Senator Paul Simon Water for the Poor Act of 2005

Report to Congress June 2006

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Executive Summary

President Bush signed the Senator Paul Simon Water for the Poor Act of 2005 (the Act) on December 1, 2005. The act emphasizes the provision of affordable and equitable access to safe water and sanitation in developing countries as a component of U.S. foreign assistance programs. It requires the Secretary of State, in consultation with the U.S. Agency for International Development (USAID) and other U.S. Government (USG) agencies, to develop a strategy "to provide affordable and equitable access to safe water and sanitation in developing countries" within the context of sound water management. It also requires the Secretary of State, in consultation with the USAID Administrator, to submit a report describing that strategy not later than 180 days after the date of enactment of the Act and annual reports thereafter. The legislation also asks for a report "on efforts that the United States is making to support and promote programs that develop river basin, aquifer, and other watershed-wide mechanisms for governance and cooperation."

This report is the first report in response to these requests. As such, it does not represent a final statement but the beginning of a long-term process to develop and implement a strategy to improve U.S. efforts on international water issues. The U.S. has undertaken a significant reorganization of its framework for prioritizing and coordinating foreign assistance. It is within this context that this initial report was developed.

Today, more than 1 billion people lack access to improved water sources and more than 2 billion people lack access to improved sanitation. Even more people lack access to safe drinking water or use sanitation facilities to effectively protect public health. At any given point in time, over 50 percent of the world's hospital beds are occupied by people suffering from water-related diseases. Each year, nearly 2 million people – most children under five – die from diarrhea, a disease which is easily preventable through safe water supply, sanitation, and hygiene. Beyond its impacts on human health, sound water management is critical to promoting economic growth, ensuring sustainable food supplies, and preserving ecosystems upon which most of the world's inhabitants depend. Water may also become a source of tension. More than 260 watersheds are shared by two or more countries. As resources become scarce, competition could lead to increasing tensions at the local, national, and regional levels. Finally, because water is something that each and every person needs, water can promote democracy and cooperation. At the local and national level, water can be a means for promoting user groups, public-private partnerships, and other mechanisms for improving public participation in decision-making. Citizens will increasingly expect greater accountability and transparency of institutions, organizations, and businesses responsible for meeting basic needs. Shared water management can also strengthen regional ties and promote integration of goods, services, and people in places prone to conflict.

In FY 2003-2005, more than $1.7 billion in official development assistance was obligated for over 100 water and related activities in developing countries around the world. Over 24 million people received improved access to safe drinking water, and over 26 million people received access to improved sanitation. More than 15 USG agencies and departments support international work on water, but very few receive direct appropriations to carry out this work.

The majority of USG funding was provided by USAID, the Department of Defense, the Millennium Challenge Corporation, the U.S. Department of State, and the U.S. Environmental Protection Agency.

The goal of U.S. foreign assistance is to help build and sustain well-governed, democratic states that will respond to the needs of their people and conduct themselves responsibly in the international system. President Bush has said that combating poverty is a "moral imperative" and a process that must include "all of the world's poor." Water and sanitation are essential to achieving the foreign assistance goal by protecting human health and responding to humanitarian crises, promoting economic growth, and enhancing security. Addressing water and sanitation needs also fosters public participatory processes that improve transparency and accountability, leading to more just and responsive institutions that meet the needs of people. Within this context the U.S. objectives on water are to:

- **Increase access to, and effective use of, safe water and sanitation to improve human health;**
- **Improve water resources management and increase water productivity; and**
- **Improve water security by strengthening cooperation on shared waters.**

To achieve these objectives the United States will build capacity, strengthen the use of science in decision-making, and promote innovative approaches and technologies. Through national, regional and global processes, the U.S. will work to build political will and international commitment, and to advance partnerships.

Projects and programs will be guided by a number of key overarching principles, including:

- A country-driven approach – we will look for countries and communities that are committed to working with us to address these challenges;
- Results-based programming – metrics will be developed to measure the results of U.S. projects and programs and investments made where the largest returns can be obtained;
- Maximizing impact – a number of considerations will be taken into account to improve the effectiveness of U.S projects and programs, including meeting the special needs of women and children and building on previous work within the region; and
- Leveraging through partnerships – working with and through others to build upon and expand U.S. efforts.

U.S. activities will be focused in six key areas:

- **Governance:** Strengthening the role of institutions at the local, national, and regional levels to optimize the benefits from water among its potential uses and developing a supportive environment for private sector participation.
- **Mobilization of domestic resources**: Promoting sound utility management and cost recovery, and using innovative approaches to support investment by the private sector.

- **Infrastructure investment:** Investing in both large and small-scale infrastructure to increase access to basic services and improve water management.
- **Protection of public health:** Advancing improved hygiene activities including the most suitable disinfection method (including point-of-use technologies), safe water storage, hand washing, and household sanitation.
- **Science and technology cooperation:** Advancing the state-of-art knowledge in areas related to water management including pollution prevention, satellite remote sensing, global information systems, and modeling.
- **Humanitarian assistance:** Providing basic services in response to natural disasters and human-caused catastrophes abroad in addition to prevention, preparedness and mitigation measures to lessen impact of recurrent disasters.

In addition, a number of areas have been identified for further consideration including increasing access for the poor, improving sanitation and wastewater treatment, addressing urban and peri-urban issues, and adapting to climate variability.

While the new Director of Foreign Assistance (DFA) is currently identifying priority countries for U.S. assistance, a number of countries and basins were identified as examples of where activities in these focal areas could be carried out. These include Afghanistan, Bangladesh, Columbia, Egypt, Ethiopia, Haiti, India, Indonesia, Kenya, Nepal, Pakistan, Philippines, Somalia, Sudan, Uganda, the Nile Basin, and the Okavango Basin.

Over the next year, the U.S. Department of State, working closely with USAID and other U.S. technical agencies, will begin to develop metrics for measuring progress, identifying priority countries, and developing timelines for projects and programs. The Office of the Director of Foreign Assistance is expected to play an important role in coordinating and integrating U.S. water and sanitation assistance programs with other U.S. development programs as well as with programs of other donor countries and entities.

This report contains an introduction, an outline of the global water situation, the U.S. foreign policy context, past and current USG activity in the sector, and a strategy for moving forward. Annex A provides an overview of U.S. Agencies working on water; Annex B provides an overview of USAID funding on water. As examples of how some of these water issues may be raised in regional and country-level strategies, Annex C presents more information on strategic planning of USAID's water and sanitation activities in Africa; Annex D provides the ECO Asia strategy for USAID's regional mission in Bangkok; and Annex E provides the recently-developed Blue Revolution Initiative by USAID's Bureau for Asia and the Near East.

1. Introduction

President Bush signed the Senator Paul Simon Water for the Poor Act of 2005 (the Act) on December 1, 2005. The act emphasizes the provision of affordable and equitable access to safe water and sanitation in developing countries as a component of U.S. foreign assistance programs. It requires the Secretary of State, in consultation with the U.S. Agency for International Development (USAID) and other U.S. Government (USG) agencies, to develop a strategy "to provide affordable and equitable access to safe water and sanitation in developing countries" within the context of sound water management. It also requires the Secretary of State, in consultation with the USAID Administrator, to submit a report describing that strategy not later than 180 days after the date of enactment of the Act, as well as an initial report "on efforts that the United States is making to support and promote programs that develop river basin, aquifer, and other watershed-wide mechanisms for governance and cooperation."

This document responds to that requirement by developing a series of principles for guiding U.S. activities on water as well as identifying key focal areas for future work. The strategy reflects the U.S. foreign policy context in which international water sector activities are carried out. It is informed by decades of on-the-ground experience of USAID, other federal agencies and donors, and includes the input of a broad range of consulted stakeholders. It also takes into consideration processes under development by the new Director of Foreign Assistance (DFA) to integrate development assistance efforts. This report is not the end, but rather the first step in a long-term process to develop and implement an international water strategy.

1.1 Overview

Section 2 of this report outlines the global water situation and describes major water trends around the world, as well as current international policy and investment patterns in the sector. Section 3 describes the U.S. foreign policy context that provides the foundation for all U.S. Government (USG) work in international water, while Section 4 outlines past and current USG activity in the sector including coordination with others. A strategy for moving forward is outlined in Section 5. Annex A provides an overview of U.S. Agencies working on water; Annex B provides an overview of USAID funding on water. As examples of how some of these water issues may be raised in regional and country-level strategies, Annex C presents more information on strategic planning of USAID's water and sanitation activities in Africa; Annex D provides the ECO Asia strategy for USAID's regional mission in Bangkok; and Annex E provides the recently-developed Blue Revolution Initiative by USAID's Bureau for Asia and the Near East. The last two annexes are region-specific strategies that support the broad goals and objectives discussed in this report. Work on Annexes D and E began independently of the enactment of the Paul Simon Water for the Poor Act of 2005.

The Act also requests a report on Water for Peace and Security that describes U.S. efforts to support and encourage watershed management and cooperation at the basin level. These issues are described here and will not be presented separately.

1.2 Methodology

The development of this strategy was coordinated by the U.S. Department of State (DOS) in close consultation with USAID. The framework draws upon a wealth of existing information, including well-respected sources of data in the public domain about international water issues and realities. It is supplemented by internal USG documentation produced by numerous federal agencies engaged in the international water sector over the last few years. Key donors, private sector, and civil society actors were also consulted about their current programs and priorities, and about ways the USG might effectively coordinate with others.

Written documentation was supplemented by extensive consultation with informed USG technical experts. The intent is to provide a comprehensive picture of current programs and strategies, and a broad range of opinions about the best approaches for moving forward.

To further complement USG analysis and documentation, the Department of State organized a public outreach strategy to solicit input from a broad range of partners and stakeholders interested in international water issues. An official public meeting was hosted in Washington, D.C., on April 19, 2006, and written comments accepted until April 30, 2006. Notification of the meeting as well as the address for sending comments was posted in the Federal Register on March 29, 2006. More than 100 people attended the public meeting and 35 written comments were received from a range of stakeholders including international organizations, the private sector, foundations, nongovernmental organizations and faith-based groups. These comments were reviewed by USG experts and policymakers for consideration. A transcript of the public meeting is posted at www.state.gov/g/oes/water.

2. Summary of the Global Water Situation

Access to safe water and adequate sanitation are essential to human health. Sound water management can decrease disease and improve human health, promote agricultural and industrial development, foster sustainable economic growth, and help to preserve land, coastal, and marine ecosystems. Water can either be a cause of conflict or a promoter of peace, and a means for developing transparent, democratic participatory processes and governments that are accountable to the needs of their citizens. There are growing concerns that contention over water may become a source of conflict. While current global conditions represent a challenge, work on water and sanitation presents an opportunity to create a healthier, more prosperous and just global community.

2.1 Quantity of available fresh water

Although there is an enormous amount of moisture in the biosphere, the portion of the planet's water readily available to people in freshwater lakes, rivers, and streams equals less than one percent of the total (0.07%)[1]. In addition, there is considerable variability in where that water is located, and when it is available over the course of seasons or years, resulting in scarcity for many and overabundance and flooding for others.

Water stress is defined as 1000-1700 cubic meters of water available per person per year, the level at which water supply problems tend to become chronic and widespread. Annual per capita water supply below 1000 cubic meters is defined as water scarcity, where chronic water shortages can adversely affect human health, economic development, and environmental sustainability. Research estimates that the number of people living in conditions of water stress or scarcity ranges from 434 million[2] to two billion[3], depending on how numbers are aggregated across regions. People with limited access to water also tend to have access to lower quality water.

Water resource availability and location are also greatly affected by variability in the earth's weather and climate, including inter-annual and seasonal climate variations associated with the El Niño/Southern Oscillation (ENSO). Added to this, the largely undetermined impacts of climate change on patterns of precipitation, evapotranspiration, and global sea levels may result in an uncertain and erratic water resource future in many places. Natural disasters related to hydrometeorological phenomena (droughts, floods and storms) are also expected to increase in frequency and severity in many places, affecting large numbers of people and causing as much as $300 billion of damage annually by the year 2050 if serious disaster mitigation and adaptation measures are not taken[4].

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[1] World Health Organization. *Protection of the Environment: Health in Water Resources Development, n/d.* (website: www.who.int/water_sanitation_health/vector/water_resources.htm).
[2] Engelman, Robert, with Richard P. Cincotta, Bonnie Dye, Tom Gardner-Outlaw and Jennifer Wisnewski. (website: www.populationaction.org/resources/publications/peopleinthebalance/index.shtml).
[3] Vorosmarty, Charles J., Green, Pamela, Salisbury, Joseph, and Lammers, Richard B. 2000. *Global Water Resources: Vulnerability from Climate Change and Population Growth.* Science: 284-288.
[4] Stockholm Environment Institute, IUCN, IISD. 2001. Coping with Climate Change: Environmental Strategies for Increasing Human Security (Source: MunichRe and UNEP).

World population growth in the next 15 years is expected to greatly increase the competition for water as well as food produced by irrigation. Total global water withdrawals (annual quantity of water withdrawn for agricultural, industrial and domestic purposes) are projected to increase by 22 percent in 2025 above 1995 withdrawals. Projected withdrawals in developing countries will increase 27 percent over the 30-year period, while developed-country withdrawals will increase by 11 percent[5]. Depending on future population growth scenarios of the United Nations (UN), between 2.6 billion and 3.1 billion people may be living in either water-scarce or water-stressed conditions by 2025[6]. A report from the International Water Management Institute (IWMI) predicts that water shortages will affect 2.3 billion people, or 30 percent of the world population, in 48 countries in 2025[7]. An additional one billion are expected to face water scarcity by the year 2025 due to increasing population, global climate change and other factors[8]. Shifting global demographics and economics lead to new and competing needs for water. For example, the 70 percent of available freshwater currently consumed by the agricultural sector worldwide will increasingly be needed for urban and industrial development, or called upon to maintain fisheries and other in-stream ecosystem services. At the present time, numerous important aquifers around the world are being "mined" at alarming rates far beyond natural recharge.

