115.

Central Programs

Schoolgirls in Kenya demonstrate use of the PUR water purification product as part of a school-based hygiene program. USAID collaborates with the U.S Centers for Disease Control and Prevention to support the program.



© GREG S. ALLGOOD, COURTESY OF PHOTOSHARE

In FY 2009, USAID central programs operating out of Washington, D.C., and primarily out of USAID's Bureau for Economic Growth, Agriculture and Trade (EGAT) and Bureau for Global Health (GH), had water funding allocations of \$32.1 million, or 5 percent of the year's total. More than half (51 percent) of the total supported WSSH activities and nearly one-quarter (24 percent) supported WP, with the remainder supporting DRR (13 percent) and WRM (12 percent) activities. During the year, GH central funds supported POU water treatment activities that disinfected nearly 1.1 billion liters of water worldwide.

Bureau for Economic Growth, Agriculture and Trade

WSSH: In 2009, the EGAT Bureau provided 251 days of field support to 17 USAID Missions to help design, implement, and evaluate Mission and regional WSSH programs. EGAT helped organize regional WSSH training courses in Mozambique and Senegal, training 38 USAID staff and counterparts. Late in the fiscal year, EGAT launched two initiatives to adapt sector best practices promoted by USAID in Asia and other regions to the unique

development challenges of Africa. The first of these, the Sustainable Water and Sanitation in Africa program, is a four- to six-year project to strengthen water and sanitation utility governance, reform, and finance as a precondition to expanding and improving services, particularly for the poor. The second, African Urban Poor – Improved Water and Sanitation, is a three-year effort in five countries piloting community-based approaches to service expansion for slum dwellers.

EGAT continued in 2009 to engage partners from the private sector and leverage millions of dollars of resources through four Global Development Alliances:

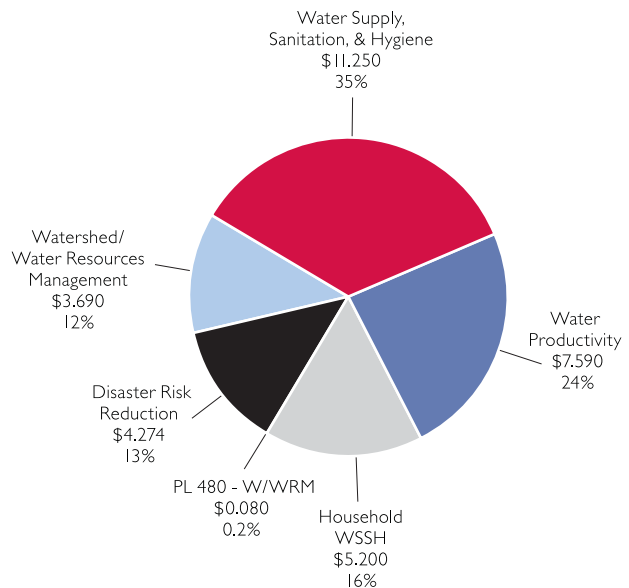
- The USAID/Coca-Cola Water and Development Alliance programmed \$6 million of new activities in 11 countries.
- The new Rotary International/USAID International H2O Collaboration was launched with a \$6 million combined investment in three countries.
- The West Africa Water Initiative mobilized an additional \$10 million in combined USAID/Hilton Foundation/World Chlorine Council resources in four countries.
- A new World Economic Forum water alliance was launched to create and expand business alliances on water around the world.

Together these alliances worked to protect watershed sustainability, increase the productivity of water, and increase access to water supply and sanitation to more than 60,000 people in 16 countries in 2009.

EGAT’s Development Credit Office (DCO) supported WSSH activities in 2009 through the launch of an on-line water finance tool kit that identifies appropriate financing interventions for water and sanitation services for urban, peri-urban, and rural communities. DCO issued a Development Credit Authority guarantee that will help Kalangala Infrastructure Services in Uganda borrow up to \$20 million in commercial debt for infrastructure improvements, including water supply expansion that is expected to provide 50,000 people with access to clean water.

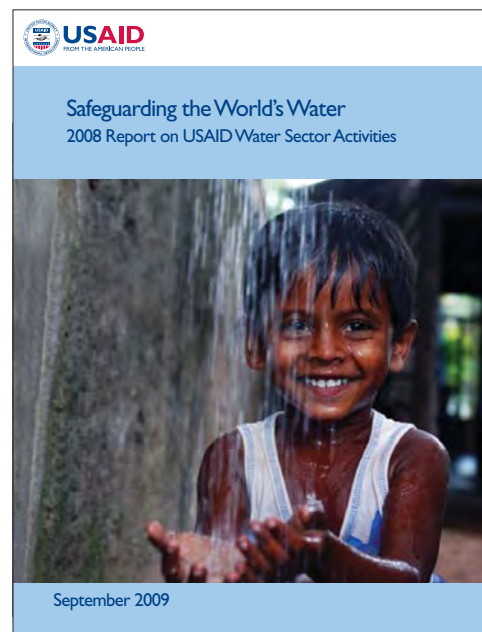
In 2009, EGAT also provided narrative and data for the annual submissions of the State Department Water for the Poor Report to Congress and USAID’s 2008 water sector report.

Figure 16: USAID Water Sector Budget Allocation by Theme, Central Programs, Including IDA & FFP Fiscal Year 2009
\$32.084 (5% of World Total)
Millions of Dollars



WRM: EGAT’s WRM results in 2009 included:

- The first certification course for professionals responsible for marine protected areas in East Africa
- A freshwater conservation program that revitalized traditional water governance in 26 villages in India



The USAID report on FY 2008 water sector activities.

USAID/Coca-Cola Water and Development Alliance Continues to Bring Results in 2009

In 2005, the Coca-Cola Company and USAID formed the Water and Development Alliance (WADA) to protect and improve watershed sustainability, increase access to water supply and sanitation, and enhance the productive use of water throughout the world. With a combined total investment of \$28.1 million, WADA currently works with NGOs and local interest groups in 22 African, Asian, Latin American, and Middle Eastern countries



A WADA project in Chimoio, Mozambique, rehabilitated a dilapidated water treatment facility and expanded the local distribution network, doubling the city's supply of clean, reliable water.

THE COCA-COLA COMPANY; BRENT STIRTON/GETTY IMAGE

and helps more than 300,000 inhabitants access sustainable water supplies.

Each WADA project focuses on watershed restoration; generates important social or economic benefit; or supports education, research, monitoring, or planning. In 2009, the following WADA projects in sub-Saharan Africa were completed or approached their expected completion:

- **Ethiopia:** Completed during the year, the Amhara Community Water Supply, Sanitation, and Hygiene Project provided full access to water and sanitation to 26,754 people through construction of pit and school latrines and rehabilitated or constructed new water supply schemes; 19,504 people gained full access to water.
- **Ghana and Cote d'Ivoire:** The completed Transboundary Community Water Management activity provided access to improved drinking water to 10,049 people through five hand pump boreholes, one hand-dug well and pump, one repaired pump, and a mechanized borehole system. It also provided limited access to improved sanitation to 2,600 schoolchildren in nine schools through the provision of ventilated improved pit (VIP) latrines with handwashing facilities in nine schools, while 122 teachers benefited from training and education.
- **Kenya:** Two projects in Kenya achieved results in 2009. The Mara River Basin Water and Development Alliance was launched and was expected to benefit 25,800 people, including schoolchildren, through construction of protected springs, shallow springs, boreholes, and VIP latrines in schools. The Water and Sanitation Improvement Program provided 24,000 people with full access to water and sanitation through the construction of pit and VIP latrines, water storage facilities, and additional communal water points.
- **Mozambique:** Two programs approached completion. When it is completed in 2010, the Expanding Water Supply to Bairro 4 and Surrounding Areas activity will provide full access to safe piped water to 10,000 people, while the Rehabilitating the TextAfrica Water Treatment System activity will provide full access to a consistent supply of clean, potable water to 25,000 people through renovation of a dilapidated former textile water treatment system.
- **Nigeria:** The Improved Health and Livelihoods in Rural Communities project provided 19,800 people with full access to water and sanitation through the provision of boreholes, tap stands, open wells with hand pumps, and VIP latrines. It also provided 33,000 schoolchildren with limited access to water and sanitation and 13,200 people with full access to water.

