

## **Annex A: Summary of U.S. Agency Missions and Capabilities in Water**

The range of activity types related to water resources analysis, development and management currently carried out by USG agencies internationally is extremely broad, reflecting the recognition of U.S. leadership in many areas of water resources activity.

Most recently, the bulk of USG resources have been spent in the area of water supply and sanitation infrastructure in the two major geographic areas of activity, the Middle East and U.S. border areas. This heavy weighting of resources in a few capital-intensive projects gives a somewhat distorted picture of the ways U.S. capabilities are generally brought to bear across all the countries of the world, however. With a few exceptions, U.S. involvement in international water issues does not directly involve construction of large-scale water works or infrastructure. Rather, the USG, through its international agencies such as the Department of State, USAID, and PC, and through intermittent domestic agency participation, engages in activities such as the following:

- 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;
- Capacity building in scientific, technical, financial, operations and management, policy, and legal aspects of water resources management;
- Securing or leveraging financing necessary to meet water resource management needs, including strengthening enabling environments for private sector investment;
- 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
- Humanitarian assistance to address immediate water and sanitation needs.

Other areas of intervention include watershed or basin-level hydrogeological analysis and water resources planning and management; agricultural water quantity and quality; environmental protection and natural resources management; preparedness and response to extreme events;<sup>53</sup> climate forecasting and monitoring; the economic uses of water, including hydropower and fisheries; and management of dams, navigation channels, etc. Not surprisingly, while USAID is

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<sup>53</sup> Some mitigation activities are also included in these figures, but the bulk of resources is devoted to restoration after the fact.

involved in the full breadth of activities, domestic agencies with special expertise typically are often focused in just one or two of these areas.

**Table A.1. Summary of USG Agency Capabilities in the Water Sector**

AGENCY	MISSION	CAPABILITIES
<b>FOREIGN AFFAIRS AGENCIES</b>		
<p><b>U.S. Department of State</b></p>	<p>As the lead institution for the conduct of diplomacy and the establishment of foreign policy, the Department of State works to increase access to safe water and sanitation services; promote the sustainable management of water resources; remove water as a source of tension between or among countries, and use water as a diplomatic tool to build confidence and promote cooperation among countries. The Department of State also manages or coordinates a number of accounts that may support water-related assistance.</p>	<ul style="list-style-type: none"> <li>• Leadership on multilateral, regional, and bilateral processes and fora</li> <li>• Raising the profile linking diplomacy and development on water and water related issues</li> <li>• Leadership and coordination of U.S. policy development on international water</li> <li>• Representation of U.S. interests to foreign governments and international organizations</li> </ul>
<p><b>U.S. Agency for International Development</b></p>	<p>USAID is the lead foreign affairs agency responsible for the USG development and humanitarian assistance program. As such, it develops strategies, plans and implements a wide range of program activities in targeted countries, in concert with host governments and the private and NGO sectors in addition to carrying out humanitarian assistance. In carrying out its mandate, it works with a host of other USG agencies and the US private sector.</p>	<ul style="list-style-type: none"> <li>• Repository and clearinghouse for technical information on water resources management</li> <li>• In-country presence, perspective and long-term relationships to support the technical, managerial and diplomatic aspects of USG water resources efforts abroad</li> <li>• Water resources strategy formulation by USAID Missions</li> <li>• Water-related project planning and implementation oversight, and management of third party implementers</li> <li>• Facilitation of governance processes and policy development</li> <li>• Facilitation of financing mechanisms for improved water resources management</li> <li>• Provision of humanitarian assistance to address the immediate needs for water/sanitation, hygiene education and emergency health for natural and human caused disasters in addition to preparedness, prevention and mitigation activities.</li> </ul>
<p><b>Peace Corps</b></p>	<p>The Peace Corps sponsors volunteers in developing countries around the world to promote peace and friendship and sustainable development through direct assistance to communities. The agency strives to simultaneously help the people of interested countries in meeting their need for trained men and women; help promote a better understanding of Americans on the part of the peoples served; and help promote a better understanding of other peoples on the part of Americans.</p>	<ul style="list-style-type: none"> <li>• Technical support to water and sanitation, soil and water conservation, sustainable agriculture and forestry, and conservation that directly improve the quality of water resources management, especially in poorer communities.</li> <li>• Leveraging of modest levels of resources to assist in water resources management</li> <li>• Grassroots presence and perspective to support USG water resources efforts abroad</li> </ul>