2.2 Quality of available fresh water

Microbial waste in water resources, primarily from fecal contamination, continues to be a concern in both developed and developing countries[9]. Some experts estimate that up to 90 percent of wastewater is discharged without treatment in developing countries[10], with increasing use of urban wastewater in agriculture and use of sewage to feed fish[11]. In addition to point source pollution from sewage systems, industrial and mining effluents, and other factors, the impacts of non-point (dispersed) source pollution from agricultural chemicals, urban runoff, and poor land practices are only beginning to be recognized worldwide. In developed countries like the United States, these non-point sources are considered to account for most of the current pollution of surface freshwater and estuarine waterways. Thermal pollution, caused by industry discharge and fragmentation of rivers by dams and reservoirs, is leading to changes in water chemistry, biodiversity, and quality. The loss of arable lands and freshwater salinization from excessive irrigation is also a serious issue in many areas such as West Asia[12].

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[5] Rosegrant, Mark W., Cai, Ximing, and Cline, Sarah A. 2002. Global Water Outlook to 2025: Averting an Impending Crisis. International Food Policy Research Institute/International Water Management Institute, Washington, D.C. and Colombo, Sri Lanka.

[6] Engelman, Robert, with Richard P. Cincotta, Bonnie Dye, Tom Gardner-Outlaw and Jennifer Wisnewski. 2000. (website: www.populationaction.org/resources/publications/peopleinthebalance/index.shtml).

[7] IWMI. 2000. *Water supply and demand in 2025*. Colombo, Sri Lanka.

[8] Vorosmarty, Charles J., Green, Pamela, Salisbury, Joseph, and Lammers, Richard B. 2000. *Global Water Resources: Vulnerability from Climate Change and Population Growth.* Science: 284-288.

[9] UN. 2005. Water: A Shared Responsibility: The United Nations World Water Development Report 2.

[10] UNDP, UNEP, the World Bank, and the World Resources Institute. 2000. World Resources 2000-2001. Washington, D.C..

[11] UN. 2005. Water: A Shared Responsibility: The United Nations World Water Development Report 2.

[12] United Nations Commission on Sustainable Development. 1997. Comprehensive Assessment of the Freshwater Resources of the World.

Pollution of groundwater sources, a prime source of potable water in many locations, is a growing and largely undocumented problem. Once contaminated, these sources are extremely difficult and costly to clean up. Over extraction by humans can create or exacerbate groundwater quality problems, including saltwater intrusion in coastal zones, and arsenic, fluoride and other natural mineral contamination in other areas.

Ecosystems provide critical services that are becoming progressively more limited. Aquatic ecosystems and species are deteriorating rapidly in many areas which can undermine the livelihoods of some of the world's most vulnerable communities by reducing protein sources for food, the availability of clean water and the potential for income generation. Freshwater ecosystems are increasingly at risk from water diversion and consumption for human use, as well as habitat conversion and land cover change. While global-scale data is insufficient to fully document the extent of wetland and associated coastal ecosystem loss around the world (especially in developing countries), evidence from specific cases is dramatic. For example, the volume of water in the Central Asian Aral Sea basin has been reduced by 75 percent since 1960 due mainly to large-scale upstream diversions of the Amu Darya and Syr Darya rivers for irrigation. Coastal ecosystems have likewise been affected, with about 35 percent of mangroves lost over the last two decades (in those countries with reporting data)[13]. 60 percent of the world's 227 largest rivers are strongly to moderately fragmented by dams, diversions and canals[14]. Declines in regional precipitation and a large increase in irrigated agriculture have reduced the surface area of Lake Chad in Africa by 95 percent in the past 35 years[15].

2.3 Access to water supply and sanitation services

Global statistics related to equitable and sustainable access to clean water and sanitation services and the associated health and economic dimensions of human welfare reveal a daunting problem. The World Health Organization-UN Children's Fund (WHO-UNICEF) Joint Monitoring Program reports that, between 1990 and 2002, global access to improved drinking water sources rose from 77 to 83 percent, but 1.1 billion people are still without access to an improved drinking water source[16]. Global sanitation coverage rose from 49 percent in 1990 to 58 percent in 2002, but 2.6 billion people still lack any improved sanitation facilities[17].

To achieve the internationally agreed goals on water and sanitation by 2015, an additional 1.2 billion people, or 260,000 people every day, will need access to safe water from 2002 to 2015. At least 1.8 billion will require sanitation from 2002 to 2015, or 350,000 new people per day. Most regions are on track to meet the safe water target. A major exception is Sub-Saharan Africa, where over 300 million people lack access to safe water and even more to basic sanitation.

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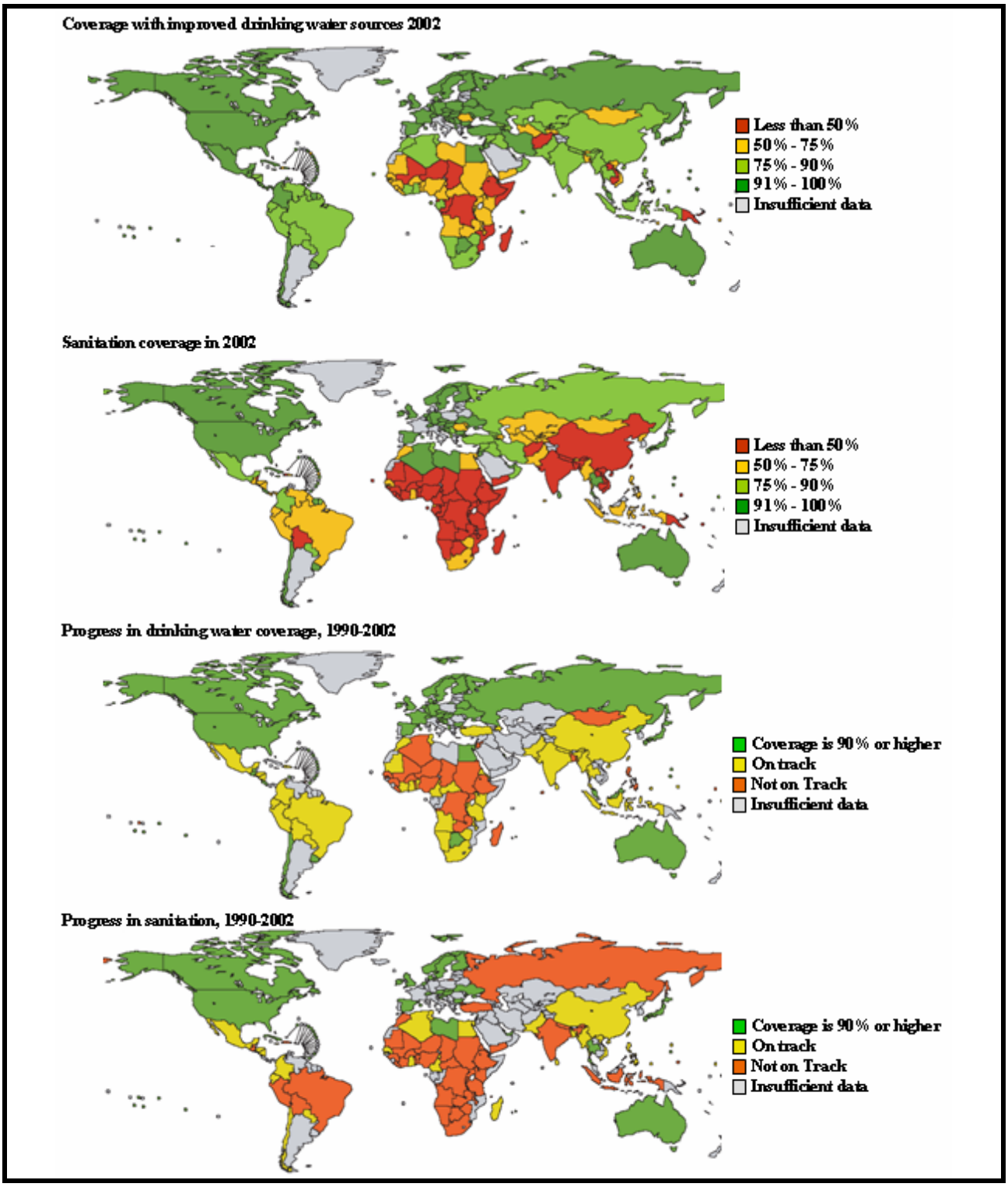
[13] UNESCO. 2005. "Did You Know?" UNESCO Water Portal Weekly Update.
[14] Ibid.
[15] UNEP. 2005. One Planet, Many People: Images of Africa's Changing Lakes.
[16] An improved drinking water source is defined as one that is likely to provide "safe" water, such as a household connection, a borehole, public standpipe, protected dug well, protected spring, or rainwater collection. The overall coverage figures include a wide variety of service delivery levels.
[17] An improved sanitation facility is defined to include connection to a public sewer, connection to a septic system, pour-flush latrine, simple pit latrine, or ventilated improved pit latrine.

Figure 2.1. Access to improved drinking water, improved sanitation, and progress towards achieving the internationally agreed goals on water and sanitation.[18]



[18] WHO/UNICEF, 2004

2.4 Financial needs

The total costs of meeting the 2015 targets will depend on the type and level of service provided, and the strategies employed to reduce the service deficit. The choice of countries, the urban-rural balance of the target group, the specific sub-populations involved, and the technologies and service standards applied will all have a significant bearing on actual costs to meet these goals. Estimates of the actual level of resources needed vary widely, depending on differing definitions for 'safe' water and 'basic' sanitation, lack of reliable data on the baseline in many countries around the world, and other differences in methods or assumptions of calculation.

Using the most basic standards of service and technology, the WHO-UNICEF Joint Monitoring Program estimates that the 2015 goals could be attained at an extra annual global investment cost of about $10-12 billion[19]. However, according to a panel chaired by Michel Camdessus (former Managing Director of the International Monetary Fund) convened prior to the Third World Water Forum in Kyoto, Japan, providing full water and sewerage connections and primary wastewater treatment to unserved urban populations would raise the annual cost of the 2015 goal to $17 billion for water and $32 billion for sanitation and sewerage, or a total of $49 billion annually[20].

Truly sustainable systems for water supply and sanitation will require going beyond water supply and sanitation alone. Estimates on needed investments to meet the full range of water needs by 2025 — including agriculture, environment, energy, and industry, as well as water supply and sanitation — vary even more widely, but in all cases are dramatically higher than for water supply and sanitation alone. In 2000, the World Water Commission estimated that about $180 billion would be required each year in new investments, not including operations, maintenance, or repairs[21].

Box 2.1: International Donors and the Water Sector

In recent years total aid allocations have averaged about $3 billion a year. Official Development Assistance for water supply and sanitation remained relatively stable in the 1990s, at about 6% of overall bilateral aid and 4-5% of multilateral aid.

Although virtually all major donors invest at least to some degree in water resources management, worldwide the water sector is dominated by a handful of donors. From 1999-2001, Japan was the largest investor in the water supply and sanitation subsector, accounting for about one-third of total aid to this category (35%). Activities funded by six other donors added up to a further 45%: the World Bank's International Development Association (IDA) (11%), Germany (11%), United States (8%), France (5%), the United Kingdom (5%), and the European Commission (5%).

Current sources of financing for water investments are drawn from a mix of several sources, including[22]:

[19] WHO/UNICEF Joint Monitoring Programme. 2004. Meeting the MDG Drinking Water and Sanitation Target: A Mid-Term Assessment of Progress.
[20] World Panel on Financing Infrastructure, Michel Camdessus, Chair. 2003. Financing Water for All.
[21] World Water Commission. 2000. World Water Vision: A Water Secure World. The Hague. Also: Global Water Partnership. 2000. Towards Water Security: A Framework for Action. The Hague.
[22] Global Water Partnership. 2000. Towards Water Security: A Framework for Action. The Hague. Alternative estimates for the water supply and sanitation subsector only were provided by the World Panel on Financing Infrastructure (2003) based on analysis in the mid-1990s, where financing sources were assessed to be domestic

- Domestic public sector financing at the national or local level (from taxes, user fees, public debt, etc.) [64% of total expenditures];
- Direct investments from domestic private sources [19% of total expenditures];
- Direct investments from international private sources [5% of total expenditures]; and
- International sources of support and cooperation (including multilateral and bilateral Official Development Assistance (ODA)) [12% of total expenditures]. (See Box 2.1.)[23]

2.5 The international policy framework on water

The international community's approach to addressing water and sanitation issues has evolved markedly over the last few years, moving from the identification of goals and targets to implementation. The U.S. has played a major role in this shift by moving both formal intergovernmental meetings and informal global events on water away from negotiating new international norms, or developing new global institutions. The focus is now increasingly on the exchange of best practices and lessons learned and on developing partnerships and programs to scale-up proven approaches.

2.5.1 Major international events on water

2002: The World Summit on Sustainable Development (Johannesburg). Countries reached consensus on the Johannesburg Plan of Implementation (JPOI) which identifies goals and targets on sustainable development. Three water-related targets were agreed to: "…to halve, by 2015, the proportion of people unable to reach or afford access to safe water…"; "…to halve, by 2015, the proportion of people without access to basic sanitation…"; and to "…develop integrated water resources management and water efficiency plans by 2005…" Another key outcome of the meeting was the launch of several partnerships (including the "Water for the Poor Initiative" and the U.S.-Japan "Water for People" – both launched by the U.S.). This was the first UN meeting where "partnerships" were recognized as a formal outcome.