Late in the year, WADA launched a new project to provide more than 12,000 people in Ramotshinyadi village in rural South Africa access to clean drinking water. In 2010, WADA will support eight new programs in Angola, Burundi, Ghana, Malawi, Mozambique, Senegal, South Africa, and Tanzania. Outside of sub-Saharan Africa, the Alliance has projects in Bolivia, Egypt, and Indonesia.

- A commitment from 14 hotels near Kenya’s Maasai Mara National Reserve to construct treatment wetlands to reduce surface water pollution.
- The first network of marine protected areas in Papua New Guinea and its use of a model approach to adapting to and reducing impacts of climate change
- Leadership and technical assistance to the Coral Triangle Initiative to improve the sustainable use and conservation of ocean and coastal resources in a part of maritime Southeast Asia rich in marine biodiversity

In 2009, EGAT staff also helped USAID Missions and regional bureaus plan, design, and evaluate programs to improve the management and conservation of coral reef ecosystems. EGAT staff provided technical expertise in implementing USAID’s support to the Coral Triangle, food security, and climate change initiatives and in designing programs in the Eastern Caribbean and Central America. EGAT staff also provided international and technical leadership to the Cochair of the Secretariat of the International Coral Reef Initiative, the U.S. Coral Reef Task Force, the Global Programme of Action for the Control of Land-Based Sources of Marine Pollution, and the Convention on the International Trade in Endangered Species.

EGAT’s Sustainable Coastal Communities and Ecosystems (SUCCESS) program to conserve marine and coastal biodiversity ended in 2009. The program conserved biodiversity through the application of best practices in sustainable fisheries, mariculture, and natural resource management-based sustainable livelihoods. In its final year, SUCCESS increased its focus on capacity development, networking initiatives, knowledge management, and global dissemination of results.

The Consultative Group on International Agricultural Research (CGIAR) carried out a wide range of research and demonstration programs, including a portfolio of projects specifically targeted to impact freshwater usage. In the CGIAR network of 15 centers, one center with a focus on water is the International Water Management Institute (IWMI). One interest of IWMI is multiple-use services (MUS) for water delivery to move beyond the narrow boundaries (such as “domestic,” “irrigation,” or “fisheries”) typically used to target programming. MUS seeks to align and integrate water services and projects with people’s multiple needs for water. In 2009, IWMI concluded a large five-year, eight-country study that aimed to identify, test, study, and scale up opportunities for MUS. The study’s findings confirmed that water used at and around the homestead for multiple purposes brings substantial benefits to people’s livelihoods. It concluded that homestead-scale MUS is a way of achieving a

USAID-supported research in India and other countries is studying how to align water services and projects with people’s multiple water needs. Here, Indian families gather water for household use in an urban setting.

USAID/INDIA FIRE-D





A boy in Yemen stands inside a cistern that supplies his village with water. USAID is a partner in the Middle East Water and Livelihoods Initiative, which seeks to improve livelihoods in areas where water scarcity, land degradation, and deteriorating water quality are prevalent.

© MARTIN ALBRECHT,
COURTESY OF PHOTOSHARE

more integrated set of poverty impacts than conventional water services. Homestead-scale MUS empowers women, is accessible to the poor, and is likely to be the best way to use water to contribute to achieving Millennium Development Goals. MUS is being taken forward at larger scales in the project countries of Colombia, Ethiopia, Nepal, South Africa, Thailand, and India.

Other EGAT-supported research carried out by IWMI studied sustainable water management topics, such as sustainable use of wetlands, water governance reform, and interventions to assist women and poor farmers in integrated water resources management. A field study in India's Tamil Nadu state highlighted how adaptive water management has allowed for productive and sustainable use of water resources despite intense competition for them. To identify appropriate gender-sensitive interventions for water technology adoption, IWMI mapped patterns of gender ownership and management of cropping systems. In Zambia, for example, female-owned or managed farming systems are widespread, which has important implications in the design of water interventions.

IWMI also participated in the SWITCH Project, which seeks the development, application, and demonstration of a range of tested scientific, technological, and socioeconomic solutions and approaches that will ensure the achievement of sustainable and effective urban water management schemes. The project employs a multistakeholder process of research into water and wastewater use

in Accra, Ghana, with ongoing studies testing the feasibility of nontreatment options (e.g., behavior change) for reducing health risks from polluted irrigation water.

Another CGIAR center, the International Center for Agricultural Research in the Dry Areas (ICARDA) addresses water scarcity, food security, and climate change in the Middle East. The continuing overuse of water and consequent ongoing degradation of agro-ecosystems is the largest concern facing farm households, rural communities, and natural resources in all Middle Eastern countries. Rural households must brace for even greater difficulties due to increased non-agricultural demand for water and land, rising food prices, and climate change. To address these challenges, the Middle East Water and Livelihoods Initiative, a program led by ICARDA in partnership with the International Food Policy Research Institute, IWMI, and a number of U.S. universities, seeks to improve the livelihoods of rural households and communities in areas where water scarcity, land degradation, and water quality deterioration are prevalent. The Initiative focused initially on developing and pilot-testing integrated water and land use management strategies in one or two benchmark watersheds in each of seven target countries to reverse current trends of overuse of scarce water resources, land degradation, and water quality degradation.

ICARDA projects also improved rainwater harvesting in Syria and created small microcatchments to capture rain

in forested drylands and make the land productive and more resistant to climate change. The Syria project renovated Roman cisterns for water storage and updated them for rooftop rainwater harvesting.

WP: Through its Global Conservation Program, EGAT funded pilot programs in 2009 that improved and protected fisheries resources and increased food security in Belize, Guatemala, Honduras, Indonesia, Kenya, Mexico, Mozambique, Nicaragua, Papua New Guinea, and Tanza-

GLOWS Shows the Way in Integrated Water Resources Management

USAID's Global Water for Sustainability (GLOWS) program promotes integrated water resources management (IWRM) to maximize the economic and social benefits derived from water resources while also sustaining freshwater ecosystems. Working at basin, watershed, or aquifer scales, GLOWS provides expertise across the policy, governance, institutional, educational, and technical dimensions of IWRM. Approaches combine advanced analytic techniques; innovative mechanisms for sustainable resource management and biodiversity conservation; community-based programs in poverty alleviation, improved sanitation, and potable water supply; and global networking of local NGOs.

GLOWS' three key elements include:

- 1) Strengthening cooperative governance and strategic decisionmaking for IWRM
- 2) Supporting innovative and sustainable technical IWRM interventions
- 3) Fostering global learning and local capacity building in IWRM

At the local level, GLOWS projects promote best practices in water demand management and pollution prevention; foster sustainable fisheries, aquaculture, and aquatic ecosystem protection; and work with communities to provide sustainable water and sanitation services

GLOWS has current or former IWRM projects covering the following countries and regions:

Peru and Ecuador: GLOWS interventions in the Pastaza river basin improved the livelihoods of native people while protecting the area's rich ecosystems.

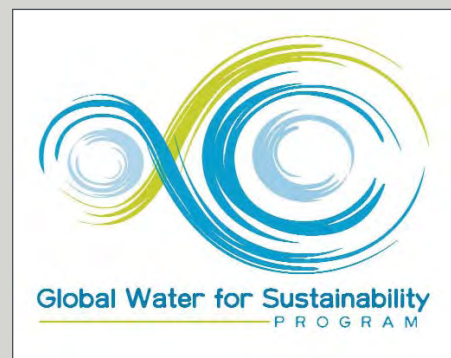
Wakel River Basin, India: GLOWS built upon ongoing activities in the Navprabhat Area Development Program and undertook landscape modifications to minimize rainwater runoff and make more water available for crops.