<b>Department of Defense</b>	The Department of Defense has a primary mission to ensure the military security of the United States throughout the world. Through its Office of the Undersecretary - Environmental Security has the responsibility to employ water resources expertise related to the successful implementation of military actions.	<ul style="list-style-type: none"> <li>• Satellite imagery acquisition and interpretation for water resources assessment and forecasting and management</li> <li>• Technical support to hydrology and well drilling</li> <li>• Technical assistance in preventive health practices and land management and forestry</li> <li>• Provision of heavy logistics</li> </ul>
<b>Army Corps of Engineers (DOD)</b>	The U.S. Corps of Engineers is engaged in planning (including decision support systems), design, construction, operation and maintenance of projects for navigation, flood damage reduction and flood plain management, coastal storm damage reduction, hydropower, water supply, emergency operations, and environmental protection and restoration.	<ul style="list-style-type: none"> <li>• Planning, design engineering, construction management, and operation/maintenance of water resource projects, especially large civil works including hydropower projects, water supply projects, and navigation infrastructure (ports, harbors and channels)</li> <li>• Research and development related to water quantity and quality management</li> <li>• Data collection, research and development related to coastal, ocean, and hydrologic engineering; science and engineering in cold regions; geological and soil characteristics; structural engineering; and topographic aspects of water resources management</li> <li>• Improved planning methodologies to address economic, social, institutional and environmental needs in water resources planning policy, including development of decision-making software</li> <li>• Flood control and flood and storm damage reduction and mitigation, including floodplain planning, construction of flood protection projects, shore protection work, and disaster response</li> <li>• Environmental restoration related to ACE projects</li> </ul>
<b>Department of the Treasury</b>	The Treasury Department is the lead agency responsible for U.S. participation in the international financial institutions. These include the multilateral development banks (MDBs), most of which finance substantial programs in support of water supply and sanitation. The also provide policy advice, capacity building, and sector analysis to help strengthen the operational and financial sustainability of water systems globally.	<ul style="list-style-type: none"> <li>• Negotiation of MDB general capital increases and replenishment agreements</li> <li>• Leadership in establishing MDB priorities and strategies</li> <li>• Oversight of MDB implementation of operational policies, country strategies, and lending operations</li> <li>• Liaison with relevant USG agencies, the private sector, and NGOs</li> <li>• Coordination with other international and regional institutions and initiatives, such the G-8 and APEC</li> </ul>

<b>DOMESTIC AGENCIES</b>		
<b>Department of Agriculture</b>		
<b>Forest Service</b>	<p>The mission of the USDA Forest Service is to sustain the health, diversity, and productivity of the Nation’s forests and grasslands to meet the needs of present and future generations. US Forest Service International Programs promotes sustainable forest management and biodiversity conservation internationally.</p>	<ul style="list-style-type: none"> <li>• Research, technical expertise, and tools for land and water management, including: forest and grassland watershed management, fire planning, soil and water conservation, and hydrology.</li> <li>• Technical assistance and tools for the design of agriculture buffer areas.</li> <li>• Technical assistance for watershed assessments and watershed planning.</li> <li>• Partnership building for water resource planning and watershed management.</li> <li>• Technical assistance on road construction to protect watersheds</li> <li>• Train and mobilize personnel domestically to respond and mitigate foreign disasters, including drought and floods.</li> <li>• Train and provide technical expertise to partners overseas in emergency preparedness, response, and disaster mitigation, including drought and floods.</li> </ul>
<b>National Resource Conservation Service</b>	<p>The NRCS provides technical and financial assistance to help private land owners, agricultural producers, and others conserve their soil, water and other natural resources. They provide technical assistance based on sound science and suited to a customer’s specific needs. They also provide financial assistance for many conservation activities.</p>	<ul style="list-style-type: none"> <li>• Manage natural resource conservation programs that provide environmental, societal, financial, and technical benefits.</li> <li>• Provide technical expertise in such areas as animal husbandry and clean water, ecological sciences, engineering, resource economics, and social sciences.</li> <li>• Provide expertise in soil science and leadership for soil surveys and for the National Resources Inventory, which assesses natural resource conditions and trends in the United States.</li> <li>• Provide technical expertise to foreign governments, and participate in international scientific and technical exchanges.</li> </ul>
<b>Foreign Agricultural Service</b>	<p>The Foreign Agricultural Service (FAS) works to improve foreign market access for U.S. products, build new markets, improve the competitive position of U.S. agriculture in the global marketplace, and provide food aid and technical assistance to foreign countries. The FAS goals for international development are to increase economic growth and reduce hunger through agricultural development, and to open agricultural markets and integrate developing countries into the global economy.</p>	<ul style="list-style-type: none"> <li>• International training, technical assistance, and other collaborative activities with developing and transitional countries to facilitate trade and promote food security</li> <li>• Trade capacity-building programs to increase the benefits to developing nations participating in global agricultural markets</li> </ul>