2003: The Group of Eight (G8) Summit (Evian). The G8 agreed to an action plan which highlighted good governance, cost recovery, market-based approaches for distributing point of use disinfection technologies, capacity building and the mobilization of domestic resources.

2004-2005: The 12th and 13th Sessions of the UN Commission on Sustainable Development (New York). Water, sanitation, and human settlements were the theme of the first two-year

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public sector 65–70%, domestic private sector 5%, international donors 10–15%, and international private companies 10–15%.

[23] Overall donor estimates in Box 2.1 uses the DAC definition of water supply and sanitation, which includes activities related to water resource policy, planning and programs, water legislation and management, water resource development and protection, water supply and use, sanitation, and education and training when associated with an activity that is primarily water supply and sanitation. Dams and reservoirs used for irrigation and hydropower, aid to the water sector extended within multi-sectoral programs, direct budgetary support, and loans are not included in this estimate. Source for Box 2.1: Tearfund. 2004. Making Every Drop Count: An Assessment of Donor Progress Towards the Water and Sanitation Target. Middlesex, UK.

cycle of the UN Commission on Sustainable Development (CSD). The 12th Session focused on developing a portfolio of non-negotiated "policy options and practical measures" – a list of proven approaches governments could choose from to advance efforts to reach the internationally agreed goals on water. CSD 12 and 13 also introduced innovative features to build capacity and develop partnerships. Building on the model established by the "Institute@" - a U.S. initiated expert-to-expert training partnership – the CSD "Learning Center" provided on site capacity building to over 1000 CSD 12 and 13 participants..

2005: Stockholm Water Week. The largest annual gathering of international water experts added partnership meetings to the regular suite of technical sessions in order to allow groups to expand their activities and bring in new partners.

2006: The 4th World Water Forum (WWF). The largest international event on water, close to 20,000 people attended the Forum, including over 70 ministers. The theme was "local action." For the first time, no text negotiations were held at the Forum. Other *firsts* include an "Institute@" at the WWF as well as partnership meetings. In response to a decision taken at CSD 13, the UN launched a web-based tool to facilitate the exchange of best practices and lessons learned based on the portfolio of "policy options and practical measures".

2.5.2 General international themes

Over the past few years there has been a general recognition that the solution to water and sanitation challenges lies in encouraging action at the local, national and regional/basin levels – not in global policies or global institutions. A number of key themes important to building sustainable and long-term progress have emerged[24]:

- **Governance: Managing water effectively.** Governments have a primary responsibility in meeting basic water and sanitation needs. Governments must prioritize water and sanitation in national development plans and strategies; develop processes that advance integrated water resources management and ensure coordination among ministries with different responsibilities for managing water; ensure public participation in decision making; establish policies that ensure the needs of the poor – and the special needs of women and children – are met; and cooperate with neighboring governments on the management of shared resources.

- **Governance: Creating an enabling environment.** Domestic good governance is also critical to creating a sound investment climate. This includes, but is not limited to, raising the priority of water and sanitation in national development plans and strategies; developing national policies that set clear goals for the water sector; providing the transparent legal framework for planning, and developing financing for projects; putting in place accountable fiscal systems that are supportive of country priorities, such as

[24] See the "G8 Water Action Plan," adopted at the G8 Summit in Evian (2003); the "Bonn Keys" developed at the International Conference on Freshwater (2001); the Johannesburg Plans of Implementation adopted at the World Summitt on Sustainable Development (2002); the Ministerial Declarations of the 2nd, 3rd, and 4th World Water Forums (2000, 2003, 2006); the "Matrix of Policy Options and Practical Measures" developed at CSD 12; the decisions adopted at CSD 13; and the UN Millennium Development Task Force Report on Water and Sanitation.

public infrastructure; promoting public participation in decision-making; ensuring transparency and accountability of utilities and regulatory authorities involved in service provision; decentralizing responsibility, as well as revenue collection authority, to the lowest appropriate levels, and creating institutions capable of managing water and sanitation services; and developing cross-subsidies and tariff structures that ensure the needs of the poor can be met.

- **Integrated Management.** Water should be managed in an integrated manner at all levels (community, local, national, and regional/basin). This means managing water to optimize its benefits among competing uses while considering environmental and human needs that must be addressed to achieve sustainability.

- **Gender Considerations.** Policies and institutions must be responsive to the different needs and priorities of both men and women and include them in the decision process.

- **Local Ownership.** Explicitly involving communities in the decision-making process can increase project effectiveness and improve its sustainability.

- **Utility Reform.** Utilities should recover costs and operate in a sound, transparent manner with full public participation; public-private partnerships should be supported and be done in full consultation with the public.

- **Financing.** Resources should be mobilized from all sources for sustainable and bankable projects. Innovative approaches – such as loan guarantees, pooled funds, and revolving funds – should be expanded; local financing options should be improved; financing should be made available at the lowest appropriate level.

- **Water efficiency and productivity.** Technologies should be employed and capacity built to reduce water use; reduce water waste; and increase the productivity of products (food in particular) derived from water.

3. The U.S. Foreign Policy Context

President Bush has said, "Persistent poverty and oppression can lead to hopelessness and despair. And when governments fail to meet the most basic needs to their people, these failed states can become havens for terror … Development provides the resources to build hope, prosperity, and security."[25] Access to basic water and sanitation services as well as the processes involved in ensuring sound management of water resources are a key part of achieving U.S. foreign policy goals.

3.1 Advance human health

The human health consequences of unsafe water and poor hygiene are severe. At any given point in time, 50 percent of the world's hospital beds are occupied by people suffering from illnesses related to water[26]. An estimated 1.8 million deaths annually are caused by diarrhea linked to unsafe water, sanitation, and hygiene, accounting for around 17 percent of all causes of mortality for children under five years old in developing countries[27]. Water can contribute to disease in four ways[28]: **waterborne** diseases caused by water directly contaminated with pathogens (i.e., cholera, typhoid, dysentery, and other diarrheal diseases); **water-washed** diseases caused by inadequate hygiene typically due to insufficient quantities of domestic water (i.e., trachoma); **water-based** diseases caused by direct contact with or ingestion of an aquatic host in which a parasite spends part of its lifecycle (i.e., guinea worm, schistosomiasis) or the ingestion of water contaminated with natural or man-made toxins, pesticides, or chemicals (i.e., arsenic, mercury); and **water-related** diseases caused by parasites borne by insect vectors, especially mosquitoes, that breed in water (i.e., malaria and Dengue fever).

Personal hygiene, sanitary excreta disposal, access to safe drinking water, and proper household water management (including safe storage) can prevent most diarrheal diseases. Among water-related diseases, by far the greatest source of mortality is malaria, which killed an estimated 1.3 million people in 2002[29], again mainly young children (programs to reduce malaria will not be considered in this report). Effective management of water resources can help minimize potential breeding sites for insects that contribute to water-related diseases. Toxicants in water can also cause disease. For example, natural or anthropogenic arsenic contamination of drinking water is causing arsenosis to tens of millions, mostly in southeast Asia, leading to skin tumors and some forms of cancers, whereas excessive natural fluoride in drinking water is causing dental and crippling skeletal fluorosis to several million people in southeast Asia, Africa and elsewhere[30]. Groundwater contaminated with pesticide and fertilizer runoffs can affect endocrine systems[31]. Leaded pipes can contribute to lead poisoning, which can cause mental retardation and increases

[25] President George W. Bush of the United States, March 14, 2002, as quoted in the UN Millennium Project Report. 2005. Investing in Development: A Practical Plan to Achieve the Millennium Development Goals.
[26] UNEP.
[27] WHO. 2005. World Health Report 2005. Geneva. (http://www.who.int/home/.)
[28] Gleick, Peter H. 1998. The World's Water: The Biennial Report on Freshwater Resources, 1998-1999. Island Press: Washington, D.C.
[29] UN. 2005. Water: A Shared Responsibility (The United Nations World Water Development Report 2).
[30] WHO Fact Sheet. 2006. Fluoride and Arsenic in Drinking Water. (http://www.who.int/ceh/publications/en/08fluor.pdf.)
[31] http://www.epa.gov/scipoly/oscpendo/edspoverview/primer.htm.

blood pressure. In developing countries, there are limited resources for detecting and remediating these forms of contamination.

3.2 Promote economic productivity and improve water management

Mismanagement of water resources has a number of costs that can contribute to poverty and undermine long-term economic growth. These include the economic costs of health consequences from unsafe water, inadequate sanitation, and poor hygiene; damages and deaths due to water-related natural disasters; poverty and malnutrition due, in part, to the lack of water for productive purposes (primarily in agriculture); and environmental impacts due to reduced water availability and pollution.

Direct health-related costs, lowered worker productivity and greater absenteeism due to illness, time and opportunity costs associated with long distances to access water services, and the resulting reduced attendance at school all lead to significant socioeconomic impacts that impede development. Diarrhea alone accounts for the annual loss of around 62 million disability-adjusted life years (DALYs), a standard measure of the burden of disease calculated from the number of years of productive life lost due to illness and premature mortality. By comparison, malaria leads to a loss of 47 million DALYs and tuberculosis 35 million DALYs per year[32]. India alone loses 73 million working days per year due to the lack of clean water and inadequate sanitation[33]. The World Health Organization estimates that by meeting the internationally agreed goals on water and sanitation would save nearly $90 billion annually[34]. Research estimates that each dollar invested in water supply and sanitation could yield $3 to $34 in return[35].

In developing countries, agriculture accounts for 70 percent or more of the water withdrawals[36]. When it rains, economies can grow; when it doesn't, those countries that lack the capacity to store and save water experience economic decline and food insecurity (see Figure 3.1). Experts predict that world food demand may double by 2050[37]. Not only will countries have to increase the agricultural productivity of existing lands, but do it with less water. Managing water to ensure long-term availability in light of climate variability will be critical to reaching these goals.

Water-related infrastructure for energy production, flood protection, and long-term water management has also contributed to economic growth of many countries around the world. In Kenya, El Niño floods in 1997-98 caused damages estimated at 11 percent of GDP; La Niña droughts in 1998-99 and 1999-2000 caused damages estimated at 16 percent each year[38]. Since the 1920s, the United States has invested approximately $200 billion on flood management and

[32] Hutton, G, and L. Haller L. 2004. *Evaluation of the costs and Benefits of Water and Sanitation Improvements at the Global Level*, World Health Organization Report, Geneva.
[33] UNDP.
[34] Ibid, 77.
[35] Ibid.
[36] UN Economic and Social Council. 2005. "Freshwater Management: Policy options and possible actions to expedite implementation", Report of the Secretary General of the United Nations 17/2005/2.
[37] Thompson, Robert L. 2006. Presentation to the Atlantic Council, April 18, 2006.
[38] Ibid 82.

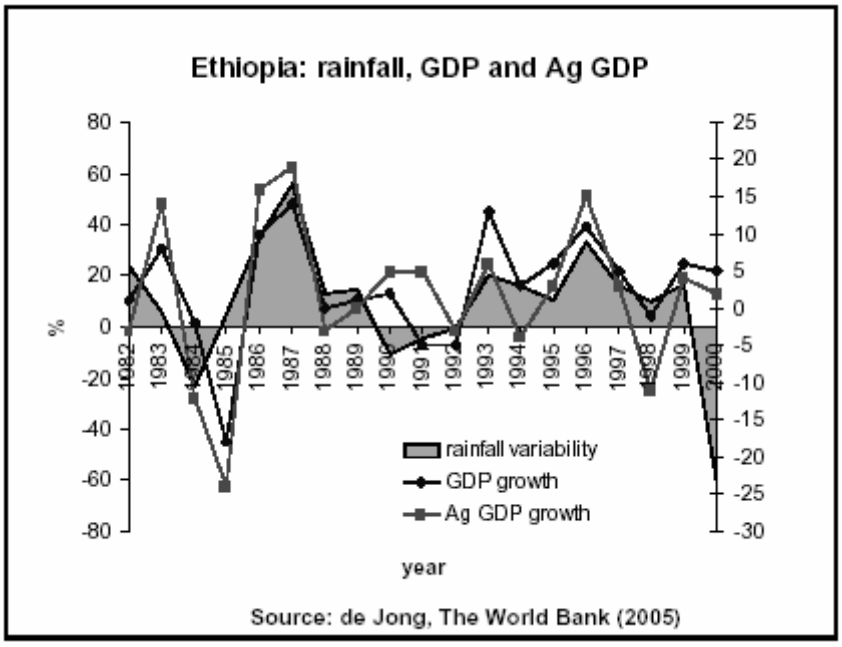


Figure 3.1: GDP in Ethiopia has closely tracked rainfall between 1982 and 2000.

mitigation, yielding over $700 billion in benefits, and limited flood damages to less than 0.5 percent of the GDP[39]. Ethiopia is currently building or discussing dams that would not only meet Ethiopia's needs, but provide power for export.

Water pollution can reduce economic growth. For example, in the Philippines, a country where more than 80 percent of the people have access to improved water sources and adequate sanitation, 58 percent of the country's groundwater is contaminated and the economic losses associated with pollution's impact on human health, fisheries, and tourism are estimated at $1.3 billion per year[40].

Appropriate water quantity and quality both depend on and help secure the sustainability of ecosystems upon which human societies and economies rely today and in the future. Sustainable water resources management has significant implications for promoting economic growth and agricultural productivity worldwide, and can yield concrete benefits for U.S. private sector abroad.

When water supply systems are deficient, the poor suffer the economic consequences more than other segments of the population; typically paying a unit cost for water supply through informal networks and distributors that is ten to twenty times higher than those who have access to a piped system. The water is often of questionable quality. An extreme case is Delhi (India), where the price for a cubic meter of water through a house connection is $0.01 versus as much as $5 through an informal vendor[41].

[39] Ibid.
[40] The World Bank. 2003. The Philippines Environment Monitor 2003.
[41] UNESCO. 2005. "Did You Know?" UNESCO Water Portal Weekly Update. July 2005.