Mara River Basin of Kenya and Tanzania: GLOWS worked with partner organizations, the national governments, and local communities to understand the system's hydrology and environmental flows; increase stakeholder participation in water management; explore new approaches to increase economic benefits; and provide water supply and sanitation services to needy communities. GLOWS activities in the Mara Basin are designed to support the Nile Basin Initiative to establish a framework for the cooperative management of basin water resources.

Tanzania: The GLOWS Integrated Water, Sanitation and Hygiene Program supported sustainable market-driven WSSH services to improve health and increase the economic resilience of the poor in targeted rural areas and small towns, all within an IWRM framework.

Morocco: The GLOWS Improved Access and Water Use in Rural Morocco project improved access to potable water among rural households, contributing to attaining Millennium Development Goals while also supporting small farmers in more efficient use of scarce water resources for irrigation.

New GLOWS programs in Georgia and West Africa are under development.





Honduras is the site of USAID pilot projects to protect water resources such as fisheries and this watershed area on the Gulf of Honduras.

USAID

nia. In Belize, EGAT support led to a major revision in the national fisheries laws supporting more sustainable practices. The new legislation bans spear fishing within marine ecological reserves, introduces size limits for Nassau grouper, and protects parrotfish critical to coral reef health. In Meso-America, a coalition of stakeholders and governments adopted and began implementing the Meso-American Reef Conservation Plan, which highlights the need to protect critical fish spawning sites. In Nicaragua and Tanzania, an EGAT program led to the creation of locally managed shellfish fisheries managed by women.

Under the Global Development Alliance program, EGAT launched the Global FISH (G-FISH) Alliance in 2009 to promote sustainable fisheries through partnerships with the private sector and environmental groups. The Alliance chose spiny lobster fisheries in Honduras and Nicaragua as its initial target. The G-FISH Alliance also analyzed the role of fisheries in food security in select African countries.

In a new program in West Africa, EGAT targeted the artisanal fishing sectors in Senegal, Gambia, and Ghana with the objective of helping the region develop and replicate new forms of fisheries governance that will address problems of overfishing and food security. EGAT staff provided regional training on fisheries management for USAID staff and partners, coordinating closely with the World Bank.

USAID's AquaFish Collaborative Research Support Program managed nine projects in 16 countries in Africa, East Asia, and Latin America, addressing topics such as improvements in health and food safety, income generation for small-scale fish farmers and fishers, sustainable aquatic resource use, and enhanced trade opportunities. Projects included:

- Improved Cost-Effectiveness and Sustainability of Aquaculture in the Philippines and Indonesia
- Development of Alternatives to the Use of Freshwater Low-Value Fish for Aquaculture in the Lower Mekong Basin of Cambodia and Vietnam: Implications for Livelihoods, Production, and Markets
- Improving Sustainability and Reducing Environmental Impacts of Aquaculture Systems in China and South and Southeast Asia
- Developing Sustainable Aquaculture for Coastal and Tilapia Systems in the Americas
- Human Health and Aquaculture: Health Benefits Through Improving Aquaculture Sanitation and Best Management Practices
- Improving Competitiveness of African Aquaculture Through Capacity Building, Improved Technology, and Management of Supply Chain and Natural Resources: Ghana, Kenya, and Tanzania

- Hydrology, Water Harvesting, and Watershed Management for Food Security, Income, and Health: Small Impoundments for Aquaculture and Other Community Uses
- Aquatic Resources Use and Conservation for Sustainable Freshwater Aquaculture and Fisheries in Mali

Bureau for Global Health

WSSH: The 2009 WSSH activities of USAID’s GH Bureau focused on POU drinking water treatment, hygiene promotion, and sanitation. GH supported the introduction of household drinking water disinfection products in Angola, Benin, the Democratic Republic of the Congo, Haiti, India, Kenya, Malawi, Nepal, and Rwanda. During 2009, more than 6 billion liters of drinking water were disinfected. The programs used both social marketing approaches with commercial distribution channels and public-private partnerships for production and promotion. Scaled-up promotional activities in Uttar Pradesh, India, increased use of POU water disinfection methods from 4.25 to 28 percent in the target population.

The Bureau’s Hygiene Improvement Project (HIP) promoted WASH activities in Ethiopia and Madagascar, reaching approximately 2.4 million people. In both countries, HIP trained and supported community health workers as frontline behavior change negotiators who work with families to adopt small “doable” actions to improve hygiene.

Survey data suggest that the practice of open defecation in Madagascar decreased from 38 to 20 percent in targeted communities and that 10,700 households adopted improved sanitation. Projects that integrate WASH promotion with school programs have trained more than 8,000 teachers and administrators, reaching 244,000 students and their families.

GH collaborated on evaluations and technical assistance with the Centers for Disease Control and Prevention (CDC) in such areas as household chlorination of turbid drinking water, use of commercial bleach for household chlorination of drinking water, clinic-based handwashing and POU drinking water treatment programs, integrated hygiene promotion and kit distribution to mothers during childhood vaccination events; and school-based hygiene programs in Kenya.

GH continued to support USAID’s participation in the global Public-Private Partnership to Promote Handwashing, which implements national handwashing programs in 15 countries. One USAID-advocated innovation adopted by the partnership is the use of the “tippy tap,” a low-cost product that facilitates handwashing behavior.

GH collaborated with the EGAT Bureau to develop a new water partnership, the International H2O Collaboration, with Rotary International. The partnership was launched at the World Water Forum in Istanbul in

This sign gives these children in Madagascar instructions on how and when they should wash their hands.

AED



March 2009. A joint Rotary and USAID steering committee has identified three countries – Ghana, the Philippines, and the Dominican Republic – for initial demonstration of the collaboration’s WASH activities.

GH also developed new approaches to improve water quality, hygiene, and sanitation at scale and identified two simple, portable water tests to measure contamination of drinking water with fecal bacteria.

Latin America and Caribbean Bureau

WSSH: The Latin American and Caribbean Bureau’s 4th Sector Health program formed an alliance with the Procter & Gamble company’s Children’s Safe Drinking Water Program to increase the awareness of disaster management authorities of the importance of clean and safe drinking water during emergencies. Three countries – Guatemala, Honduras, and Nicaragua – were selected to receive supplies of Procter & Gamble’s PUR water purification product for pre-positioning in disaster-prone communities. The project targets regions in the countries that are most susceptible to rapid-onset disasters, such as hurricanes, floods, and landslides, and gives priority to vulnerable populations.

Office of U.S. Foreign Disaster Assistance

DRR: Extreme weather and climate events often have severe socioeconomic impacts, such as loss of lives and livelihoods; population displacements; food, water, and

energy scarcity; and adverse impacts on human health and the environment. USAID/OFDA supports hydrometeorological DRR activities that are aimed at reducing vulnerability to climate-induced hazards while increasing resilience to climate change. These activities are in accord with the Hyogo Framework for Action, the overall guiding framework for the International Strategy for Disaster Reduction, which calls for developing and strengthening institutions, mechanisms, and capacities to build resilience to hazards.

USAID/OFDA DRR programs support an integrated and multisectoral approach that addresses community needs and emphasize locally sustainable and environmentally sensitive measures while building local and national capacities. USAID/OFDA works closely with vulnerable communities, as well as with national and local governments, international and regional organizations, universities, and NGOs to increase resilience to climate- and weather-induced disasters. Hydrometeorological DRR activities also have strong linkages to natural resources management and building resilience to support sustainable development and poverty eradication.

