USAID
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BIODIVERSITY INTEGRATION REFERENCE SHEET

WATER & SANITATION

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INTEGRATING WATER AND SANITATION, AND BIODIVERSITY PROGRAMMING

ABOUT THIS SERIES

This reference sheet is one of a series of five whose purpose is to facilitate coordination and integration of biodiversity conservation with other key sectors at USAID by using a common format to present the interests of these sectors and opportunities for integration through collaboration, co-funding or single sector funds. These sheets are intended to be used throughout the program cycle by environment and non-environment officers alike. For the full series of sheets, please see the back cover of this reference sheet.

HOW TO USE THIS SHEET

The water and sanitation reference sheet introduces users to this sector at USAID and provides ideas for integration between biodiversity and water and sanitation. It starts by providing a brief introduction to water and sanitation programming at USAID, some common challenges and approaches, and examples of programming resources and monitoring and evaluation tools for the sector. It then provides some examples of opportunities for integration between water and sanitation, and biodiversity. The sheet closes with key documents and terms for the water and sanitation sector.

WHAT IS BIODIVERSITY PROGRAMMING?

The overall vision for biodiversity conservation programming at USAID is to conserve biodiversity for sustainable, resilient development. This is accomplished through two goals as articulated in the USAID Biodiversity Policy: (1) conserve biodiversity in priority places and thus help safeguard the diversity of natural ecosystems on Earth such as tropical forests, coral reefs and savannas, and the species they support; and (2) integrate biodiversity as an essential element of human development, considering both its benefits for and dependencies upon other program areas. More information on USAID's biodiversity programming is available from the Biodiversity Integration Reference Sheet.

Developing countries are home to roughly two-thirds of the Earth's biodiversity.

These countries play important roles as partners in safeguarding biodiversity around the world.

FUNDING REQUIREMENTS AND INTEGRATION

Both biodiversity and water and sanitation have funding requirements that guide USAID investments in these sectors. Biodiversity programming at USAID is guided by the USAID Biodiversity Code, which determines whether activities meet the legislative requirements for the use of biodiversity funds (see the Biodiversity Integration Reference Sheet for more information). Similarly, water and sanitation programming at USAID is guided by the Water for the World Act of 2014 and the USAID 2018-2022 Water and Development Implementation Plan, and must be linked to the achievement of sustainable drinking water, and/or sanitation services and/or hygiene behaviors. When these funding requirements overlap, co-funding of integrated biodiversity and water and sanitation programs may be possible. In the absence of co-funding, biodiversity and water sanitation staff may also co-design or collaborate on programs to maximize benefits to both sectors. See "Opportunities for Integration," below, for more information.

WHAT IS WATER & SANITATION PROGRAMMING?

WHY WATER & SANITATION PROGRAMMING?

Globally, nearly 2.1 billion people lack access to safe drinking water in their homes and about 4.5 billion lack access to proper sanitation. Disease caused by lack of safe drinking water and sanitation is the eighth-leading cause of deaths worldwide, killing more people every year than war and all other forms of violence. Children are particularly vulnerable to water-related diseases such as diarrhea, which is the second-leading cause of death among young children in low-income countries.

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WATER AND DEVELOPMENT

Water is an essential element for human health, prosperity and security. Ensuring access to safe drinking water and sanitation services for all citizens is a key step in a country's journey to self-reliance and prosperity. Reliable access to safe and affordable water, along with adequate sanitation and hygiene practices, underpins health and livelihoods. As such, a nation's economic prosperity and stability is profoundly shaped by the ability to effectively manage water resources and service.

WATER & SANITATION PROGRAMMING AT USAID

Water and sanitation programming at USAID is guided by the USAID Water and Development Implementation Plan. The implementation plan provides an Agency-wide goal and four development results that are needed to meet this goal, plus six complementary results. The plan contributes to the U.S. Government Global Water Strategy and was developed under the direction of the Water for the World Act of 2014, which authorizes directives for water, sanitation and hygiene (WASH) programming at USAID (see "Programming Resources," below).

USAID WATER AND DEVELOPMENT IMPLEMENTATION PLAN

GOAL

Increase the availability and sustainable management of safe water and sanitation for the underserved and most vulnerable

DEVELOPMENT RESULTS (DRs)

1. Strengthen sector governance and financing	2. Increase sustainable access and use of sanitation and the practice of key hygiene behaviors	3. Increase sustainable access to safe drinking water	4. Improve management of water resources