3.3 Strengthen regional stability and build just, democratic, and responsive institutions

Competition for scarce water resources is becoming an increasing source of tension at the local, national and regional level.[42] While national level conflict is extremely rare, numerous conflicts at the local level have been reported.[43] The CIA reports that, by 2015, nearly half of the world's population will live in countries that are water-stressed (i.e., have less than 1,700 cubic meters per capita per year).[44] More than 260 basins are shared by two or more countries.[45] As resources continue to decline, we expect tensions may increase. At the same time, water has the power to bring people and countries together.[46] Cooperation by the Nile riparian countries on water has led to regular discussions among the countries at both the technical and political levels. A number of benefits – some of which go "beyond" the river such as greater trade and stronger government relations – are being realized.[47]

A key hallmark of a responsive government is whether it can provide basic services to its people while balancing the needs of various stakeholders and environmental sustainability. Governments that work to meet these needs find it useful to develop institutions and public/private partnerships that are accountable to the people and operate with greater transparency and stronger public participation. Activities in water supply and sanitation support transformational development and help strengthen rebuilding or developing states by improving governance, strengthening national enabling environments and institutions, mitigating local and national conflict over water resources, and providing water-related services for displaced or returning populations. The U.S. believes providing these basic services is a way for governments to demonstrate their commitment to the people by developing a government that can work for the people to meet their needs in an open and participatory manner. Such interventions help states move towards becoming more stable, prosperous, and democratic societies.

3.4 Provide humanitarian assistance

Provision of humanitarian assistance directly supports the U.S. national security strategy to advance freedom, protect human rights and promote human dignity. Humanitarian assistance provided by the U.S. supports immediate, life-sustaining needs by providing basic services, including clean water, sanitation, emergency health care, shelter, and food. The U.S. government's commitment to humanitarian assistance is a tremendously valuable force for preventing or mitigating the effects of conflict, fostering stability, and laying the groundwork for

[42] There is an extensive literature on the subject of water and conflict. Seminal references include Gleick, Peter H., 1993, *Water and Conflict: Fresh Water Resources and International Security*, International Security 18 (1): 79-112; and Wolf, Aaron T., 1998, *Conflict and Cooperation Along International Waterways*, Water Policy 1: 251-265.
[43] Ibid.
[44] Global Trends 2015.
[45] Postel, Sandra L., and Aaron T. Wolf. 2001. *Dehydrating Conflict*, Foreign Policy, September 18, 2001.
[46] See Wolf, 66.
[47] Sadoff, Claudia W. and David Grey 2002. *Beyond the river: the benefits of cooperation on international rivers*, Water Policy 4 (5): 389-405.

reconstruction, sustainable development and good governance. Such assistance is critical both to achieving transformational diplomacy and sustainable development. It is also a reflection of U.S. humanitarian values and can help build goodwill for the United States abroad.

4. USG International Water-Related Activities[48]

In Fiscal Year (FY) 2003-2005, more than $1.7 billion in official development assistance was obligated for over 100 activities in developing countries around the world. Over 24 million people received improved access to safe drinking water, and over 26 million people received improved access to sanitation. The U.S. also contributes to a number of multilateral development banks (such as the World Bank, the African Development Bank and the Inter-American Development Bank) and international organization (such as the UN, the Global Environment Facility, and the Organization of American States) that work on water. In addition, the United States provides nearly $40 million per year to support three bi-national commissions – the Border Environment Cooperation Commission, the International Boundary and Water Commission, and the International Joint Commission – that manage a number of transboundary water-related programs with Mexico and Canada.

4.1 U.S. Federal Agency involvement in the international water sector

Over 15 U.S. federal agencies are involved in international water issues. In addition to the international agencies, several domestic agencies have a legislative mandate to work on international water issues including the Department of Agriculture (USDA), the Environmental Protection Agency (EPA), the Centers for Disease Control (CDC), the National Oceanographic and Atmospheric Agency (NOAA), and the U.S. Army Corps of Engineers (USACE). A few

Table 4.1: U.S. Federal Agencies Working on International Water-Related Activities

International Agencies	Domestic Agencies
African Development Foundation*	Department of Agriculture
Department of State*	➢ Foreign Agricultural Service
Millennium Challenge Corporation*	➢ Agricultural Research Service
Overseas Private Investment Corporation*	➢ National Resource Conservation Service
Peace Corps*	➢ U.S. Forest Service
U.S. Agency for International Development*	Department of Commerce
U.S. Trade and Development Administration*	➢ National Oceanic and Atmospheric Administration
Overseas Private Investment Corporation	Department of Defense
Export-Import Bank of the United States	➢ U.S. Army Corps of Engineers*
U.S. Department of Treasury	Department of Energy
	Department of Health and Human Services
	➢ Centers for Disease Control and Prevention
	Department of the Interior
	➢ U.S. Bureau of Reclamation
	➢ U.S. Fish and Wildlife Service
	➢ U.S. Geological Survey
	Environmental Protection Agency
	Federal Emergency Management Agency
	National Aeronautics and Space Administration
	National Science Foundation

* Denotes those agencies receiving direct appropriations for working on international water activities.

[48] Data for this section was obtained from the GAO's report to Congress on "Freshwater Programs: Federal Agencies' Funding in the United States and Abroad" (GAO-05-253; 2005) or through surveys conducted by the Department of State with the individual agencies.

Table 4.2: Estimated Financial Support for Major U.S. Funders of Freshwater Programs Abroad Fiscal Year 2005[a]. Each agency listed provided its own data.		
Department or agency	**All Water**	**Excluding Iraq and Afghanistan**
Department of Defense[b]	$208.3M	$3.4M
Environmental Protection Agency[c]	$79.3M	$79.3M
Millennium Challenge Corporation	$89.9M	$89.9M
U.S. Agency for International Development	$479.1M	$397.7M
Department of State	More than $36M	More than $36M
Total	**More than $890M**	**More than $600M**

[a] The U.S. also provides loans, guarantees, and insurance for water projects. The amount of these investments can vary widely from year to year. Since 2002, the Export-Import bank has provided loans totaling from $0-$164M per year. In 2005, the Overseas Private Investment Corporation provided over $200M in loan guarantees and an additional $4M in direct loans.

[b] Funds come from the Commander's Emergency Response Program and Overseas Humanitarian, Disaster and Civic Aid.

[c] This includes approximately $66 million earmarked for infrastructure assistance along the Mexican border and approximately $13 million for work on the Great Lakes.

domestic agencies receive direct appropriations to work on international water, including USDA and USACE. Many of these, as well as the remainder of U.S. agencies that work on water, receive support from other domestic and international sources such as USAID and the Department of State. The U.S. Trade and Development Administration funds feasibility studies and technical assistance for the development of water services and wastewater treatment, flood control, drought relief, and other emergency prediction and management, as well as additional environmental management programs. The Export-Import Bank of the United States provides long-term loans and guarantees, working capital guarantee transactions, and short-term and medium-term insurance to facilitate exports in the water sector. The Overseas Private Investment Corporation provides both direct loans and loan guarantees for U.S.-based investors on water-related projects.

Those agencies that are key funders of international freshwater activities are listed in Table 4.2. USAID accounted for approximately 80 percent of U.S. federal agency support to the water sector not related to U.S. borders and outside of Iraq and Afghanistan. The Millennium Challenge Corporation accounted for 16 percent. Support from all other U.S. agencies combined was less than 2 percent of the total.

A complete overview of federal agency missions and capabilities related to water can be found in Annex A. The range of activities supported by USAID and other U.S. federal agencies include:

- The collection, management, analysis, application, and dissemination of information;
- Integrated water resources management planning and execution at a watershed or basin scale;
- The development of processes, practices and technologies that encourage the sustainable development, use, and management of land and water resources and the transfer of related U.S. technology abroad;
- Securing or leveraging financing necessary to meet water resource management needs, including strengthening enabling environments for private sector investment;

- Capacity building in scientific, technical, financial, operations and management, policy, and legal aspects of water resources management;
- Water-related institution building and strengthening;
- Awareness raising and education;
- Development of participatory and democratic governance structures to ensure sustainable management of water resources; and
- Provision of humanitarian assistance and support of prevention, preparedness and mitigation activities related to water/sanitation, emergency health, and capacity building.

The Department of State leads an interagency working group on water to coordinate international activities and to plan for major international events. USAID missions implement the majority of bilateral programs on water, working closely with recipient governments, non-governmental organizations, and other donors. Coordination takes place at a number of levels. Regional Environmental Officers from the U.S. Department of State at twelve regional environmental hubs around the world often facilitate and coordinate regional activities. USAID regional missions also support work on regional projects and programs. At the project level, coordination varies according to the project, the specific region in which the project takes place, and the agencies involved. Some projects are undertaken directly by domestic USG agencies with limited substantive engagement of the lead U.S. international agencies. Other initiatives involve *ad hoc* coordination mechanisms between two or more agencies. Still other priority projects with significant water-related elements have been coordinated across numerous agencies and other institutions, e.g., Hurricane Mitch, the Southeast and South Asia Tsunami Reconstruction or the Middle East Peace Process. On a smaller scale, interagency coordination of two or more agencies with complementary skills has regularly proved to optimize positive results by drawing on the special strengths of both foreign assistance and domestic technical agencies. For example:

- USAID often couples its strategic planning and community-based field experience with NOAA's technical specialization in weather forecasting, disaster mitigation, hydrometeorological data collection and analysis, and river basin planning support, e.g., in the Central Asian Republics, Central America, and Southeast Asia.
- EPA, DOC and USAID have worked together in the Asia region to take advantage of EPA's capabilities in environmental water and wastewater technologies, in conjunction with DOC and USAID expertise in promoting enabling environments for trade with U.S. companies.
- The Department of State, DOE, EPA and DOC have collaborated in the international S&T "Green Chemistry" effort, directed to limiting sources of upstream pollution through industrial process changes, in collaboration with universities, government ministries and private enterprises.
- As part of the Middle East Peace Process, the Department of State leads the interagency process (including USGS, Bureau of Reclamation, and USAID) on water – combining the diplomatic and political strengths of the State Department with both S&T and development expertise in water and groundwater resources of USGS and USAID on the ground.

4.1.1 USAID and the Water for the Poor Initiative

Within the federal government, USAID has the principal legal mandate and the greatest level of resources directed to the international water sector, and has been active in this area since the 1960s. In the early decades of its work, USAID engaged in a wide range of water-related activities, including dam construction, irrigation works and agricultural interventions, water and sanitation infrastructure, and capacity and institution building across the entire spectrum. With lower funding levels in recent decades, as well as an increased emphasis on the human, social, economic and political dimensions of water resources management, interventions have largely moved away from capital infrastructure activities toward the policies, laws, institutions, operational strategies, and financing necessary to build upon and sustain progress over the longer-term. In strategic places such as Egypt, Jordan, West Bank/Gaza, and most recently in Afghanistan and Iraq, USAID does continue to invest in some large-scale capital infrastructure, including public works for water supply and sanitation as well as irrigation. USAID also undertakes infrastructure projects in post-emergency humanitarian and reconstruction response, such as hurricanes, cyclones, typhoons, earthquakes, or the recent Southeast and South Asia tsunami. Such capital-intensive projects have been the exception, however. USAID's strategic approach has been primarily to work with countries that have included clean water, public health, and sustainable resource management among their national goals. They have worked to improve water sector institutions and reform utilities so that countries are financially capable of providing reliable and affordable water to their people and sustaining water resources over time.

In 2002, Secretary of State Colin Powell announced the $970 million "Water for the Poor," a three year Presidential initiative to improve sustainable management of water resources and increase access to safe water and sanitation. Projects and programs under the initiative focused on three areas:

- **Access to clean water and sanitation services:** Activities included construction and rehabilitation of water treatment plants, water and sewer networks, wells, and sewage treatment plants, as well as health and hygiene promotion programs and loan guarantees to support private sector investment in infrastructure.
- **Watershed management:** Activities included the development of policies and programs and the strengthening of local, national and regional institutions, and management strategies for improved watershed management and interventions to reduce water pollution.
- **Increasing the productivity of water in agricultural and industrial uses:** Activities included rehabilitating existing irrigation systems, building water user groups, strengthening fisheries and aquaculture, and reducing industrial water use and water discharge through pollution prevention, waste reduction, industrial process change, and water reuse.

Under this initiative, the United States has obligated more than $1.7 billion for more than 100 activities in over 79 countries.[49] Over the lifetime of the initiative, 70 percent of the obligated

[49] This includes supplemental funds, including those supporting work in Iraq and Afghanistan.

Table 4.3: Estimated USAID Obligations for the Water for the Poor Initiative, FY03-FY05, including supplemental appropriations. Data provided by USAID.

	Fiscal Year			
	2003	**2004**	**2005**	**Total**
Water Supply, Sanitation, and Wastewater Management	$373M	$584M	$276M	**$1,233M**
Watershed Management	110M	84M	71M	**264M**
Water Productivity	116M	96M	47M	**259M**
Total	**$599M**	**$764M**	**$394M**	**$1,756M**

funds have supported water supply, sanitation, and wastewater management activities; 15 percent watershed management; and 15 percent water productivity. 14 percent of the funds have gone to Sub-Saharan Africa; 17 percent to Asia and the Near East; 51 percent to the Middle East; 5 percent to Europe and Eurasia; and 11 percent to Latin America and the Caribbean.[50] (Detailed breakdown of total actual funding obligations for the Initiative in FY 2005 by region and substantive area are presented in Annex B.)