In 2009, USAID/OFDA programs included the following activities:

- Development of global flash flood guidance systems



USAID/OFDA is supporting a flash flood guidance system for the Mekong River that will serve Cambodia, the Lao People’s Democratic Republic, Thailand, and Vietnam

AECON INTERNATIONAL DEVELOPMENT

- Implementation of transboundary flood early warning and risk reduction activities
- Community-based flood and drought risk reduction projects

Highlights of these activities included:

Enhancing global capacities on flash flood guidance: In 2009, USAID/OFDA continued to develop the Global Flash Flood Guidance and Early Warning System it initiated with the World Meteorological Organization (WMO), NOAA, and the Hydrologic Research Center in 2008 to support regional technologies, trainings, protocols, and procedures that will lessen the impacts of flash floods. The system will provide rapid assessments of potential flash floods, improve early warning lead time, and allow for rapid response. Regional systems are due to become operational in 2010. In Southern Africa, the system will provide guidance for national meteorological and hydrological services in Botswana, Malawi, Mozambique, Namibia, Lesotho, South Africa, Swaziland, Zambia, and Zimbabwe. The lower Mekong River basin system will serve Cambodia, the Lao People's Democratic Republic, Thailand, and Vietnam.

Strengthening transboundary flood early warning and risk reduction: USAID/OFDA is supporting a three-year initiative implemented by the International Federation of Red Cross and Red Crescent Societies (IFRC) and a related program led by WMO to reduce flood vulnerability in the seven countries that encompass the Zambezi River Basin – Angola, Botswana, Malawi, Mozambique, Namibia, Zambia, and Zimbabwe. IFRC will help vulnerable communities adapt to climate-related threats such as flooding through conservation-based farming techniques, soil conservation, water harvesting techniques, and reforestation. IFRC will also build DRR and disaster management capacity in riverine communities and at its local Red Cross/Crescent branches. Focusing on basin-wide cooperation and an integrated approach to flood early warning, the activity will address the technical, institutional, and capacity building issues related to developing flood preparedness and early warning systems. IFRC's programming will help link technology to communities, encouraging the development of a consensus strategy and framework for sustainable integrated flood early warning and mitigation in the Zambezi Basin.



An OFDA project in Mozambique increased access to clean water for people living in flood-prone areas.

WATERAID

Community-based risk reduction: To increase resilience to climate-induced hazards, OFDA supported a number of community-level activities in Africa:

- In Zambia, OFDA supported an integrated water management and crop diversification project in two drought-prone districts in southern Zambia. The project promoted sustainable water management techniques and technologies; encouraged crop diversification with both high-value vegetable crops and more drought-tolerant crops; expanded seed multiplication for open-pollinated varieties; and encouraged use of drip irrigation and treadle pumps. These actions improved food security and enhanced smallholder farmers' resilience to external shocks.
- In southern Madagascar, an OFDA-supported project promoted drought mitigation measures through multiple-use water source development for both agriculture and consumption. The program will be accompanied by intensive community education on basic hygiene practices and home vegetable gardening supported by small-scale irrigation systems.

- An OFDA-funded project in Mozambique worked with flood-prone communities to use opportunities created by flooding. The two-year “converting risk to opportunity” program worked with local disaster risk management committees to increase production of staple post-flood crops and cash crops, increase access to clean water, and promote hygiene and sanitation.
- OFDA-supported activities in Swaziland strengthened food security through community-based drought mitigation programs. One project trained farmers in conservation agriculture, a farming practice that promotes soil and water conservation and reduces losses during drought. It also installed rooftop water harvesting systems at 14 primary schools, providing safe drinking water to nearly 7,000 schoolchildren, and supported hygiene training for students, school committee members, and parents. Another program combined agriculture activities with livestock management and water provision interventions, including rooftop water-harvesting systems at schools, and introduced water management schemes that will enhance sustainability of water supply activities.

In addition to the above activities, OFDA programs continued to monitor droughts through regional climate predictions and applications in eastern Africa and to promote the use of simple and sustainable radio and Internet technologies to strengthen dissemination of hydrometeorological information to end users and populations in remote areas in Africa and Asia.

Office of Development Partners

WSSH: Under its Development Grants Program, USAID’s Office of Development Partners (ODP) awarded eight grants to support the following WSSH goals in six countries in sub-Saharan Africa:

- Angola – Reducing water-related diseases and deaths
- Ethiopia – Developing a sustainable integrated water management system and comprehensive WSSH package; improving WSSH practices
- Mozambique – Improving WSSH through infrastructure development, civic society engagement, and health education
- Senegal – Improving WSSH access
- Uganda – Increasing water supply; improving hygiene practices and access to latrines; implementing comprehensive community water supply systems
- Zambia – Teaching about water use, safe water, and hygiene

ODP also provided a grant to the World Economic Forum to promote public-private partnerships in India and South Africa that will engage the corporate sectors in each country in efforts to meet the complex challenges of access to water.



Left to right: Tropical wet forest, Nicaragua; flooded Jakarta slum, Indonesia; promoting household water treatment, Senegal; Nairobi water supply, Kenya

Picture credits on page 115.

Financial and Results Tables

Table 10: Allocations from Foreign Assistance Accounts to Meet the 2009 Statutory Requirement on Water and Sanitation Supply Projects by Operating Unit and Funding Account*

(Millions of Dollars)						
	DA	GHCS/ USAID	ESF	AEECA	IDA	Total
Grand Total**	117.948	34.529	141.824	5.358	0.341	300,000
Africa	66.950	17.690	26.000	-	-	110.640
Angola	3.000	-	-	-	-	3.000
Benin	-	0.800	-	-	-	0.800
Burundi	0.250	-	-	-	-	0.250
Democratic Republic of the Congo	-	1.500	5.000	-	-	6.500
Ethiopia	5.000	1.500	-	-	-	6.500
Ghana	2.000	1.000	-	-	-	3.000
Kenya	4.000	1.500	-	-	-	5.500
Liberia	-	0.150	9.000	-	-	9.150
Madagascar	4.250	0.950	-	-	-	5.200
Malawi	-	0.300	-	-	-	0.300
Mali	1.000	0.500	-	-	-	1.500
Mozambique	0.750	1.250	-	-	-	2.000
Namibia	1.000	-	-	-	-	1.000
Nigeria	2.000	0.150	-	-	-	2.150
Rwanda	1.000	1.000	-	-	-	2.000
Senegal	4.500	0.500	-	-	-	5.000
Somalia	-	0.500	1.000	-	-	1.500
Sudan	-	4.940	11.000	-	-	15.940
Tanzania	5.000	-	-	-	-	5.000
Uganda	5.000	0.250	-	-	-	5.250
Zambia	3.200	0.900	-	-	-	4.100
USAID Africa Regional (AFR)	4.000	-	-	-	-	4.000
USAID East Africa Regional	1.000	-	-	-	-	1.000
USAID Southern Africa Regional	2.000	-	-	-	-	2.000
USAID West Africa Regional	8.000	-	-	-	-	8.000
Africa Allocation from USAID Office of Development Partners (ODP)	10.000	-	-	-	-	10.000
Asia	20.508	10.189	47.478	3.651	-	81.826
Afghanistan	-	2.500	18.000	-	-	20.500
Bangladesh	-	1.500	-	-	-	1.500
Cambodia	-	1.350	-	-	-	1.350
India	2.000	1.000	-	-	-	3.000
Indonesia	2.000	-	7.673	-	-	9.673
Kyrgyz Republic	-	-	-	1.630	-	1.630
Pakistan	-	3.500	21.805	-	-	25.305
Philippines	2.508	0.339	-	-	-	2.847
Tajikistan	-	-	-	1.821	-	1.821
Timor-Leste	5.000	-	-	-	-	5.000
Uzbekistan	-	-	-	0.200	-	0.200
Asia and Middle East Regional	2.000	-	-	-	-	2.000
USAID Regional Development Mission-Asia (RDMA/A)	7.000	-	-	-	-	7.000

* FY 2009 budget data represent best estimates from USAID analysis of information as of March 2010.