<p><b>Agricultural Research Service (ARS)</b></p>	<p>As the principal in-house research arm of the USDA, ARS conducts research to develop and transfer solutions to agricultural problems of high national priority and provides information access and dissemination to -- ensure high quality, safe food and other agricultural products, assess the nutritional needs of Americans, sustain a competitive agricultural economy, enhance the natural resource base and the environment, and provide economic opportunities to rural citizens, communities, and society as a whole.</p>	<ul style="list-style-type: none"> <li>• Design of on-farm and regional irrigation (drip, sprinkler, and surface) and drainage systems.</li> <li>• Integrated technologies for assessing impacts of soil salinity on drainage waters were developed to improve water quality</li> <li>• Design complete or modular water treatment plants to address both rural waste treatment plant needs as well as needs arising from confined animal operations</li> <li>• Risk assessment analysis of the impact of utilizing wastewater and predicting the impact on environmental quality through the use of its extensive environmental modeling capabilities</li> <li>• Capabilities and analytical expertise in identifying toxic chemicals and elements (i.e., boron, selenium etc) in waste water streams</li> <li>• Agricultural watershed management research to develop tools for managing watersheds by mitigating drought, forecasting water supplies, and making policy decisions</li> <li>• Water quality protection and management</li> <li>• Soil and water research</li> <li>• Global change related research by studying changes in weather and the water cycle at farm, ranch, and regional scales</li> </ul>
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**Department of Commerce**