Among the major results achieved since the onset of the Water for the Poor Initiative and the Congressional Directives are:

- Over 24 million people (including more than 5 million in Iraq) have received improved access to clean water supply;
- Over 26 million people (including more than 13 million in Iraq) have received improved access to adequate sanitation;
- Over 3,348 watershed governance groups were convened and supported to undertake ongoing basin-scale, integrated water resources decision-making to address a diversity of water uses and needs; and
- Over 300 watershed management plans have been developed, adopted, and/or implemented at the watershed or basin scale.

The types of interventions funded by USAID have contributed to a significant shift in the way in which water resources management and water supply and sanitation service delivery are approached in the countries served, including:

- Improved institutions and enabling policies to permit mobilization of domestic capital from public and private sources to meet the needs of underserved populations in water supply and sanitation;
- Enhanced capacity of communities, governments, civil society, and the private sector to manage water resources and provide services in an efficient and effective manner;

[50] These percentages are based on all USAID funding. Excluding supplemental appropriations, the breakdown of funding is as follow: 56% water supply, sanitation and wastewater management activities; 23% watershed management; and 21% water productivity; 22% Africa; 23% Asia and the Near East; 27% Middle East; 8% Europe and Eurasia; and 17% Latin America and the Caribbean. See Annex B for the definitions of regions.

Figure 4.1: Regional breakdown of USAID obligations for the Water for the Poor Initiative.

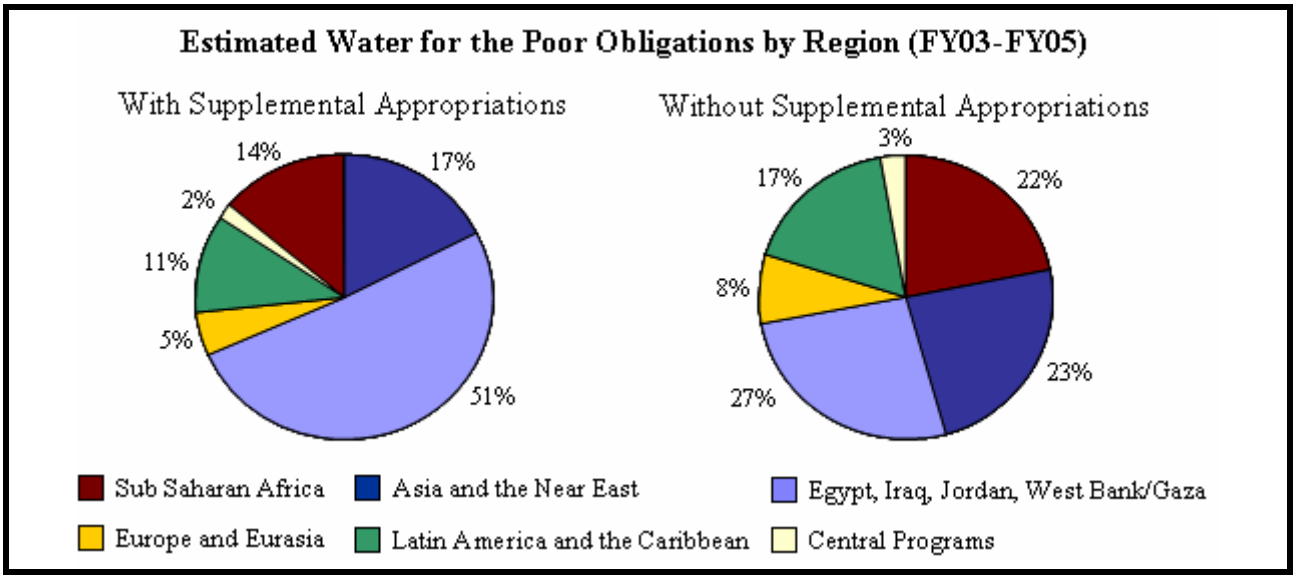
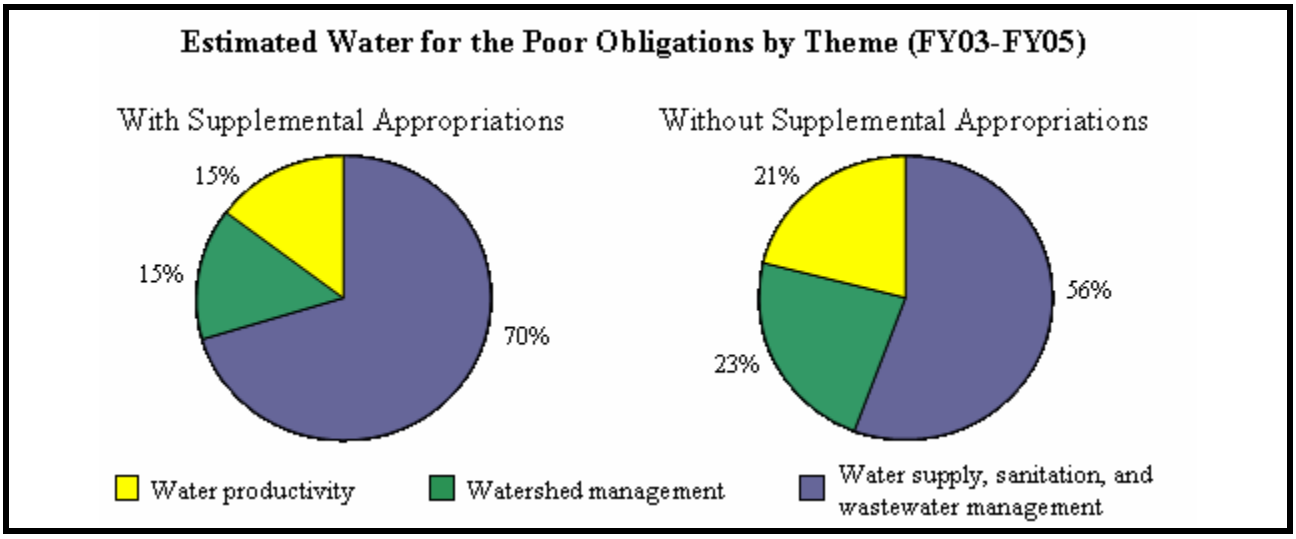


Figure 4.2: Thematic breakdown of USAID obligations for the Water for the Poor Initiative.



- Strengthened structures for transparent, democratic governance, decision-making, and conflict resolution about water resources shared among many users;
- Increased opportunities for constructive partnerships between the public and private sectors, and among donors and international institutions;
- Increased sustainability of the natural resource base required to provide water services and process waste products;

- A more integrated vision and technical approach that links benefits from water resources management to other development goals including health, economic growth, education, and democracy and governance; and
- Improved behaviors to insure effective use of water supply and sanitation infrastructure, in ways that maximize the positive health impacts of these investments.

4.1.2 Millennium Challenge Account

The Millennium Challenge Account was established on January 23, 2004, to provide U.S. global development assistance through the Millennium Challenge Corporation (MCC) in a manner that promotes economic growth and the elimination of extreme poverty and strengthens good governance, economic freedom, and investments in people. The MCC provides support to projects and programs in eligible countries based on country-identified priorities. Currently 23 countries are eligible to receive support. Of the five compacts signed in FY2005, four will have a water component as part of their infrastructure component (see Table 4.4).

Table 4.4: MCC Funding for Water Related Activities[a]. Data provided by the MCC.

Country	Activity	Amount	Total Compact
Georgia	Regional Infrastructure Development Fund	Up to $60.0M	**$295M**
Cape Verde	Watershed Management and Agricultural Support	$6.8M	**$110M**
Nicaragua	Rural Business Development	$13.3M	**$175M**
Honduras	Rural Development: Agricultural Facility	Up to $9.0M	**$215M**
	Total	Up to $89.1M	

[a] Compacts were signed in FY2005 but funds will be obligated over a five-year period.

4.2 Multilateral development banks and financial institutions

The United States is a member of, makes financial contributions to, and exercises leadership in seven multilateral development banks (MDBs) that support freshwater projects around the world. (The United States also contributes to the Global Environment Facility, which is focused on oceans and international waters.) In 2005, the multilateral banks provided more than $3.5 billion in financing for water supply and sanitation, of which $2.2 billion came from the World Bank Group alone. MDB assistance in support of water projects, as a proportion of overall 2005 assistance, is shown in Box 4.1.

Box 4.1: Estimated Water-Related Financing from Multilateral Development Banks in FY 2005. Data provided by the Department of the Treasury.

Organization	Amount
World Bank Group	$2.2 billion
African Development Bank	$285 million
Asian Development Bank	$618 million
Inter-American Development Bank	$446 million
NADBank[a]	$1.25 million
European Bank for Reconstruction and Development[b]	Euro 119 million
TOTAL	**More than $3.5 billion**

[a] In addition to direct NADBank financing, the EPA provided bilateral support totaling $2M to drinking water and wastewater projects in the U.S.-Mexico border region through NADBank during the same period.

[b] The EBRD was able to leverage another Euro 330M in private funds and other resources from this investment.

4.3 Other international organizations

The United States contributes to the general budgets of a number of international organizations that support freshwater projects around the world as well as water and sanitation services in the context of emergency relief. These include many UN agencies (including UNICEF, the World Health Organization, UNESCO, the UN Development Program, the UN Environment Program, the Food and Agriculture Organization, the World Meteorological Organization, the UN High Commissioner of Refugees, and UN Relief and Works Agency for Palestine Refugees in the Near East), the Inter-American Institute for Cooperation on Agriculture, Organization of American States, Organization for Economic Cooperation and Development, Pan American Health Organization, Ramsar Convention on Wetlands, World Conservation Union, International Committee of the Red Cross, International Organization of Migration, and other UN agencies.

As an example of such funding, the Department of State's Bureau of Populations, Refugees, and Migration (PRM), primarily through its Migration and Refugee Assistance (MRA) and Emergency Refugee and Migration Assistance Fund (ERMA) accounts, funds international and civil society organizations to protect and provide humanitarian assistance to millions of refugees and conflict victims worldwide. In FY05, over $750 million was spent for protection and assistance in areas such as food, water and sanitation, shelter, health care, and education. Although funds are not specifically earmarked for water and sanitation, PRM supports projects that ensure that refugees and conflict victims have access to adequate potable water (both in quantity and quality), latrines, and information on hygiene, all at levels that meet accepted international standards for emergency situations. This includes not only planning and building wells, but also providing security for those (generally women and children) who use those wells to bring water to their families.

Table 4.5: Estimated Financial Support for Selected International Organizations Fiscal Year 2005.[a] Data provided by the Department of State.

Organization	U.S. Contribution to Core Budget	% of Core Budget Spent on Water
UNICEF	$342M	10.4%
World Health Organization	$96.11M	1.9%
UNESCO	$77M	8.1%
UN Development Program	$108M	13.1%
World Meteorological Organization	$11M	4.6%
UN Environment Program	$6M	12.3%
Food and Agriculture Organization	$81.62M	0.8%
Total	**$721.73M[b]**	

[a] The U.S. does not fund water programs directly through their contributions to these international organizations. However, it does provide support to the core operating budgets, a percentage of which is spent on water-related programs.

[b] About $36.6M of this amount is spent on water. This number is highly approximate, representing the total amount of U.S. contributions to core funds likely to go to water and sanitation projects from the selected international organizations.

4.4 Coordination with donors, developing countries, and other players

The U.S. participates in a number of formal and informal processes to coordinate the development of both policies and programs related to international water issues. The U.S. often works with both developed and developing country governments to build support for and advance policies and approaches the U.S. wants to promote on international water and sanitation issues. For example, U.S. efforts with G8 countries led to the inclusion of innovative financing mechanisms and point of use technologies for household water disinfection in the G8 Water Action Plan in Evian. U.S. work with a number of other governments led to reforms in the structure of a number of international events (i.e., the UN Commission on Sustainable Development, the World Water Forum, and Stockholm Water week) to better support the exchange of best practices and advance partnerships and programs. In some cases, where there is a strategic advantage, the U.S. will work closely with a few key donors on a specific issue. For example, the highly effective partnership with the Japanese government on innovative financing has yielded significant results, including progress on leveraged financing in the Philippines, Indonesia, and Jamaica. In the Middle East in particular, USAID often works with other donors, each financing a part of major water infrastructure or providing the grant-based technical assistance required by other donor water infrastructure projects.

The U.S. also works to coordinate specific projects and programs at both the global and local level. The U.S. regularly participates in a number of events to coordinate donor efforts in key areas at the macro level. Examples include the Informal Donors Consultation on Transboundary Water – to coordinate diplomatic and development efforts on transboundary water (see Box 4.2); the Integrated Water Resources Info Group – hosted by UNDP to coordinate efforts on national level Integrated Water Resources Management planning; and the Donors Consultation on Water and Sanitation (hosted by the World Bank).

Most coordination on specific projects and programs occurs at the country and regional level, in the context of actual programs and activities on the ground. USAID participates actively in donor coordination bodies at the national level for water resources management or water supply

Box 4.2: The Informal Donors Consultation on Transboundary Water

In April 2000, the Department of State launched the "Informal Donors Consultation on Transboundary Water", an initiative that combines diplomatic and development efforts among interested donors to improve water resources management and mitigate the tensions associated with shared water resources. As part of this effort, the State Department chairs an interagency working group on water to coordinate USG efforts on transboundary water management. Activities include working with donor countries interested in supporting riparian-led initiatives to improve transboundary river basin management. Both the diplomatic and development points of view are involved, and internal coordination across diplomatic, technical, and development agencies within each donor country is encouraged, as well as among them. The group has met five times since 2000 and continues to meet annually on the margins of Stockholm Water Week.

and sanitation delivery in countries where the Agency has programs in the sector.[51] In many cases, the practical outcome of this coordination is better information sharing about what each donor is supporting, where they are working, and who they are partnering with, to facilitate identification of possible areas of coordination and synergy. Because of different planning and budgeting cycles for each donor, it is more challenging to collaborate in joint design and development of activities in advance. However, USAID always develops its programs and activities with a full consideration of what other actors are doing in the sector, to avoid duplication, enhance synergy, and display the Agency's comparative advantage. The newly-established Office of the Director of Foreign Assistance will provide a leadership structure for rationalizing and coordinating all foreign assistance planning, policy, and oversight.