** Grand Total amount represents the \$300 million FY 2009 water earmark.

Acronyms: DA = Development Assistance; GHCS/USAID = Global Health and Child Survival/USAID; ESF = Economic Support Fund; AEECA = Assistance for Europe, Eurasia, and Central Asia; IDA = International Disaster Assistance

Table 10 (cont.): Allocations from Foreign Assistance Accounts to Meet the 2009 Statutory Requirement on Water and Sanitation Supply Projects by Operating Unit and Funding Account*

(Millions of Dollars)						
	DA	GHCS/ USAID	ESF	AEECA	IDA	Total
Middle East	2.500	-	59.296	-	-	61.796
Jordan			43.296			43.296
Lebanon			8.000			8.000
Morocco	0.600					0.600
West Bank and Gaza			8.000			8.000
USAID Middle East Regional (OMEP)	1.900					1.900
Central Programs	17.340	5.200	-	-	0.341	22.881
USAID Democracy, Conflict and Humanitarian Assistance (DCHA)					0.341	0.341
USAID Economic Growth, Agriculture and Trade (EGAT)	9.340					9.340
USAID Global Health (GH)		5.200				5.200
USAID Office of Development Partners (ODP) Non-Africa Worldwide Unallocated	8.000					8.000
Latin America and the Caribbean	10.650	1.450	8.500	-	-	20.600
Bolivia	2.500	0.700				3.200
Dominican Republic	2.400					2.400
Ecuador	3.000					3.000
Guatemala	0.750	0.250				1.000
Haiti		0.500	8.500			9.000
Nicaragua	2.000					2.000
Europe and Eurasia	-	-	-	1.707	-	1.707
Armenia				1.207		1.207
Georgia				0.500		0.500
Other	-	-	0.550	-	-	0.550
State Oceans and International Environmental and Scientific Affairs (OES)			0.550			0.550

Table II: FY 2009 Number of People with Improved Access to Drinking Water Supply and Sanitation Facilities and Number of Liters of Drinking Water Disinfected with Point-of-Use (POU) Treatment Products by Country and Operating Unit

	Number of People with Improved Access to Drinking Water Supply	Number of People with Improved Access to Sanitation Facilities*	Liters of Disinfected Drinking Water by POU Treatment**
Total	6,421,660	3,430,313	7,833,928,304
Africa	1,490,911	359,587	6,603,258,000
Angola	13,104		
Benin			60,480,000
Burkina Faso	6,900		
Burundi	129,137	26,068	
Chad			100,200
Democratic Republic of the Congo	67,250	435	
Ethiopia	332,441	76,312	
Ghana	16,000	16,000	
Kenya	80,000	45,000	1,650,000,000
Madagascar	55,993	28,083	2,213,052,000
Malawi			552,499,880
Rwanda			326,552,000
Senegal	8,400		
Somalia	81,367	38,720	
Sudan	355,890	40,606	21,139,000
Tanzania	10,747	5,717	
Uganda	83,000	67,950	79,434,920
Zambia	6,765	900	1,700,000,000
USAID Africa Regional (AFR)	174,507	3,233	
USAID East Africa Regional	16,297	4,569	
USAID West Africa Regional	53,113	5,994	
Asia	2,625,256	830,581	131,220,304
Afghanistan			131,014,000
Bangladesh****	388,945	423,575	
Cambodia			206,304
China	27,178		
India	304,730	22,405	
Indonesia	281,525	19,705	-
Pakistan*****	1,297,480		
Philippines	116,856	355,994	
Timor-Leste	1,071		
USAID Regional Development Mission-Asia (RDM/A)	207,471	8,902	
Middle East	838,000	2,165,038	-
Egypt	140,000	24,000	
Jordan****	630,000	2,101,038	
Lebanon		20,000	
West Bank and Gaza	68,000	20,000	
Central Programs	-	-	1,085,450,000
USAID Economic Growth, Agriculture and Trade (EGAT)	-	-	
USAID Global Health (GH)	-	-	1,085,450,000
Europe and Eurasia	74,340	-	-
Armenia	55,000		
Kosovo	19,340		
Latin America and the Caribbean	1,393,153	75,107	14,000,000
Bolivia	8,315	50,054	
Ecuador	20,160	2,055	
Guatemala			14,000,000
Haiti	1,364,678	22,998	

* FY 2009 budget data represent best estimates from USAID analysis of information as of December 2009.

** FY 2009 budget data for water disinfected with point-of-use (POU) treatments from USAID analysis of information as of January 2010.

*** Bangladesh: The majority of people who received improved access to water supply (388,075) and all people receiving improved access to sanitation were supported through Food for Peace (FFP) assistance.

**** Pakistan: Improved access to drinking water supply only. Jordan: Improved access to both drinking water supply and sanitation, with 1,038 for first-time access to sanitation.

Table 12: FY 2009 USAID Budget Allocations for Water Supply, Sanitation & Hygiene Activities by Operating Unit*

(Millions of Dollars)				
	Water Supply & Sanitation**	IDA Water Supply & Sanitation***	FFP Water Supply & Sanitation****	Grand Total
Grand Total	382.953	98.929	11.129	493.011
Africa	97.076	62.397	7.767	167.240
Angola	3.000			3.000
Benin	0.800			0.800
Burkina Faso			1.119	1.119
Burundi	0.358			0.358
Chad		2.449	1.875	4.324
Comoros		0.050		0.050
Democratic Republic of the Congo	6.500	3.873	3.000	13.373
Ethiopia	6.560	8.318	-	14.878
Ghana	3.000			3.000
Kenya	5.500	2.824	-	8.324
Liberia	2.349	0.050	0.473	2.872
Madagascar	5.213	0.367	0.089	5.669
Malawi	0.400			0.400
Mali	1.590		0.300	1.890
Mauritania		0.025		0.025
Mozambique	1.875	2.768		4.643
Namibia		0.350		0.350
Niger		0.050		0.050
Nigeria	2.150			2.150
Rwanda	2.019			2.019
Senegal	3.600	0.050	0.400	4.050
Sierra Leone			0.511	0.511
Somalia	2.012	1.259		3.271
Sudan	15.940	22.980		38.920
Swaziland		2.247		2.247
Tanzania	3.600			3.600
Uganda	5.010			5.010
Zambia	4.100	0.727		4.827
Zimbabwe	-	13.636		13.636
USAID Africa Regional (AFR)	4.000			4.000
USAID East Africa Regional	1.000			1.000
USAID Southern Africa Regional	1.000			1.000
USAID West Africa Regional *****	7.000	0.374		7.374
USAID Office of Development Partners (ODP) - Africa Unallocated	8.500			8.500
Middle East	164.130	13.530	-	177.660
Egypt	1.630			1.630
Iraq		13.280		13.280
Jordan*****	53.500			53.500
Lebanon	6.500			6.500
West Bank and Gaza*****	102.200			102.200
Yemen	0.300	0.250		0.550

* FY 2009 budget data represent best estimates from USAID analysis of information as of May 2010; OFDA information as of December 2009.

** All of these activities meet the 2009 statutory requirements.

*** \$70.920 million of the total \$98.929 million went toward activities that provided "sustainable" water supply and/or sanitation services and met the 2009 statutory requirements. \$41.607 of the \$70.920 million supported activities in Africa.

**** PL 480 funds are part of the Food For Peace program (FFP) and cannot be counted toward the 2009 statutory requirement.

***** Spring supplemental appropriations included Pakistan \$9 million; Jordan \$19 million; and West Bank & Gaza \$94.2 million, all three in water supply and sanitation.

***** Bridge supplemental appropriations included Afghanistan \$3 million in water supply and sanitation and USAID West Africa Regional \$2 million in water productivity.