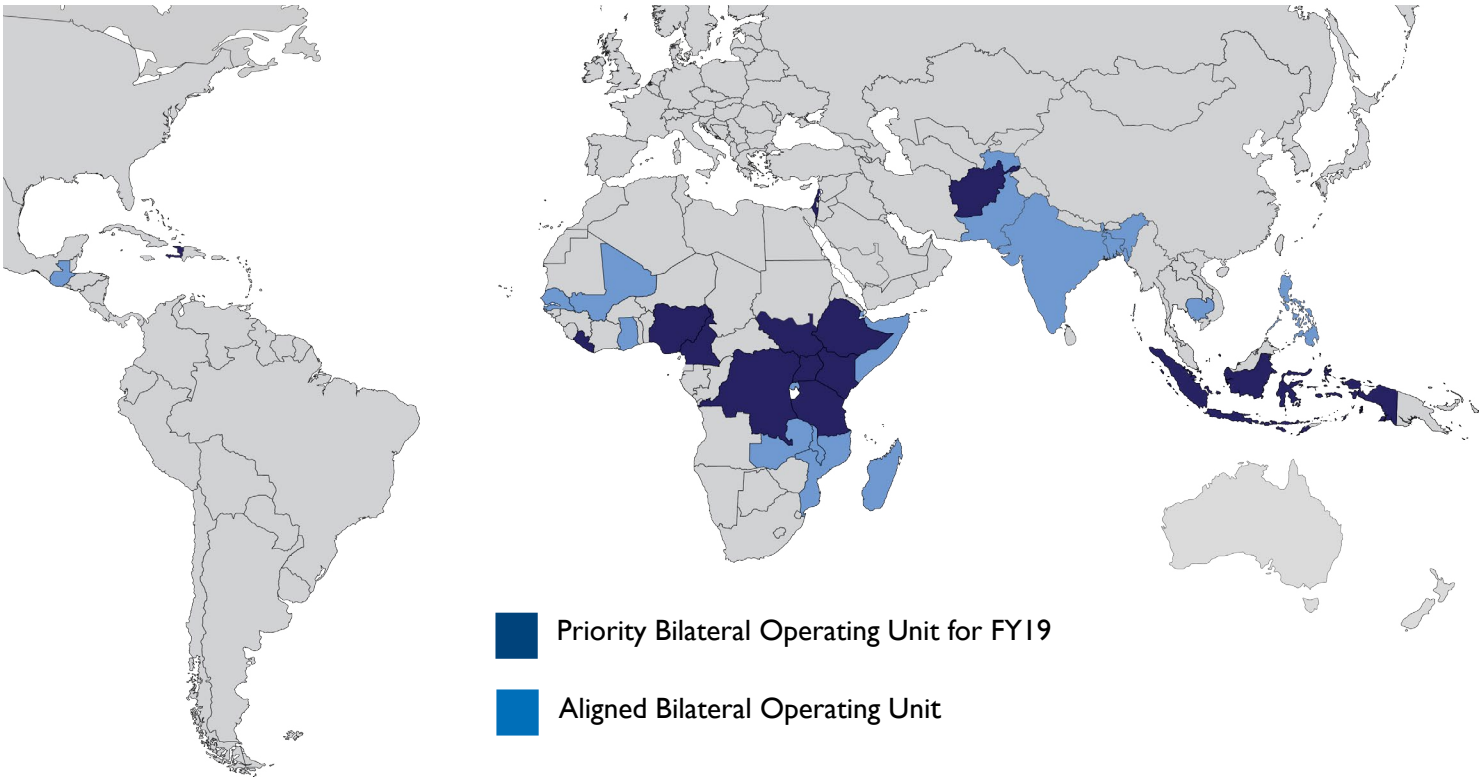
COMPLEMENTARY RESULTS

- Improved land and resource governance
- Well-educated populations
- Healthy freshwater ecosystems
- Access to emergency water and sanitation
- Efficient agricultural water management for food security
- Management of household water and sanitation for vector control

WHERE DO WE WORK?

As required by the Water for the World Act of 2014 (see "Programming Resources," below), the President of the United States annually designates at least 10 high-priority countries and regions for water and sanitation assistance. The selection of these operating units is based on needs and opportunity criteria such as rate of access to water and sanitation services, child mortality due to diarrheal disease and opportunity for transformative change.

In addition, USAID promotes water and sanitation programming in aligned operating units, defined as countries or regions that have significant water and sanitation needs and/or opportunities, and water and sanitation funding generally exceeding $2 million a year. High priority operating units differ from aligned countries in that they typically receive larger allocations of water and sanitation funding, and Congress is notified of their status as a priority. As of 2018, USAID provides assistance to 12 priority and 20 aligned countries and regions. For more information, see the USAID 2018-2022 Water and Development Implementation Plan.



REGIONAL OPERATING UNITS:

- East Africa Regional
- Middle East Regional
- Sahel Regional
- Southern Africa Regional
- West Africa Regional

CHALLENGES

The USAID Water and Development Implementation Plan recognizes nine key challenges for access to safe water and sanitation services.