4.5 Leveraging U.S. contributions: Working through partnerships

A joining of forces between the USG and its traditional as well as non-traditional development partners is the most effective approach to addressing water resources problems around the world. Several USG agencies already leverage considerable resources from non-USG sources, promote environments where private sector investment becomes attractive, and strengthen the climate for international trade with U.S. environmental technology firms. Federal agencies have also developed a significant range of partnerships with private sector companies, non-governmental and private voluntary organizations, academic and research institutions, faith-based organizations, host country governments, and international donor partners in strong, mutually supportive relationships that support U.S. water sector interventions as well as the interests of the partnering organizations.

USAID's development experience and long-term presence in each country are attractive to the private sector and other non-traditional actors for the relationships with foreign governments and contextual perspective they provide, as well as the expertise and experience they have in implementing effective water resources management and water supply and sanitation service delivery programs. Other partners bring their own particular strengths to the table, including access to private markets and capital, connections with different constituencies and client bases, additional resources for development interventions, and an opportunity to positively influence the behavior of industries and businesses that are large consumers of water. The development of such partnerships are a core element of USAID's approach, promoted through the Global Development Alliance (GDA) Secretariat. This new business model for development looks to leverage the expertise, resources, and relationships of those who may not have been involved in development activities in the past.

Box 4.3 highlights some recent GDA partnerships in the water sector that illustrate the breadth of work and types of partners who have been involved. Great potential exists for the USG community to increase the number and scale of such partnerships over time, and these types of alliances will figure prominently in future activities.

[51] These bodies are typically chaired either by a national government Ministry, or by a U.N. agency or other international organization.

Box 4.3: Illustrative Partnerships in the Water Sector

Community Water and Sanitation Facility: In collaboration with the Cities Alliance, USAID launched the Facility with seed funding of $2 million to support local authorities and their partners in developing public-private partnerships to expand water and sanitation services to urban slum communities. The Facility provides grants that leverage local resources at least 2:1.

Safe Drinking Water Partnerships: USAID is engaged in a range of partnerships to improve water quality and hygiene to reduce water-borne disease, including the Safe Drinking Water Alliance and The International Network to Promote Household Water Treatment and Safe Storage. Simple household-level water treatment and safe storage interventions can lead to dramatic improvements in drinking water quality and typical reductions in diarrheal disease of 30-50% or more — making an immediate difference to the lives of those who rely on water from polluted rivers, lakes and, in some cases, unsafe wells or piped water supplies.

Community-Watersheds Partnership Program: The Coca-Cola Company (TCCC) and USAID have joined together to provide more than $4 million in incentive grants to local TCCC system business units and bottlers and USAID missions to carry out a broad range of water-related projects in countries where both operate. The alliance matches the business objectives of a major international corporation with the needs for water resources management and service delivery, and works in a diverse array of activities ranging from water supply, sanitation and hygiene to watershed management and biodiversity protection. Projects are underway in Mali, Bolivia, Indonesia, and Malawi, and several more projects in Africa will be initiated in FY2006.

Global Water Revolving Fund Alliance: The New York Environmental Facilities Corporation leads this outreach program to promote the use of the U.S. State Revolving Fund sustainable financing model which mobilizes local private capital with public sector support to finance drinking water and wastewater projects. Under the Alliance an outreach and training program will be conducted in selected countries to inform and prepare key decision makers to apply this SRF or "Sustainable Finance" Model in the financing of municipal water supply and wastewater projects.

White Water to Blue Water: The White Water to Blue Water Initiative (WW2BW) is designed to promote the practice of integrated watershed, coastal, and marine ecosystem-based management in support of sustainable development. The Initiative has spawned hundreds of different alliance relationships with governments, international organizations, private sector businesses and civil society, including USAID's 1.5 million dollar matching partnership with the UN Foundation to support the Meso-American Reef Alliance in Mexico and Central America. WW2BW provides a model for regional partnership building and works to provide technical expertise to groups seeking to launch new alliances.

The West Africa Water Initiative (WAWI): This $45 million partnership was founded by the Conrad N. Hilton Foundation in 2002, and works with governments and communities to increase access to safe drinking water and sanitation in rural and peri-urban areas, reduce waterborne disease, and ensure ecologically and financially sustainable management of water quantity and quality in Ghana, Mali and Niger. The Initiative involves 13 partners in the international water sector, including a private foundation, an international agency, a bilateral donor, NGOs, academia, and a private sector industry association.

The Partnership to Health through Water (PHW): With a goal of reducing death and disease associated with water, the PHW mobilizes its partners at the household, community, and catchment levels to raise awareness among policy makers regarding the applicability and efficacy of water-related interventions; to generate and make use of data regarding the implications of water-related disease; to facilitate the development of initiatives to implement short and long-term approaches to reduce water-related diseases; and to strengthen technical capacity with respect to program design, implementation, management, and evaluation. The PHW is organized by the World Health Organization and supported by the U.S.

5. The USG Strategy for the Water and Sanitation Sector in Developing Countries

5.1 Context

U.S. efforts on water and sanitation are important components of our overall efforts on development assistance. Increasing access to basic water and sanitation services and promoting access to safe water for the poor is an investment in the health and well-being of people. Access to safe water and sanitation reduces disease, improves children's health, and creates opportunities for women and girls. Improved water management and increasing the efficiency of water use for agriculture and industry promotes economic growth and institutions that are accountable to meeting the needs of the people. Promoting cooperation on shared waters strengthens regional ties and promotes stability. As such, water is a key element for building and sustaining democratic and well-governed states.

While water is a crucial element of our development assistance approach, it is just one part of a much broader U.S. effort. U.S. expenditures of official development assistance must support a broad range of activities that work together to create just and responsible nations. Therefore, U.S. efforts on water must be focused on areas of greatest need where the U.S. is well positioned to provide assistance and where U.S. efforts can generate the greatest results. The Office of the Director of Foreign Assistance is presently introducing a new framework for foreign assistance aimed at aligning our foreign assistance resources with our foreign policy objectives. The new framework identifies priority objectives and categorizes countries receiving U.S. foreign assistance by shared characteristics and goals through this process. The Department of State, working closely with USAID and other technical agencies, will begin to develop metrics for measuring progress, identify priority countries, and develop timelines for projects and programs.

There are few countries where U.S. development assistance is large enough to support large infrastructure investments. In a vast number of countries, U.S. efforts have to focus on smaller-scale, targeted activities based on country priorities and to address critical needs. In both cases, we need to ensure that water and sanitation issues are well-integrated into other development sectors where water can play a strong role. For long-term sustainability, our interventions must be designed in close cooperation with the communities they intend to serve, and we must ensure those communities have a sense of ownership.

We also have to leverage the resources of others. A key part of our approach on water must be the development of partnerships and activities that can effectively leverage the dollars, expertise, and political will of other donors, the private sector, international organizations, foundations, non-governmental organizations and other foundation, charitable and faith-based groups.

Through diplomatic avenues, the United States has been and can be a positive voice for change throughout the world – raising the political profile of water and sanitation issues and working to move international institutions and organizations towards a more action-oriented agenda.

5.2 U.S. objectives on water and sanitation for the poor

The goal of U.S. foreign assistance is to help build and sustain democratic, well-governed states that will respond to the needs of their people and conduct themselves responsibly in the international system. U.S. activities on water will contribute directly to achieving this goal by protecting human health and responding to humanitarian crises; promoting economic growth; enhancing security; and developing public participatory processes that improve transparency and accountability, leading to more just and responsive institutions that meet the needs of people. Within this context, U.S. objectives on water are to:

1. **Increase access to, and effective use of, safe water and sanitation to improve human health.** This includes both short and long term sustainable access to safe water and adequate sanitation, as well as education activities to improve hygiene.

2. **Improve water resource management and increase the productivity of water resources.** This includes optimizing the benefits of water among competing uses while ensuring human needs are met and environmental resources are protected. It also includes minimizing the use and increasing the productivity of water used in industrial, agriculture and other consumptive sectors, as well as supporting pollution prevention programs and other programs that reduce water losses in domestic water systems.

3. **Improve water security by strengthening cooperation on shared waters.** This includes the strengthening of institutions and processes to improve basin-level watershed management and public participation in planning and service delivery.

5.3 Program guidelines

A number of guidelines will continue to shape U.S. programs on water:

Country-driven approach: The majority of resources will be programmed in consultation with recipient countries and based on U.S. development priorities and community, local, national, and regional needs. Priority will be given to those countries that identify water and sanitation as key elements of their national development plans and strategies. Water and sanitation issues are extremely heterogeneous, and so any analysis of need must look deeper than national-level figures to take into account both urban and rural needs.

Results-based programming: U.S. activities will be focused on achieving measurable results related to the stated objectives. Monitoring will be done to assess the progress as well as the long-term sustainability of projects and programs. As the new foreign assistance process moves forward, the agencies involved in foreign assistance plan to convene a workshop specifically to look at indicators in the water sector. Notional examples include:

- Number of people with improved access to safe water and adequate sanitation.
- Number of watershed management plans being implemented; number community user groups functioning; or national level coordination processes functioning.

- Regional agreements being implemented and/or regional institutions functioning for shared water management in targeted regions.

Beyond addressing outputs, we will also explore ways to measure the impact on issues such as the incidence of diarrheal disease and water-related conflicts.

Maximizing impact: Within its areas of competitive advantage, the U.S. will seek a balanced portfolio of high and low-risk projects that take into account "on-the-ground" conditions, with the intent of maximizing the long-term impact of U.S. activities. Projects and programs will be developed with stakeholders at the lowest appropriate level to ensure ownership and promote sustainability. Appropriate consideration will be given to the special needs of women and children and to capitalize on their role as leading agents of change within their communities.

Consideration will also be given to the most effective form of support. Capacity building will be a key element of all programmatic activities to ensure sustainability, including building scientific and technological capacities to support sound decision-making and the adoption of low-cost innovative approaches for water management and service delivery. The existing conditions on-the-ground will also be a key factor. For example, many cities and towns in developing countries have existing water and sanitation service providers that currently do not provide services in poor communities, particularly slums and informal settlements. In many cases, the lowest cost option to serve the poor on a sustainable basis is by extending the existing service providers' networks into these poor communities with different types of connections and pricing strategies. We will continue to seek out the most effective methods for reaching out to key populations and which contribute to other programmatic goals.

Leveraging through partnerships: The U.S. will seek to leverage its contributions by developing partnerships, establishing public-private alliances, and working to coordinate U.S. activities at global, regional and national levels. In addition to combining resources on projects and programs, we will seek to work with others to improve information sharing, catalyze action, and build a collective political will in key areas. The U.S. will continue to work through formal and informal global, regional, and national level processes to raise the profile of water and sanitation issues; highlight innovation; and reform intergovernmental organizations and institutions so that they better advance partnerships and activities on water. U.S. officials will continue to encourage leaders from other governments to include water and sanitation in national development plans and strategies to make the reforms necessary to create an enabling environment for investment and to promote public participation. The U.S. will also work to disseminate best practices and lessons learned to development partners and the international community.

5.4 Focal areas

Consistent with the strategic focus and guidelines, above, key themes of projected U.S. activities are contained in the six broad categories listed below. Capacity building, using science to support sound decision-making; and promoting, where appropriate, the use of innovative approaches and technologies will be key actions in each of the listed focal areas.

5.4.1 Governance

The U.S. will focus its efforts on domestic good governance in two areas: sound water management and creating an enabling environment. These areas are closely related to integrated management and the building of democratic and responsive institutions (public and private, both for-profit and not-for-profit) and include aspects of both civil and corporate governance.

Sound water management at the local, national, and regional level. Good governance practices rely upon a framework that enables people, including the poor, to openly discuss and agree to cooperate and coordinate their needs and actions regarding the management of natural resources. Sound water management requires optimizing the benefits from water among its potential uses consistent with stakeholder needs. It should foster the development of a shared vision, and the participatory design and implementation of improved water policies and legislation at all levels of governance, from local to national. It should also establish a clear institutional framework that provides the organizational structure and capacity to implement integrated water management at local, national, and transboundary scales. At the regional level, this means strengthening the role of institutions that promote cooperative management of water at the basin level. This includes taking into account environmental, technical, social, economic, and cultural issues, as well as the quality and quantity of water quality management. Pollution prevention, reduction of contamination to surface waters and groundwater from point sources, non-point sources (storm water and rainfall runoff), and practices that adversely impact groundwater availability and quality in aquifers will be addressed. These activities are most appropriate in rebuilding or developing countries where the policies, institutions, and processes are not yet in place. Candidate countries include Bangladesh, Ethiopia, and Indonesia. Examples of possible basins for strengthening cooperation on transboundary water include the Nile, the Okavango, and the Amu and Syr Darya.

Examples include:

- Transboundary water: Working through the United Nations Development Program, the United States launched the Shared Rivers Program to strengthen institutions for the shared management of water resources. Programs are underway in several basins throughout the world including the Mekong, Niger, and Nile. On the Nile, U.S. funds have supported riparian country negotiations to develop a legal framework for joint management of the basin's resources.

- Regional institutions for management: Shared river basins represent over 75 percent of southern Africa's surface water. USAID is providing training and technical assistance to relevant institutions through the Regional Center for Southern Africa and its "Improved Management of Shared River Basins Program" in **Angola**, **Namibia**, and **Botswana** to improve basin-wide planning and management capabilities and to foster community participation in environmentally sound practices. It is building the capacity of regional institutions to more effectively engage in biodiversity conservation, regional cooperation, conflict mitigation and sustainable management of freshwater resources.