<p><b>International Trade Administration</b></p>	<p>The ITA leads the Environmental Technologies Export Initiative of 1994, to enhance the competitiveness of U.S. envirotech companies globally and to increase U.S. envirotech exports. The Agency leads the initiative in close cooperation with other key members of the Trade Promotion Coordinating Committee (DOE, USAID, EPA, DOE, Export/Import Bank, TDA, etc.), and promotes the following objectives:</p> <ol style="list-style-type: none"> <li>(1) implement the President’s national export strategy to strengthen trade advocacy, trade promotion, and the Trade Promotion Coordinating Committee</li> <li>(2) More closely align trade objectives with U.S. foreign policy</li> <li>(3) Enforce U.S. trade laws and agreements to promote free and fair trade, expand trade, and promote law enforcement and compliance monitoring</li> <li>(4) Strengthen and institutionalize trade advocacy efforts, placing a special emphasis on the “Big Emerging Markets” without losing focus on mature markets.</li> </ol>	<ul style="list-style-type: none"> <li>• Advocacy by high-level USG officials to promote U.S. firms</li> <li>• Comprehensive information resources on all federal government export assistance programs and multilateral development bank programs and opportunities</li> <li>• Commercial officer presence in U.S. embassies around the world to assist in promoting U.S. envirotech firms abroad</li> <li>• Organization of U.S. business trade missions to potential markets around the world</li> </ul>
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<p><b>National Oceanic and Atmospheric Administration</b></p>	<p>NOAA has technical responsibility stretching from the surface of the sun to the bottom of the ocean. Most of the Agency’s work is directed to understand and predict changes in the Earth’s environment and conserve and manage coastal and marine resources to meet economic, social, and environmental needs.</p>	<ul style="list-style-type: none"> <li>• Weather and Climate Forecasts – rainfall, floods, droughts, storms and related hazards</li> <li>• Climate Prediction - rainfall, floods, droughts, storms and related hazards, medium and long-term water availability, USGCRP water cycle initiative</li> <li>• Information - data acquisition, storage and dissemination</li> <li>• River and Flood Forecasting - river stage monitoring, hydrology and aquifer recharge</li> <li>• Remote sensing - products which identify landcover, water presence/availability, snowpack and connection to runoff and reservoir level modeling, drought and desertification, and coastal and marine events related to water such as movement of harmful algal blooms</li> <li>• Coastal and Estuarine Management - water quality, habitat, hazard mitigation, storms, ports (navigation issues such as dredging and siltation), closely related to watershed management, estuarine and coastal reserves, sanctuaries, and protected areas, coral reef ecosystem monitoring and management</li> <li>• Land-based sources of marine degradation - the effects of land-based activities, primarily, on the nearshore and coastal environments, such as sewage, agricultural runoff, runoff from roads etc, industrial production, harmful algal blooms, physical alteration, habitat destruction</li> <li>• Habitat alteration - water related changes to coastal and marine ecosystems, including quality of introduced fresh water (pollution, temperature), and the quantity</li> <li>• Aquaculture - water quality, impacts on environment, harmful algal blooms</li> </ul>
<p><b>Department of Energy</b></p>	<p>The Department of Energy mission includes national security, science and technology, energy security and environmental quality. The agency has made a long-term investment in water-related technical questions in recognition that water and energy are two major elements in sustainable development and are inextricably linked.</p>	<ul style="list-style-type: none"> <li>• Technical assistance in groundwater contamination, water monitoring, wastewater treatment and pollution prevention</li> <li>• Hydrogeological and contaminant transport modeling</li> <li>• Radioactive waste management</li> <li>• Water and energy conservation technologies</li> <li>• Tools for measurement, remote sensing, and monitoring water</li> <li>• Modeling and high-performance computing capacity</li> <li>• Renewable energy technologies for water pumping</li> <li>• Atmospheric and ocean physics and global impacts research.</li> </ul>

<b>Department of Health and Human Services</b>		
<b>Centers for Disease Control and Prevention</b>	<p>The HHS/CDC is the sentinel organization for the health of people in the United States and throughout the world and strives to protect people's health and safety, provide reliable health information, and to improve health through strong partnerships.</p> <p>HHS/CDC accomplishes this mission by working with partners throughout the nation and the world to monitor health, detect and investigate health problems, conduct research to enhance prevention, develop and advocate sound public health policies, implement prevention strategies, promote healthy behaviors, foster safe and healthful environments, and provide leadership and training.</p> <p>Those functions are the backbone of the HHS/CDC mission. The steps needed to accomplish this mission are based on scientific excellence, requiring well-trained public health practitioners and leaders dedicated to high standards of quality and ethical practice.</p>	<ul style="list-style-type: none"> <li>• Measuring and monitoring public health effects from contaminated drinking water and recreational water</li> <li>• Waterborne disease outbreak surveillance and investigations</li> <li>• Support for local and state health departments delivering water-related programs</li> <li>• Water security, bioterrorism and emergency response support to local, state and other federal agencies</li> <li>• Epidemiologic investigations related to microbial, chemical and other contaminants in drinking water</li> <li>• Development and evaluation of water treatment and monitoring technology</li> <li>• Evaluation of waterborne disease prevention programs</li> <li>• Instituting WHO Water Safety Plans in communities</li> </ul>
<b>Department of the Interior</b>		
<b>National Park Service</b>	<p>The National Park Service preserves the unimpaired natural and cultural resources and values of the national park system for the enjoyment, education, and inspiration of this and future generations. The Park Service cooperates with partners to extend the benefits of natural and cultural resource conservation and outdoor recreation throughout this country and the world. The Service works in 378 areas covering more than 83 million acres in 49 States, the District of Columbia, American Samoa, Guam, Puerto Rico, Saipan, and the Virgin Islands.</p>	<ul style="list-style-type: none"> <li>• Planning, design, construction and maintenance of park facilities</li> <li>• Land use planning and management</li> <li>• Habitat protection and enhancement</li> <li>• Cultural and historic preservation</li> <li>• Environmental and cultural interpretation</li> <li>• Archaeological, historical, and ecological research</li> <li>• Law enforcement in park areas</li> <li>• Volunteer coordination and public outreach</li> </ul>