Water supply, sanitation & hygiene funding includes the following accounts: Development Assistance (DA) , Global Health and Child Survival/USAID (GHCS/USAID), Economic Support Fund (ESF), Assistance for Europe, Eurasia and Central Asia (AEECA), and International Disaster Assistance (IDA).

Table 12 (cont.): FY 2009 USAID Budget Allocations for Water Supply, Sanitation & Hygiene Activities by Operating Unit*

(Millions of Dollars)				
	Water Supply & Sanitation**	IDA Water Supply & Sanitation***	FFP Water Supply & Sanitation****	Grand Total
Asia	88.645	22.491	3.000	114.136
Afghanistan*****	21.501	1.074		22.575
Bangladesh	1.500	0.159	3.000	4.659
Burma		0.810		0.810
Cambodia	1.350			1.350
India	3.000	1.003		4.003
Indonesia	13.023			13.023
Laos		0.250		0.250
Nepal	0.225	0.194		0.419
Pakistan*****	33.611	16.673		50.284
Philippines	2.488	0.089		2.577
Sri Lanka		2.239		2.239
Tajikistan	0.207			0.207
Timor-Leste	5.000			5.000
Asia Middle East Regional	0.580			0.580
USAID Regional Development Mission-Asia (RDM/A)	6.160			6.160
Central Programs	16.450	-	-	16.450
USAID Economic Growth, Agriculture and Trade (EGAT)	4.450			4.450
USAID Global Health (GH)	5.200			5.200
USAID Office of Development Partners (ODP) - non-Africa Unallocated	6.800			6.800
Latin America and the Caribbean	14.235	0.055	0.362	14.652
Bolivia	2.800		-	2.800
Colombia	0.700			0.700
Ecuador	3.000			3.000
El Salvador	0.065			0.065
Guatemala	0.222	0.041		0.263
Haiti	4.825			4.825
Honduras			0.362	0.362
Nicaragua	1.353		-	1.353
Peru	1.270			1.270
USAID Caribbean Regional		0.014		0.014
Europe and Eurasia	1.867	0.456	-	2.323
Armenia	1.207			1.207
Azerbaijan	0.010			0.010
Georgia	0.500	0.456		0.956
Russia	0.150			0.150
Other	0.550	-	-	0.550
State Oceans and International Environment and Scientific Affairs (OES)	0.550			0.550

Table 13: FY 2009 USAID Budget Allocations for all USAID Water Sector Activities (Water Supply, Sanitation & Hygiene, Watershed / Water Resources Management, Water Productivity, Disaster Risk Reduction)*

(Millions of Dollars)							
	Household WSSH	Water Supply, Sanitation & Hygiene	Total Water Supply, Sanitation & Hygiene	Watershed / Water Resources Management	Water Productivity	Disaster Risk Reduction	Grand Total
Grand Total	48.457	444.554	493.011	41.239	45.301	50.554	630.105
Africa Total	21.785	145.455	167.240	3.250	14.551	5.502	190.543
Angola	-	3.000	3.000	-	-	-	3.000
Benin	0.800	-	0.800	-	-	-	0.800
Burkina Faso	-	1.119	1.119	-	-	-	1.119
Burundi	0.108	0.250	0.358	-	-	-	0.358
Chad	1.875	2.449	4.324	-	-	-	4.324
Comoros	-	0.050	0.050	-	-	-	0.050
Democratic Republic of the Congo	1.500	11.873	13.373	-	-	-	13.373
Ethiopia	1.560	13.318	14.878	-	-	-	14.878
Ghana	1.000	2.000	3.000	-	-	-	3.000
Kenya	1.500	6.824	8.324	-	-	-	8.324
Liberia	0.623	2.249	2.872	0.500	6.301	-	9.673
Madagascar	1.052	4.617	5.669	-	-	1.718	7.387
Malawi	0.400	0.400	0.400	0.200	-	-	0.600
Mali	0.890	1.000	1.890	-	-	-	1.890
Mauritania	-	0.025	0.025	-	-	-	0.025
Mozambique	1.875	2.768	4.643	-	0.750	1.327	6.720
Namibia	-	0.350	0.350	-	-	1.000	1.350
Niger	-	0.050	0.050	-	-	-	0.050
Nigeria	0.150	2.000	2.150	-	-	-	2.150
Rwanda	1.019	1.000	2.019	0.650	-	-	2.669
Senegal	0.500	3.550	4.050	-	2.000	-	6.050
Sierra Leone	0.511	-	0.511	-	-	-	0.511
Somalia	1.012	2.259	3.271	-	-	-	3.271
Sudan	4.500	34.420	38.920	-	-	-	38.920
Swaziland	-	2.247	2.247	-	-	-	2.247
Tanzania	-	3.600	3.600	0.400	1.000	-	5.000
Uganda	0.010	5.000	5.010	-	-	-	5.010
Zambia	0.900	3.927	4.827	-	-	0.170	4.997
Zimbabwe	-	13.636	13.636	-	-	0.070	13.706
USAID Africa Regional (AFR)	-	4.000	4.000	-	-	-	4.000
USAID East Africa Regional	-	1.000	1.000	-	-	-	1.000
USAID Southern Africa Regional	-	1.000	1.000	1.000	-	1.217	3.217
USAID West Africa Regional***	-	7.374	7.374	0.500	3.000	-	10.874
USAID Office of Development Partners (ODP) - Africa Unallocated	-	8.500	8.500	-	1.500	-	10.000
Middle East Total	0.430	177.230	177.660	8.750	5.046	-	191.456
Egypt	0.130	1.500	1.630	1.000	-	-	2.630
Iraq	-	13.280	13.280	-	-	-	13.280
Jordan**	-	53.500	53.500	5.000	3.796	-	62.296
Lebanon	-	6.500	6.500	1.200	0.300	-	8.000
Morocco	-	-	-	0.600	-	-	0.600
West Bank and Gaza**	-	102.200	102.200	-	-	-	102.200
Yemen	0.300	0.250	0.550	-	-	-	0.550
USAID Middle East Regional (OMEPE)	-	-	-	0.950	0.950	-	1.900

* FY 2009 budget data represent best estimates from USAID analysis of development account budget information as of May 2010 and OFDA IDA budget information as of December 2009.

** Spring supplemental appropriations included Pakistan \$9 million; Jordan \$19 million; and West Bank & Gaza \$94.2 million, all three in water supply and sanitation.

*** Bridge supplemental appropriations included Afghanistan \$3 million in water supply and sanitation and USAID West Africa Regional \$2 million in water productivity.

Table 13 (cont.): FY 2009 USAID Budget Allocations for all USAID Water Sector Activities (Water Supply, Sanitation & Hygiene, Watershed / Water Resources Management, Water Productivity, Disaster Risk Reduction)*