- Integrated water resources management: The U.S. has been supporting programs through the Global Water Partnership to strengthen participatory decision making on integrated water resources management (IWRM) in **Ethiopia**, **Indonesia**, and **El Salvador**. In each of these countries, IWRM laws have been passed, and the programs are supporting the implementation of these laws at both the national and basin level.

- National level planning and management: In **Indonesia**, USAID has linked the delivery of services in water supply, sanitation and hygiene to upper watershed management and the maintenance of the environmental services provided by intact systems. A focus on improved health through integrated water supply and sanitation services, hygiene behavioral change, food security, and healthy ecosystems is undertaken through the involvement of stakeholders in decision-making, the full engagement of the public and private sectors, as well as the proper policy and enabling environment for financial and environmental sustainability.

- Water Safety Plans (WSP): WSPs are health-based risk assessments that identify vulnerabilities in water supply systems from the "catchment to consumer". They provide communities with the information necessary to set priority actions and invest resources appropriately, thereby offering cost-effective solutions for reducing risks to human health caused by water system weaknesses. The U.S. (EPA, HHS/CDC and USAID) has partnered with other international donors (Australia, the UK) and intergovernmental organizations (World Health Organization, UNICEF) and the private sector (The Coca-Cola Company) to develop model activities in **Bolivia**, **India,** and **Jamaica** and to develop a WSP Web-portal for exchanging information on best practices and to serve as a repository for technical information, guides, manuals, case studies, etc.

- National Plans of Action (NPA): NPAs identify threats to the coastal and marine environment throughout a watershed and develop integrated watershed and coastal area management approaches to address land-based sources of pollution. NPAs are a tool developed by the international community to catalyze and facilitate sustained action to prevent, reduce control, and/or eliminate degradation of the marine and coastal environment by land based sources of pollution. NOAA, in cooperation with United Nations Environmental Program, provides direct technical assistance and advice to governments in the Wider Caribbean in the development of their NPAs. The NPA process is underway with the help of NOAA and UNEP in **Trinidad** and **Tobago**, the Yucatán in **Mexico** and regions of **Panama**.

- Regional markets: With FREEDOM Support Act Funds, USAID is assisting **Kazakhstan**, **Kyrgyzstan**, and **Tajikistan** to develop a market-based framework for negotiating water flows and rights in Central Asia. Water will be included as an important component of the regional electricity market, consistent with global best practices in energy market design.

Strengthening utility management and regulation. Development assistance alone will not meet developing country needs in water and sanitation – resources will need to flow from the private sector, particularly the domestic private sector. Water utility reform, combined with

sustainable capital market financing, can be a powerful combination. Water and sewerage utilities in developing countries are often operating far below sustainable cost recovery levels. They struggle to maintain current inadequate levels of service, and lack capital to even begin to expand to the poor populations in slums, peri-urban areas, and villages without access to water and sanitation. Addressing problems of financial sustainability and weak management often requires fundamental reforms in how these utilities are run, how they are regulated, and in the pricing and tariffs charged by these service providers. Corporate governance also needs strengthening, including issues of transparency and corruption. These activities are most appropriate in rebuilding or developing countries where the infrastructure for good governance is not yet strong enough to support private sector engagement.

Examples include:

- Legal and regulatory reform: In **Egypt** and **Armenia**, USAID has helped to establish water regulatory agencies. These agencies have adopted regulatory methods that allow water utilities to transition to adequate levels of cost recovery, ensuring the financial sustainability of services.

- Utility reform: USAID Jordan helped the Government of **Jordan** to corporatize the Aquaba Water Corporation. This is the first incorporated water service provider in the country to become operationally and commercially independent. This has had a major impact on the efficiency and cost recovery of the corporation. Following this successful experience, USAID is now assisting in the corporatization of the Amman water and sewerage system.

5.4.2 Mobilization of domestic resources

In many transforming countries there is capital within the country that can be invested to meet public needs. Innovative financial tools need to be developed to reduce risks and create incentives for the investment of local capital into the water and sanitation sectors. A number of models that have proven successful in the U.S. and have begun to be applied internationally include the use of partial loan guarantees and the development of pooled and revolving funds. These activities not only increase cash flows for water and sanitation related infrastructure; they help strengthen and build local capital markets. These activities are most appropriate in countries with an improved investment environment and developed or developing local capital markets. Candidate countries include Egypt, India, Indonesia, Nigeria, Philippines, South Africa, and Uganda.

Examples include:

- Loan guarantees: Since 1999, USAID has offered partial loan guarantees to private financial institutions as a way to increase financing for water and sanitation infrastructure development. The presence of a guarantee can help municipalities gain access to credit for high-priority projects in poor areas. In **South Africa**, this mechanism enabled the Vlakfontein Outfall Sewer District in Johannesburg to provide sanitation to approximately 100,000 people.

- Pooled funds: In **India**, USAID used its Development Credit Authority (DCA) as a credit enhancement for the pooled financing of several municipal urban infrastructure projects. DCA is a proven and effective tool that permits USAID to issue partial loan guarantees to private lenders to achieve economic development objectives, helping mobilize local capital in creditworthy but underserved markets. In the state of Tamil Nadu, $6.4 million was made available to participating municipalities, providing benefits to an estimated 593,000 people. The pooled financing mechanism supported by DCA will provide investment funds to small and medium urban local bodies (ULBs) to implement water and sanitation projects, which will benefit low-income populations. USAID also used a DCA guarantee to support the second pooled municipal bond issuance to improve and expand provision of water and sewerage services in the Bangalore Metropolitan Area, through a $21.7 million bond for eight municipalities.

5.4.3 Infrastructure investment

Infrastructure at all levels is required to meet basic needs and to ensure water is available for multiple uses despite seasonal and annual variations in rainfall. These projects range from U.S-support of large water systems and wastewater treatment to small-scale community projects providing access to water and sanitation services and managing long-term water needs for agricultural or other purposes. U.S. activities will include funding or financial support for small to medium projects and working through international financial institutions and other donors to support large-scale projects overseas and tie into goals on access to water and sanitation services and regional security. Support for small-scale infrastructure is appropriate in rebuilding and developing countries. Candidates include Ethiopia, Haiti, Kenya, Pakistan, and Vietnam. Aside from those projects supported through international financial institutions that receive support from the U.S., U.S. support for large scale infrastructure is only likely in a few countries. Possible countries include Afghanistan, Egypt, Iraq, Jordan, and the West Bank/Gaza.

Examples include:

- Water and wastewater infrastructure: By the end of FY 2006, interventions sponsored by USAID in **Egypt** will have expanded access or improved the quality of drinking water and wastewater services for more than 22 million people. Since 1975, USAID has invested more than US $3.4 billion in thirteen water/wastewater projects. In the earliest years of the program, wastewater infrastructure was constructed to relieve flooding of raw sewage in Cairo and Alexandria. During this same period, water and wastewater infrastructure in the war-damaged cities along the Suez Canal was rehabilitated or replaced. Since the mid-1990s, the program focus has shifted to smaller urban areas in the Delta, South Sinai, and Middle and Upper Egypt. The most recent focus of the program is on developing the institutional capacity of water and wastewater facilities.

- Small-scale infrastructure: In 2002, USAID and the Conrad N. Hilton Foundation announced a nearly $45 million public-private partnership to provide potable water and sanitation to rural villages in **Ghana**, **Mali**, and **Niger**. Under this partnership, USAID committed $4.4 million, which was partnered with funding from the Hilton Foundation,

World Vision and other partners for a total of $40.7 million. By 2008, the partners expect to have provided Ghana, Mali and Niger with a minimum of 825 new water boreholes, 100 alternative water resources and 9,000 more latrines, reaching more than one-half million people. In addition, thousands of adults, children and teachers will have been instructed in safe hygiene and sanitation practices.

5.4.4 Protection of public health

While increasing access to improved infrastructure for water supply and sanitation is a critical component of protecting public health, hygiene interventions are important complementary activities to maximize the positive public health impact of improved hardware and to protect public health in case of any hardware shortcomings. A limited number of hygiene activities focused on key, universally-accepted behavioral outcomes and targeted at the household and personal level will be supported. These include ensuring the safety of drinking water at the point-of-use, hand washing, and household sanitation. These activities are appropriate in any country with a high prevalence of diarrheal disease. Possible countries include Afghanistan, Bangladesh, Ethiopia, Haiti, Kenya, India, Indonesia, Madagascar, Malawi, Nepal, Peru, Somalia, Sudan, Uganda, Zambia, and others.

Safe drinking water management. Safely managing drinking water at the point-of-use, including safe handling, storage, and disinfection, is critical to the protection of public health. Even populations that have access to an improved water supply often do not have water that is safe to drink because of contamination during distribution, i.e. in transport, storage, and handling of remote supplies (e.g. communal wells or boreholes) or in piped networks subject to contamination. For these reasons, in places where there is no tap in the household providing safe water 24 hours a day, it is often necessary to disinfect water at the point of use, such as a household, school or health facility – an approach that has been proven to be a very cost-effective means of reducing diarrheal diseases.

One way to scale-up of these efforts is to support multiple approaches and technologies through diverse program platforms and channels, within reasonable limits. Many technologies for point-of-use disinfection can be manufactured in-country (e.g. chlorine solution, ceramic filters), while others may be more effectively produced for regional or international distribution. From the program perspective, it is ideal to have more than one option available, since no single technology will be universally applicable to all situations, while keeping the overall number of options reasonable so that their promotion is fairly well-focused. Public-private partnerships for both manufacture and distribution are an important part of the USG programmatic approach on this issue, with public funds largely targeted for promotion efforts.

Currently, the USG focus is on chlorination at the household level, working with two systems: the Safe Water System developed by the Centers for Disease Control and Prevention (CDC) and the Procter and Gamble PuR product. PuR combines chlorination with flocculation to remove suspended sediment, which is particularly important for populations relying on surface water supplies. Both approaches are closely coupled with education on related hygiene practices, including protected storage and hand washing. Implementation has been through non-

governmental organizations with USAID support for implementation, CDC technical assistance, and P&G financial and technical support (in the case of PuR).

Over the longer term, it is envisioned that other point-of-use technologies and approaches will become part of the USG programs in this area. USAID also participates in public-private collaboration focused on changing behaviors related to various technologies for treating household water, sharing knowledge, and identifying opportunities for country-level scale-up.

At the policy level, the USG, in collaboration with other international partners, promotes the safe storage, transport, and point-of-use disinfection of drinking water supplies and is a founding member of the International Network to Promote Household Water Treatment and Safe Storage. With a secretariat based at WHO, the Network promotes the rapid scale up of efforts for protecting, filtering and disinfecting drinking water at point of use. It has proven to be an effective platform for sharing knowledge, identifying opportunities for country-level scale-up, and forging partnerships for implementation.

Examples include:

- Production and social marketing of water treatment solutions: Diarrheal disease is one of the primary causes of mortality and morbidity among children under five in **Madagascar**. According to the 2003-2004 DHS, some 65 percent of Malagasy households do not have access to safe water. CDC and USAID interventions to address these problems are showing a positive impact, which can be attributed to the increased availability of highly subsidized socially marketed water treatment solution, Sûr'Eau, coupled with increasing the knowledge of hygiene and sanitation messages by rural households. Each bottle provides up to 2 months of clean water for a family of six for approximately $0.15. From October 2004 to September 2005, 601,372 bottles were sold, an increase of 10 percent from 2004.

- Safe Water Systems and HIV/AIDS: In 2001-2002, CDC demonstrated that the use of the Safe Water System (SWS) in people living with HIV/AIDS (PLWHA) in **Uganda** resulted in a 25 percent reduced risk of diarrheal diseases and a 33 percent reduction in the number of days ill with diarrhea. The SWS has been incorporated into a preventive care package that has been distributed to over 40,000 PLWHA in an ongoing program.

- Use of PuR: Under a Global Development Alliance, USAID, Procter & Gamble, Johns Hopkins University, and PSI worked together in 2004-05 to promote PuR as one household-level solution to the problem of unsafe drinking water quality. Having personnel already trained in the use of PuR was critical to rapid deployment of the product to zones of **Pakistan** most severely affected by the earthquake of October, 2005.

Improving hygiene and sanitation. Within the context of hygiene and sanitation activities at the household level, the USG supports a behavior-centered approach focused on the prevention of diarrheal disease. Current areas of emphasis focus on improvements at large scale for three key hygiene practices: safe feces disposal, proper hand washing with soap, and point-of-use water treatment and safe storage (see "Safe Drinking Water Management," above). Each of

these interventions typically results in a 30-50 percent reduction in diarrhea prevalence in children under five, and collectively they can have greater impact, with as much as a two-thirds reduction in prevalence. Strategically, this behavior-centered approach has been described through the Hygiene Improvement Framework (HIF), which has also been adopted and further adapted by UNICEF, the World Bank, and other development partners. The key underlying principle for the HIF is that successful diarrhea prevention activities require intervention in three areas: access to hardware (water supply, sanitation facilities, water containers, soap, and appropriate water treatment technologies); hygiene promotion activities; and the overall environment in which hygiene improvement programs take place (policy, capacity building, partnerships, financing, community participation).

In hygiene and sanitation, success ultimately relies on using the HIF approach to change norms of behavior. As part of the USG strategy for hygiene and sanitation, USAID will work to incorporate hygiene improvement activities into diverse health and non-health programs, focused on strengthening partnerships, coordinating efforts between the various involved actors, integrating hygiene and sanitation promotion into other sectoral programs (for example, education, urban development, economic growth, environment/source protection, gender), and engaging the private and commercial sectors to ensure products and services are available. Examples include public-private partnerships with soap manufacturers to promote hand washing; working with schools as well as the antenatal care system on hygiene promotion to reach children and their caregivers; and approaches to sanitation relying largely on working with local entrepreneurs to make appropriate and affordable products available, reserving public and donor funding for various demand creation activities.