<p style="text-align: center;"><b>Bureau of Reclamation</b></p>	<p>The Bureau of Reclamation was originally founded to develop water resources in the arid and semiarid western states of the U.S., including maximizing water availability for irrigation and hydroelectric power generation. In recent decades, the Bureau has been making the transition from water development to water management, and is increasingly managing its projects to address an array of competing demands including irrigation, hydropower generation, municipal and industrial water supply, ecosystem-related needs, flood control and recreation. This has entailed greater emphasis on water reclamation and reuse, maintaining water quality, and encouraging water conservation.</p>	<ul style="list-style-type: none"> <li>• Cooperative conservation for the protection and enhancement of fish and wildlife habitat, addressing endangered species issues, and restoring migrating fish populations</li> <li>• Dam safety programs and maintenance and modernization of structures</li> <li>• Nonstructural operational improvements including revenue-setting and water transfer arrangements (water marketing)</li> <li>• Hydropower design, operation and maintenance</li> <li>• Water resources research and technology transfer</li> <li>• Building collaborative partnerships through community-based approaches to resolve challenges and conflicts in water management</li> <li>• Multiple-purpose reservoir operations</li> <li>• River basin management decision-support systems</li> <li>• Drought modeling and mitigation training</li> <li>• Water conservation, recycling and reuse</li> <li>• Alternative dispute resolution</li> <li>• Environmental impact assessment</li> <li>•</li> </ul>
<p style="text-align: center;"><b>Geological Survey</b></p>	<p>The USGS provides reliable, impartial, timely information needed to understand the nation’s water resources. USGS actively promotes the use of this information by decision-makers to:</p> <ol style="list-style-type: none"> <li>(1) minimize the loss of life and property as a result of water-related natural hazards such as floods, droughts, and land movement;</li> <li>(2) effectively manage groundwater and surface water resources for domestic, agricultural, commercial, industrial, recreational, and ecological uses;</li> <li>(3) protect and enhance water resources for human health, aquatic health, and environmental quality; and</li> <li>(4) contribute to wise physical and economic development of the nation’s resources for the benefit of present and future generations</li> </ol>	<ul style="list-style-type: none"> <li>• Basic hydrologic data collection (both quantity and quality)</li> <li>• Assessment of water availability, water quality, and water-related hazards at scales ranging from single data-collection sites to regional and national levels</li> <li>• Interpretive study and predictive model development to describe the potential consequences of water-related management actions (e.g., altered flow regimes caused by reservoir operations and diversions, groundwater withdrawals, exposure to agricultural chemicals, etc.)</li> <li>• New methodologies for acquiring water resources information, including methods of data collection, quality assurance, data management, laboratory analysis, data analysis and simulation modeling</li> <li>• State of the art hydrologic system management through computer models and GIS</li> <li>• Research and data collection on surface water/ groundwater interactions</li> <li>• Technology transfer, training, institutional strengthening</li> </ul>