(Millions of Dollars)							
	Household WSSH	Water Supply, Sanitation & Hygiene	Total Water Supply, Sanitation & Hygiene	Watershed / Water Resources Management	Water Productivity	Disaster Risk Reduction	Grand Total
Grand Total	48.457	444.554	493.011	41.239	45.301	50.554	630.105
Asia Total	16.845	97.291	114.136	19.984	10.614	36.078	180.812
Afghanistan***	2.501	20.074	22.575	-	-	1.004	23.579
Bangladesh	1.500	3.159	4.659	-	-	34.547	39.206
Burma	-	0.810	0.810	-	-	-	0.810
Cambodia	1.350	-	1.350	-	-	-	1.350
India	0.924	3.079	4.003	-	-	-	4.003
Indonesia	4.350	8.673	13.023	5.000	-	-	18.023
Kyrgyz Republic	-	-	-	0.340	1.290	0.060	1.690
Laos	-	0.250	0.250	-	-	-	0.250
Nepal	0.225	0.194	0.419	-	-	-	0.419
Pakistan**	5.500	44.784	50.284	5.500	3.000	0.100	58.884
Philippines	0.288	2.289	2.577	3.314	3.973	-	9.864
Sri Lanka	-	2.239	2.239	-	-	-	2.239
Tajikistan	0.207	-	0.207	-	1.821	-	2.028
Timor-Leste	-	5.000	5.000	-	-	-	5.000
Uzbekistan	-	-	-	-	0.200	-	0.200
Asia Middle East Regional	-	0.580	0.580	1.090	0.330	-	2.000
USAID Regional Development Mission-Asia (RDM/A)	-	6.160	6.160	4.740	-	0.367	11.267
Central Programs Total	5.200	11.250	16.450	3.770	7.590	4.274	32.084
USAID Democracy, Conflict and Humanitarian Assistance (DCHA)	-	-	-	-	-	4.244	4.244
USAID Economic Growth, Agriculture and Trade (EGAT)	-	4.450	4.450	3.770	6.390	0.030	14.640
USAID Global Health (GH)	5.200	-	5.200	-	-	-	5.200
USAID Office of Development Partners (ODP) - non-Africa Unallocated	-	6.800	6.800	-	1.200	-	8.000
Latin America and Caribbean Total	4.197	10.455	14.652	5.350	7.500	4.700	32.202
Bolivia	0.700	2.100	2.800	0.400	-	-	3.200
Brazil	-	-	-	-	-	0.050	0.050
Colombia	-	0.700	0.700	-	-	-	0.700
Dominican Republic	-	-	-	-	2.400	0.426	2.826
Ecuador	-	3.000	3.000	1.700	-	-	4.700
El Salvador	0.065	-	0.065	-	-	-	0.065
Guatemala	0.222	0.041	0.263	0.650	0.100	1.223	2.236
Haiti	1.225	3.600	4.825	0.900	4.000	0.070	9.795
Honduras	0.362	-	0.362	-	-	-	0.362
Jamaica	-	-	-	-	-	0.197	0.197
Nicaragua	0.353	1.000	1.353	-	1.000	-	2.353
Panama	-	-	-	1.700	-	-	1.700
Peru	1.270	-	1.270	-	-	-	1.270
USAID Caribbean Regional	-	0.014	0.014	-	-	2.734	2.748
Europe and Eurasia Total	-	2.323	2.323	0.135	-	-	2.458
Armenia	-	1.207	1.207	-	-	-	1.207
Azerbaijan	-	0.010	0.010	-	-	-	0.010
Georgia	-	0.956	0.956	-	-	-	0.956
Russia	-	0.150	0.150	0.135	-	-	0.285
Other Total	-	0.550	0.550	-	-	-	0.550
State Oceans and International Environment and Scientific Affairs (OES)	-	0.550	0.550	-	-	-	0.550

Acronyms and Abbreviations

ACTED: Agency for Technical Cooperation and Development	DEED: Developpement Economique pour un Environnement Durable (USAID/Haiti)
AED: Academy for Educational Development	DRC: Democratic Republic of the Congo
AEECA: Assistance for Europe, Eurasia, and Central Asia (USAID account)	DRR: Disaster risk reduction
BAP: Biodiversity action plan	ECO-Asia: Environmental Cooperation-Asia (USAID)
BCD: Batey Community Development (USAID/ Dominican Republic)	E&E: Europe and Eurasia (USAID region)
CARPE: Central Africa Regional Program for the Environment (USAID)	EFA: Environmental flows assessment
CCA: Climate change adaptation	EGAT: Economic Growth, Agriculture and Trade (USAID bureau)
CCAW: Conservation of Central American Watersheds	EJP: Emergency Jobs Program (USAID/West Bank and Gaza)
CDC: Centers for Disease Control and Prevention (U.S.)	ESF: Economic Support Fund (USAID account)
CGIAR: Consultative Group on International Agricultural Research	ESP: Environmental Services Program (USAID/Indonesia)
CILSS: Permanent Interstate Committee for Drought Control in the Sahel	EWAS: Emergency Water and Sanitation (USAID/West Bank and Gaza)
COMPASS: Community Partnerships for Sustainable Resource Management (USAID/Malawi)	FACTS: Foreign Assistance Coordination and Tracking System
CT6: Six “coral triangle” countries (Indonesia, Malaysia, Papua New Guinea, the Philippines, the Solomon Islands, and Timor Leste)	FFP: Food for Peace
CTI: Coral Triangle Initiative	FIRE-D: Financial Institutions Reform and Expansion- Debt (USAID/India)
DA: Development Assistance (USAID account)	FS: Food security
DAWACO: Danang Water Supply Company	FY: Fiscal year
DBSA: Development Bank of Southern Africa	G-FISH: Global Fish Alliance (USAID)
DCHA: Democracy, Conflict and Humanitarian Assistance (USAID bureau)	GH: Global Health (USAID bureau)
DCO: Development Credit Office (USAID)	GHCS: Global Health and Child Survival (USAID account)
	GLOWS: Global Water for Sustainability (USAID)
	GSTA: Global Sustainable Tourism Alliance

HBC: Home-based care

HIP: Hygiene Improvement Project (USAID)

ICAA: Initiative for Conservation in the Andean Amazon

ICARDA: International Center for Agricultural Research in Dry Areas

IDA: International Disaster Assistance (USAID account)

IEC: Information, education, and communication

IFRC: International Federation of Red Cross and Red Crescent Societies

IICEM: Integrated Initiatives for Economic Growth in Mali

INP: Infrastructure Needs Program (USAID/West Bank and Gaza)

IRBM: Integrated River Basin Management (USAID/Southern Africa)

ISLGS: Increasing Sustainable Local Government Services (USAID/South Africa)

IWMI: International Water Management Institute

IWRM: Integrated water resources management

JMP: Joint Monitoring Program (WHO/UNICEF)

LAC: Latin America and the Caribbean (USAID region)

Lao PDR: Lao People's Democratic Republic

LGU: Local government unit (Philippines)

MDG: Millennium Development Goal

MUS: Multiple-use services

NASA: National Aeronautics and Space Administration (U.S.)

NGO: Nongovernmental organization

NHIP: Nepal Hygiene Improvement Project

NNP: Nyungwe National Park (Rwanda)

NOAA: National Oceanic and Atmospheric Administration

ODP: Office of Development Partners (USAID)

OES: Oceans and International Environmental and Scientific Affairs (U.S. State Department)

OFDA: Office of U.S. Foreign Disaster Assistance (USAID)

OKACOM: Okavango River Basin Water Commission

PERB: Protecting the Eastern Caribbean Region's Biodiversity (USAID)

PHAST: Participatory hygiene and sanitation transformation

PL: Public law

POU: Point of use

POUZN: Point-of-Use Water Disinfection and Zinc Treatment (USAID/India)

PSDW-HPP: Pakistan Safe Drinking Water and Hygiene Promotion Project (USAID)

PSNP: Productive Safety Net Program (Ethiopia)

RANET: Radio and Internet Technologies for the Communication of Weather and Climate Information for Rural Development Program (USAID)

RDMA: Regional Development Mission-Asia (USAID)

SCIP: Strengthening Communities through Integrated Programming (USAID/Mozambique)

SEEDS: School Environment and Education Development for Somalia (USAID)

SUCCESS: Sustainable Coastal Communities and Ecosystems (USAID)

SUWASA: Sustainable Water and Sanitation for Africa (USAID)

TWB-MRB: Transboundary Water for Biodiversity and Human Health in the Mara River Basin (USAID)

UNICEF: United Nations Children's Fund

USAID: United States Agency for International Development

USAID-BCD: USAID *Batey* Community Development (USAID/Dominican Republic)

USFS: United States Forest Service

VIP: Ventilated improved pit (latrine)

WADA: Water and Development Alliance (USAID)