Limited access to and use of safely managed sanitation

One-third of the world's population does not use basic sanitation. Open defecation—often in gutters, open waterbodies or fields—is still practiced by more than 890 million people globally.

Limited access to water and sanitation in schools and health facilities

Less than 40 percent of health facilities have basic drinking water services, and less than 20 percent provide access to improved sanitation.

Disproportionate impacts on women and girls

Women and girls often resort to open defecation at night or far from settlements out of privacy concerns. Furthermore, women and girls are often responsible for their families' household water, leading to the loss of billions of working hours every year.

Rapid population growth and urbanization

Sub-Saharan Africa's population has almost doubled since 1990, with much of this growth in urban areas, but urban water or sanitation access has actually declined in 14 of the region's 46 countries.

Declining surface and groundwater quality

High levels of pathogens that cause outbreaks, such as cholera and typhoid, are present in one-third of all rivers in Africa, Asia, Latin America and the Middle East.

Limited access to and unreliability of drinking water

Approximately 2 billion people drink from water sources that are fecally contaminated. Thirty to 50 percent of rural water systems in parts of sub-Saharan Africa fail within five years of being built.

Income and geographic inequalities

Two-thirds of those who still rely on unimproved surface drinking water live in sub-Saharan Africa; rural populations also lag significantly behind urban dwellers in access.

Lack of financing, institutional capacity and governance

To achieve universal access to safely managed water and sanitation services by 2030, capital expenditures of $114 billion per year will be required, which amounts to three times current global investment levels.

Physical water scarcity, over-abstraction and conflict over water resources

1.2 billion people live in areas of physical water scarcity; if trends in demand and climate extremes persist, nearly two-thirds of the world's population could be living in areas of severe water stress within the next decade.

APPROACHES

The USAID Water and Development Implementation Plan identifies 10 key intermediate results that contribute to the Agency goal and illustrative activities that advance these intermediate results.

Intermediate Result	Illustrative Activity
DR 1: Strengthen sector governance and financing	
Improved policies and institutional capacity for governance	Support host governments in the development and implementation of strategies, policies and institutional and regulatory frameworks to improve water resources management and water, sanitation and hygiene service delivery
Financing leveraged and mobilized	Develop blended financing mechanisms, credit support facilities and water funds to improve access to water and sanitation services
DR 2: Increase sustainable access and use of sanitation and the practice of key hygiene behaviors	
Increased access to basic sanitation services in households and institutions	Develop and implement market-based approaches to sanitation services, including behavior change, that seek to influence social norms and habits, and that account for gender and social inclusion
Improved management of fecal waste	Support municipal government to structure markets, regulate and monitor private and public fecal sludge collection, transport and treatment services
Key hygiene behaviors correctly and consistently adopted	Build capacity of community health workers, members of civil society and others with influence on individual and communal behaviors, habits and social norms
DR 3: Increase sustainable access to safe drinking water	
Increased access to basic drinking water services in households and institutions	Construct or rehabilitate new or existing water infrastructure, emphasizing reliable operations and maintenance arrangements, appropriate technology and siting, and efficient use and reuse of existing resources
Increased access to safely managed drinking water services	Develop and support implementation of water quality assurance and water safety plans
DR 4: Improve management of water resources	
Water supplies more equitably allocated	Convene and support multi-stakeholder water user groups for collaborative water resource planning and management
Expanded watershed protection and restoration to improve water quality and quantity	Support watershed conservation and restoration efforts that promote improved water quality and retention, and enhance aquifer recharge and filtration
Reduced vulnerability to water-related risks and stresses	Work with communities and institutions to prepare flood and drought risk assessments and maps to be used for planning and early warning

PROGRAMMING RESOURCES

Congressional Directives Funding for USAID programming in water and sanitation and in biodiversity conservation is guided by directives authorized by legislation. For water and sanitation, this is detailed in the Water for the World Act of 2014. Implementation of water and sanitation directives is guided by the USAID Water and Development Implementation Plan, which states that Water Directive funding must be linked to the achievement of sustainable drinking water and/or sanitation services, and/or hygiene behaviors. Additionally, activities to strengthen sector governance and financing to improve the management of water resources may also be eligible, if one of the activity's primary objectives is to increase drinking water or sanitation services and/or the sustainable availability, quality and environmental resilience of drinking water supply sources. In addition, these directives ask that programming in both sectors is targeted to focal countries (see "Where do we work?" above), further defining opportunities for integration.

USAID Water and Development Implementation Plan The 2018-2022 Water and Development Implementation Plan provides detailed guidance to USAID operating units and public stakeholders on how the Agency programs under the USAID Water and Development Implementation Plan and the U.S. Government Global Water Strategy. It lays out a full strategic framework to guide USAID water and sanitation programming and to help Agency operating units deliver development-oriented results (see "What is Water and Sanitation Programming," above). It also describes key development challenges (see "Challenges," above) and provides specific guidance for programming.