<p><b>Fish and Wildlife Service</b></p>	<p>The U.S. Fish and Wildlife Service has a primary goal to conserve, protect and enhance fish and wildlife and their habitats for the continuing benefit of the American people. Among its key functions, the Service enforces federal wildlife laws, protects endangered species, manages migratory birds, restores nationally significant fisheries, conserves and restores wildlife habitat such as wetlands, and helps foreign governments with their international conservation efforts.</p>	<ul style="list-style-type: none"> <li>• Habitat restoration and protection for endangered and threatened species</li> <li>• Restoration of fisheries</li> <li>• Technical assistance in management of wildlife parks and reserves</li> <li>• Legal and regulatory development for the protection of fish and wildlife and their habitats</li> <li>• Implementation of international treaties, conventions and laws related to biodiversity, including CITES</li> </ul>
<p><b>Environmental Protection Agency</b></p>	<p>EPA is one of the primary government organizations responsible for the protection of human health and natural ecosystems. The Agency plays a major role in the regulation, protection and improvement of water resources and supplies of the United States.</p>	<ul style="list-style-type: none"> <li>• Legal, regulatory and standards development and enforcement</li> <li>• Oversight of design, construction and maintenance of sewage treatment facilities</li> <li>• Technical approaches for ensuring safe drinking water and improved water quality</li> <li>• Techniques and approaches for preventing and reducing point and non-point pollution</li> <li>• Water resources program development</li> <li>• Capacity building for environmental professionals</li> <li>• Community participation approaches in watershed protection and drinking water source improvement</li> <li>• Partnership building with other units of governments and outside organizations</li> </ul>
<p><b>Federal Emergency Management Agency</b></p>	<p>The Federal Emergency Management Agency is an independent agency of the federal government, reporting to the President. FEMA's mission is to reduce loss of life and property and protect our nation's critical infrastructure from all types of hazards through a comprehensive, risk-based, emergency management program of mitigation, preparedness, response and recovery. FEMA provides support to prevent and reduce risk before disaster strikes, thereby lowering the amount of federal money spent on picking up the pieces.</p>	<ul style="list-style-type: none"> <li>• Disaster recovery services including resources and personnel to perform necessary functions, such as transporting food and potable water to the area, assisting with medical aid and temporary housing for those whose homes are uninhabitable, and providing generators for electric power to keep hospitals and other essential facilities in operation.</li> <li>• Disaster planning, and development of mitigation programs</li> <li>• Training of emergency managers and local officials, including planning and managing disaster 'exercises'</li> <li>• Public outreach to better prepare for disasters</li> <li>• Technical assistance to communities to promote safe and wise land-use planning in floodplains</li> <li>• Management of federal flood insurance program</li> </ul>

<p><b>National Aeronautics and Space Administration</b></p>	<p>NASA seeks to expand frontiers in air and space through exploration and innovation, serving America and benefiting the quality of life on Earth. Among its primary objectives are:</p> <ol style="list-style-type: none"> <li>(1) To advance and communicate scientific knowledge and understanding of the Earth, the solar system, and the universe and use the environment of space for research;</li> <li>(2) To explore, use, and enable the development of space for human enterprise; and</li> <li>(3) To research, develop, verify, and transfer advanced aeronautics, space, and related technologies</li> </ol>	<ul style="list-style-type: none"> <li>• Remote-sensing technology for multiple applications, including data collection from satellites, aircraft, balloons, and ground research</li> <li>• Research and modeling on weather behavior, and the causes and patterns of natural disasters (floods, hurricanes, etc.)</li> <li>• Long-term measurements for global change research</li> <li>• Crop assessment and analysis to improve efficiency in the use of agricultural chemicals, reduce pollution and increase productivity</li> <li>• Assessment of aquatic ecosystems including coastal marshes and estuaries</li> </ul>
<p><b>National Science Foundation</b></p>	<p>The NSF is the nation's leader and steward of academic research in science and engineering. The Agency does not perform research internally, and instead provides funding to academic institutions and other non-federal organizations to conduct research in a wide variety of topics related to the hydro sciences. Most funding provided by NSF is researcher-driven and evaluated through a worldwide network of peer reviewers.</p>	<ul style="list-style-type: none"> <li>• Maintenance of a register of the current interests and qualifications of scientific and technical personnel and resources in the U.S.</li> <li>• Close working relationships with the scientific and technical community in the U.S. and abroad</li> <li>• Innovative, independent research in water resources topic areas including water contamination (anthropogenic and natural), causes and effects of desertification and extreme climate events, snow pack evaluation and studies, groundwater infiltration and recharge, complex geochemical and biogeochemical systems using isotopic tracers, and movement of water in karstic systems</li> <li>• Research in other fields related to water resources management, including chemistry, physics, geological sciences, meteorology, biological sciences, computer science, engineering and the social sciences.</li> <li>• Investigation into the social, cultural and economic aspects of water resources as they relate to decision, risk management, economics and law</li> </ul>