WASH: Water, sanitation, and hygiene

WaterSHED: Water, Sanitation, and Hygiene Enterprise Development (USAID/Asia)

WAWI: West Africa Water Initiative (USAID)

WCDO: World Concern Development Organization

WHO: World Health Organization

WINNER: Watershed Initiative for National Natural Environmental Resources (USAID/Haiti)

WMO: World Meteorological Organization

WP: Water productivity

WRI: Water Resources and Infrastructure (USAID/West Bank and Gaza)

WRM: Water resources management

WSA: Water service authority (South Africa)

WSSH: Water supply, sanitation, and hygiene

WUA: Water users association

WUASP: Water Users Association Support Project (USAID/Central Asia)

W/WRM: Watersheds/water resources management

Index of Regional, Subregional, and Country Programs and Special Topics

(Special topics in italics)

- Advancing the Blue Revolution Initiative, 16
Afghanistan, 54
Agricultural Hydrometeorology (West Africa), 41
Angola, 33
Another Source of Information – The Paul Simon Water for the Poor Act Report to Congress, 10
AquaFish Collaborative Research Support Program, 97
Armenia, 68
- Bangladesh, 54
Benin, 42
Biodiversity Conservation (West Africa), 41
Biodiversity Threats Abatement in the Eastern Caribbean, 72
Bolivia, 73
Brazil, 74
Bureau for Economic Growth, Agriculture and Trade (USAID/EGAT), 91
Bureau for Global Health (USAID/GH), 98
Burkina Faso, 42
Burma, 56
Burundi, 18
- Cambodia, 56
Central Africa Regional Program for the Environment (CARPE), 16
Chad, 42
Children's Safe Drinking Water Program, 99
China, 57
Colombia, 74
Conservation of Central American Watersheds, 72
Consultative Group on International Agricultural Research (CGIAR), 94
Coral Triangle Support Program Assists Southeast Asia-Pacific Marine Resources Initiative, 53
- Democratic Republic of the Congo, 19
Development Credit Office (USAID/EGAT), 92
Dominican Republic, 74
Dominican Republic: Batey Community Development Project Brings Water and Sanitation Improvements, 75
- Environmental Cooperation-Asia (ECO-Asia), 51
Ecuador, 74
Egypt, 84
Ethiopia, 20
- Focusing on Handwashing and Hygiene Promotion in Senegal*, 47
- Gambia-Senegal Sustainable Fisheries Project, 41
Georgia, 68
Ghana, 43
Global Conservation Program, 96
Global Fish Alliance (G-FISH), 97
Global Flash Flood Guidance and Early Warning System, 100
GLOWS Shows the Way in Integrated Water Resources Management, 96
Guatemala, 77
Guinea, 43
- Haiti, 77
Haiti: Post-Earthquake Update, 78
Honduras, 80
Hygiene Improvement Project, 16, 98
- Improving Learning Environments through WASH (Somalia)*, 28
India, 57
Indonesia, 59
Initiative for Conservation in the Andean Amazon, 72
Integrated River Basin Management (Southern Africa), 32
International Center for Agricultural Research in the Dry Areas, 95
International Water Management Institute, 94
Iraq, 86
- Jordan, 86
- Kenya, 22
Kosovo, 69
Lebanon, 88
Lesotho, 34
Liberia, 43
- Madagascar, 22
Malawi, 34
Mali, 44
Meso-American Reef Conservation Plan, 97
Meeting the WSSH Earmark for Sub-Saharan Africa, 15
Mexico, 81
Moldova, 70

Morocco, 88
 Mozambique, 35
 Nepal, 62
 Nicaragua, 81
 Nigeria, 45

 Office of Development Partners (USAID/ODP), 101
 Office of U.S Foreign Disaster Assistance (USAID/OFDA), 99
 Office of Middle East Programs, 84
An Overview of Haiti's WINNER Project, 79

 Pakistan, 62
Pakistan: Applying a Framework for Broad-Based, Long-Term, Sustainable Success, 63
 Panama, 81
 Peru, 82
 Philippines, 64
 PlayPumps, 16
 Protecting the Eastern Caribbean Region's Biodiversity, 72
 Public-Private Partnership to Promote Handwashing, 98

 Radio and Internet for the Communication of Hydro-Meteorological and Climate-Related Information (RANET), 16
 Rotary International/USAID International H2O Collaboration, 92, 98
 Russia, 70
 Rwanda, 25

 Senegal, 47
 Sierra Leone, 49
Slums in India Gain Water and Sanitation Services, 58
 Somalia, 27
 South Africa, 37
 Sudan, 27
 Sustainable Coastal Communities and Ecosystems (SUCCESS), 94
 Sustainable Water and Sanitation for Africa (SUWASA), 15, 16

 Tanzania, 30
 Thailand, 65
Three Tools for Success from Indonesia's ESP Program, 61
 Timor Leste, 65
 Transboundary Water for Biodiversity and Human Health in the Mara River Basin, 17

 Uganda, 31
 USAID/Coca-Cola Water and Development Alliance, 14, 92
USAID/Coca-Cola Water and Development Alliance Continues to Bring Results in 2009, 93
USAID Helps Jordan Confront Water Scarcity, 87
USAID/OFDA Takes on Cholera in Zimbabwe, 39
USAID Program Helps South Africa Move Forward on Water and Sanitation Infrastructure, 38
USAID Water Sector Funding Trends, 9

 Vietnam, 66

WASH Practices Improve Health of People in Ethiopia Living with HIV/AIDS, 21
 Water, Sanitation and Hygiene Enterprise Development (WaterSHED) (Asia), 52
 Water Users Association Support Project (Central Asia), 52
Watershed Restoration in Russia's Far East, 70
 West Africa Water Initiative, 40, 92
 West Bank and Gaza, 89
Women and Water: A Perspective from Rural Kenya, 23
WSSH Infrastructure a Focus of Palestinian Development Strategy, 89

 Zambia, 37

“Filmstrip” Photo Credits

Page 17 (left to right): © Project Concern International, courtesy of Photoshare; © Greg S.Allgood, courtesy of Photoshare; © D. Hinrichsen, courtesy of Photoshare; © Peter Verbiscar-Brown, courtesy of Photoshare

Page 26 (left to right): © Alanna Jorde, courtesy of Photoshare; © Bernard Muthaka, courtesy of Photoshare; © Felix Masi/Voiceless Children, courtesy of Photoshare; © Greg S.Allgood, courtesy of Photoshare

Page 32 (left to right): DAI; USAID; Ben Fraser/Chemonics International; Population Services International/Malawi

Page 40 (left to right): © Mali Health Organizing, courtesy of Photoshare; WaterAid; © Erberto Zani, courtesy of Photoshare; © Opara Adolphus C., courtesy of Photoshare

Page 49 (left to right): © Erberto Zani, courtesy of Photoshare; ACTED; Sara A. Holtz, courtesy of Photoshare; USAID/WAWI

Page 57 (left to right): © Kailash Mittal, courtesy of Photoshare; © D. Hinrichsen, courtesy of Photoshare; © Bui Khac Vu, courtesy of Photoshare; © Shezeen Suleman, courtesy of Photoshare

Page 77 (left to right): © Kelli M. Donley, courtesy of Photoshare; © Greg S.Allgood, courtesy of Photoshare; © Aimee Centivany, courtesy of Photoshare; © Naya Lyons, courtesy of Photoshare

Page 90 (left to right): MEAWaTERS; Richard Volk; MEAWaTERS; MEAWaTERS

Page 101 (left to right): © D. Hinrichsen, courtesy of Photoshare; © Danumurthi Mahendra/USAID, courtesy of Photoshare; USAID; © Sammy Ndwiga, courtesy of Photoshare

U.S. Agency for International Development

1300 Pennsylvania Avenue, NW

Washington, DC 20523

Tel: (202) 712-0000

Fax: (202) 216-3524

www.usaid.gov