Examples include:

- Global Public-Private Partnership to Promote Hand Washing with Soap: USAID and CDC have joined forces with governments, development agencies and private industry to promote hand washing with soap in order to reduce the incidence of diarrheal diseases. A published review of all the available evidence suggests that hand washing with soap could reduce diarrhea incidence by 42-46 percent. Combining the expertise, facilities and resources of the soap industry and governments, the initiative aims to both impact health and expand the soap markets in developing countries. Other partners include World Bank and the Water and Sanitation Program (WSP), London School of Hygiene and Tropical Medicine ((LSHTM), Academy for Educational Development, UNICEF, Bank-Netherlands Water Partnership, soap manufacturers, and others. Hand washing initiatives have been launched in **Ghana**, **Peru**, **Senegal**, and **Nepal** with plans for similar partnerships underway in **Colombia**, **Vietnam**, **Indonesia** and other countries.

5.4.5 Science, engineering, and technology cooperation

U.S. federal agencies are global leaders in many areas of biological, physical or social science and engineering and technology expertise related to water that is of great applicability around the world. In areas such as pollution prevention, satellite remote sensing, global information systems, modeling and simulation, and high-performance computing are all niches where U.S. water-related science and technology leads the world. The U.S. is also well-positioned to help

countries to augment their water supplies using desalination and wastewater recycling technologies through sharing new technologies. Many of these activities are appropriate for transforming countries where institutions exist for productive science and technology partnerships. Possible countries include India, Mexico, and Pakistan.

Examples include:

- Radio and Internet Technology for Communication of Weather and Climate Information to Rural Communities for Sustainable Development in Africa (RANET): USAID's Office of U.S. Foreign Disaster Assistance is presently working with NOAA and other National Meteorological and Hydrological Services to enhance the integration of meteorological information for disaster reduction and socioeconomic development. RANET aims to improve access to weather, climate, and related information such as health, hygiene, education, HIV/AIDS, for resource-poor populations in remote locations in order to assist in day-to-day resource management decisions and to prepare for natural hazards.

- Middle East Regional Cooperation (MERC) and Cooperative Development Research (CDR) Programs: USAID manages two open-topic, competitive research grants programs focused on applying scientific and technical expertise to solve issues relevant to regional development. The MERC Program specifically focuses on promoting technical cooperation between Arab and Israeli scientists, students, and communities in the Middle East; the CDR Program funds collaborative applied research involving scientists from Israel (and sometimes the U.S.) working with their counterparts in developing countries. Under MERC, Jordanian, Palestinian, and Israeli scientists are studying water quality along the Jordan River, and scientists from the West Bank, Israel, and Jordan are working together to evaluate the potential environmental impacts of the proposed Red-Dead Sea Conduit. Highlights of CDR projects related to water include a pilot scale project in Senegal on slow sand filtration, through which outside funds were attracted for a full-scale plant with the capacity to treat 5,000 m^3 per day of wastewater. In a project on sustainable development and protection of water resources in the irrigated land of the Ily river delta, Kazakh and Israeli scientists developed strategies to reduce soil salinization, water use, and surface and groundwater contamination by modifying current irrigation practices. A CDR-project in Kyrgyzstan established a system to broadcast daily irrigation requirements to farmers to help conserve water and limit salinization from caused by over-irrigation.

- Asia Flood Network: NOAA and USGS provide technical assistance to USAID's Office of U.S. Foreign Disaster Assistance (OFDA) to strengthen the capacity of national and regional institutions in climate, weather, and hydrometeorogical forecasting and to reduce vulnerability to natural hazards. NOAA and USGS have cooperated to integrate complementary technologies to mitigate the negative aspects of floods and simplify their application for developing-world counterparts. NOAA's operational responsibilities include weather monitoring – nationally as well as globally via geostationary and polar-orbiting satellites – and river and flood forecasting.

Deep aquifer research: The United States Geological Survey has been asked by USAID and Department of State in Dhaka to assist the government in Bangladesh to develop a strategy to better understand the ground-water arsenic situation and in particular to study possible alternative sources of clean water. Many of the activities include capacity-building activities, including: test drilling and aquifer testing in cooperation with the Bangladesh Water Development Board (BWDB); core drilling and resistivity studies in cooperation with the Geological Survey of Bangladesh (GSB); geophysical logging conducted in cooperation with Dhaka University Geology Department, and Columbia University, and water sampling and analysis in cooperation with the Bangladesh Atomic Energy Commission (BAEC).

5.4.6 Humanitarian assistance and emergency response

Water and sanitation, and relevant hygiene education and health programs constitute a small but normally recurring portion of humanitarian assistance in responding to natural disasters and human-caused catastrophes abroad. Conflict and natural disasters can damage water systems and destroy access to water, reducing the supply required to meet the basic needs of affected populations. An influx of displaced populations may overburden existing water supplies, leading to conflict and life-threatening conditions. During crisis, people are less likely to wash, and gastrointestinal and other water-caused diseases may become prevalent and even life-threatening. The first goal of water interventions in humanitarian crises is to save lives, which means providing sufficient water of acceptable quality to meet daily human requirements and establishing basic hygiene and sanitation measures to prevent the spread of disease. The second goal is to rehabilitate and improve water resource systems and increase levels of local capacity to ensure continuing maintenance and operation of water and sanitation systems and hygiene practices. The third goal is to mitigate the impact of recurring natural disasters. These activities include: risk reduction programs, such as capacity building of community, local, national and regional entities on early warning of extreme hydrometeorological events to lessen the impacts of potential disasters; and managing water resources to address the issue of cross-sectoral water demands such as agriculture, livestock, and conservation and to lessen risk for potential disasters.

Assessing the options for water and sanitation interventions requires a clear understanding of current conditions and cultural issues and dialogue with local groups and communities to establish a participatory framework. Increasing access to clean water and sanitation during emergencies can take many forms: tapping into ground water resources, community ponds or water harvesting structures; refurbishing/repairing existing systems; water disinfection; latrine constructions; hygiene education; and trucking potable water to affected populations. In responding to disasters, the USG implements the majority of these interventions in partnership with local or international NGOs, public international organizations, private voluntary organizations, and consultants. In 2005, approximately $96 million from the International Disaster and Famine Assistance (IDFA) account was directed toward water, sanitation, and hygiene activities.

These activities are undertaken in response to humanitarian crisis.

Examples include:

- Complex emergencies: USAID is currently providing water and sanitation services to more than 1.5 million people residing in Internally Displaced Population (IDP) camps in Darfur, **Sudan**. Water provision comes primarily through borehole wells, as alternative water resource options in Darfur's desert environment are limited. Sanitation activities focus on hygiene promotion and latrine construction in order to reduce the potential for the spread of disease within camp settings. These services provide life-sustaining support to families that do not have access to their traditional water points and are reliant on the international community for assistance.

- Tsunami reconstruction: The tsunami that hit Aceh, **Indonesia,** completely destroyed the water infrastructure of the major towns and rural villages. In rural areas, USAID supported the rehabilitation and desalinization of existing wells. In some cases this proved successful. In cases where it did not, USAID worked with communities to construct new water points in order to meet urgent water needs of affected population and to support the re-establishment of lost livelihoods. In addition, the CDC's Safe Water System was deployed in response to the tsunami in Aceh, **Indonesia**, **India**, and **Sri Lanka, and the Maldives**.

- Earthquake relief: Immediately following the October, 2005, earthquake in **Pakistan**, USAID established water and sanitation infrastructure in Internally Displaced Person camps. Following that immediate influx of people, USAID supported those families in rural villages whose water points had been destroyed. By rehabilitating piping networks that brought water from distant springs, USAID was able to assist with the provision of water to families at their points of origin without their having to migrate to camps for assistance.

5.5 Issues for further consideration

The following issues are highlighted because they represent considerable challenges to the provision of safe water and sanitation services. Although they are areas addressed by existing programs, they warrant more attention.

- **Increasing access for the poor.** The poor often lack water and sanitation systems, due either to the absence of systems or to exclusion by existing service providers. Extensive evidence is emerging from over two decades of programming in water and sanitation that service delivery targeting the poor requires attention to three key areas: policies which provide incentives to specifically include poor beneficiaries, improved institutional governance to improve service quality and access, and financing for infrastructure and service expansion. Specialized business and technical service models addressing these key areas will enable expansion of services to poor consumers on a sustainable basis.

- **Sanitation and wastewater treatment.** With half of the developing world's population having no access to any sanitary means of feces disposal, the sanitation gap clearly remains a major public health issue, in both rural and urban areas. In addition, many millions of urban residents with access to sewerage (and therefore technically with access to improved

Box 5.1: USAID Efforts to Meet the Water and Sanitation Goals in Africa (Source: USAID)

The ability of Sub-Saharan Africa countries to improve the health of their people, eradicate poverty, and empower women will depend in no small part on success in providing widespread access to clean water and sanitation. According to the most recent World Health Organization data, over 288 million people in Sub-Saharan Africa lack access to improved drinking water sources, and over 437 million lack access to improved sanitation. Millions of Africans die each year from preventable waterborne illnesses and up to half the region's population at any one time suffers from diseases related to unsafe drinking water and poor sanitation. In Sub-Saharan Africa, forty billion working hours are lost each year carrying water, and this burden falls primarily on women and girls. This time could be spent on productive activities and education.

USAID's drinking water and sanitation activities in Sub-Saharan Africa increase the availability of clean drinking water, protect drinking water sources from contamination, and provide access to improved sanitation. For example, residents in villages in southern Sudan are working with USAID to form committees to install and repair boreholes and water pumps. In Madagascar, USAID surpassed its annual target of 450,000 people receiving socially marketed water disinfectant solution, and the local organization Sûr'Eau ('Safe Water') provided over 529,000 people with one year's supply of clean drinking water in the process. In South Africa, a USAID loan guarantee program enabled the Vlakfontein Outfall Sewer District in Johannesburg to provide sanitation facilities to approximately 100,000 people.

Annex C details the current planning that USAID is undertaking in developing its strategic approach to water and sanitation activities in Africa. As noted in that annex, one key factor in the Agency's planning is the large scale of the water and sanitation problem in the region. USAID must take advantage of opportunities to substantially leverage its own resources through public-private partnerships, collaboration with regional institutions, other donors, intergovernmental organizations and international finance institutions, and by encouraging host government investment in this sector. The Agency must also invest in activities that mobilize and facilitate the investment of private funds in this sector.

Examples of highly leveraged USAID investments in water and sanitation in Africa include the West Africa Water Initiative (WAWI) the Millennium Water Alliance (MWA) Water and Sanitation Program in Ethiopia, and the Global Community Watersheds Partnerships Program with The Coca-Cola Company. WAWI unites USAID with the Hilton Foundation, international organizations, local governments and communities to provide water supply and sanitation service delivery for nearly half a million people in Ghana, Mali, and Niger. The MWA program in Ethiopia leveraged private funding from several international non-governmental organizations and local resources to create a cost-effective community-based program providing improved water and sanitation to 70,000 Ethiopians. The Alliance with Coca-Cola is increasing access to safe water supply, promoting sanitation and hygiene, and protecting and conserving local water resources in Mali and Malawi, with activities in several more African countries projected to start later this year. USAID is also currently developing other partnerships with the private sector that will provide improved water and sanitation services to millions of Africans.

USAID funding for water and sanitation in Africa has increased steadily over the past five years. In Fiscal Year (FY) 2006, USAID funding for water and sanitation in Africa will exceed the $50 million target set in the Agency's FY 2006 Appropriations Act, while also leveraging millions more in private sector funds. USAID will work to mobilize the hundreds of millions of dollars in private investment and philanthropic funding available for investment in this sector and this region.

sanitation) are connected to wastewater collection systems for which there is no treatment before discharge to open water bodies. Estimates suggest 90 percent of discharged wastewater in the developing world is not treated[52]. Concerns have been raised about the costs and environmental sustainability of improving sanitation to current industrialized country standards that focus on waterborne sewerage as the method of choice. Nevertheless, alternative technologies, such as those based on ecological sanitation, have only been tested at pilot scale. While the sanitation approaches in the section "Protection of Public Health," above, are focused on the demand stimulation for the household dimensions of sanitation, clearly the problem of sanitation at community- and higher scale merits increased attention.

- **Urban and peri-urban issues.** By 2010 more than 50 percent of the world's population will be living in cities. To meet the internationally agreed goals on water and sanitation 961 million urban dwellers must gain access to improved water supplies and over 1 billion must gain access to improved sanitation. Large populations and high population densities represent special challenges for basic service provision including safe water supply, sewage treatment and disposal, and environmental protection. They also provide a concrete context for action. Specialized approaches will be needed to improve the planning and mobilize the resources to meet human needs.

- **Adaptation to climate variability.** Many water providers are already thinking about ways to build systems that can withstand drier conditions and greater demand on municipal water systems. Other communities are investigating changing agricultural practices to conserve water and increasing planning and mitigation strategies for floods and other disasters. Adapting to climate variability in both the short- and long-term in order to increase water and food security requires building flexible municipal systems, increasing early warning of severe weather events, and better strategies to deal with impacts on water and agriculture.

- **Prevention of watershed contamination.** Numerous ecological assessments and international regimes recognize that further degradation of water supply quantity and quality will further stress the resources the world's water crisis and stretch the global resources. Therefore strategies to improve access to water are only complete when they incorporate a threat assessment and activities dedicated to protect the resources (headwaters, wetlands, estuaries, riparian zones). As the challenges posed by growing populations, decreasing water quality, and reduced ecological capacity to restore water resources mount, prevention of watershed contamination will require committed action.

[52] UNDP, UNEP, the World Bank, and the World Resources Institute. World Resources 2000-2001. Washington, D.C. 2000.