MONITORING, EVALUATION & LEARNING

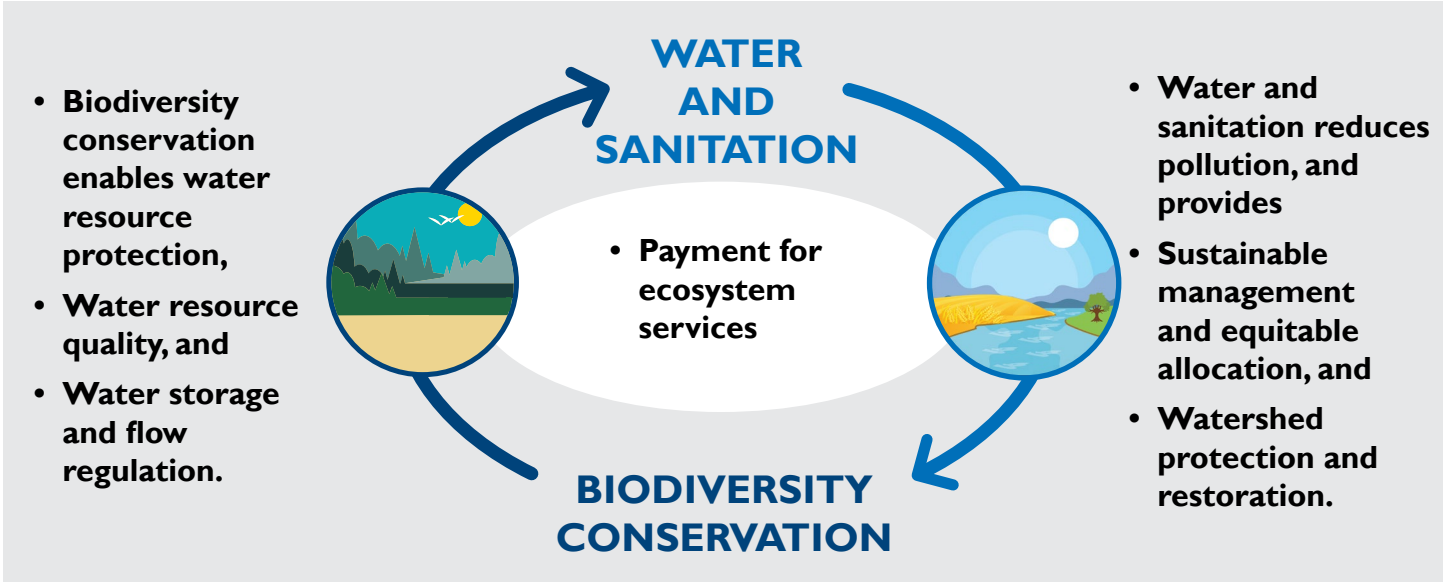
USAID water programs use a combination of standard and custom indicators to capture the results of water and sanitation programming, such that standard indicators enable data to be compared and aggregated across the Agency, while custom indicators facilitate the monitoring of the local context. At the Agency level, by 2022 USAID seeks to provide 15 million people with sustainable access to safe drinking water services (DR 3) and 8 million people with sustainable access to sanitation services (DR 2). Standard indicators are aligned with global standards as defined to measure progress toward United Nations Sustainable Development Goal 6, and are disaggregated by sex (required) and wealth quintile (where possible), to assess progress on gender equality and reaching the poorest and most vulnerable.

Development Results	Indicators (Custom or Standard)
DR 1: Governance & Finance	• Number of water and sanitation sector institutions strengthened to manage water resources or improve water supply and sanitation services as a result of USG assistance (HL.8.3-3) • Value of new funding mobilized to the water and sanitation sectors as a result of USG assistance (HL.8.4-1)
DR 2: Sanitation & Hygiene	• Number of people gaining access to a basic/safely managed sanitation service as a result of U.S. government assistance (HL.8.2-2, HL.8.2-3) • Percentage of households with soap and water at a handwashing station commonly used by family members (HL.8.2-5)
DR 3: Drinking Water Supply	• Number of people gaining access to a basic/safely managed drinking water source or receiving improved service quality (HL.8.1-1, HL.8.1-2, HL.8.1-3)
DR 4: Water Resource Management	• Number of people benefiting from the adoption and implementation of measures to improve water resources management as a result of USG assistance (HL.8.5-1)

OPPORTUNITIES FOR INTEGRATION WITH BIODIVERSITY CONSERVATION

The following section provides examples of the two-way relationship between biodiversity conservation and water and sanitation. These opportunities may be realized through collaboration, coordination, co-funding or single sector funds depending on the specific context.

Opportunities for Water and Sanitation and Biodiversity Integration Natural ecosystems such as forests, grasslands and wetlands harvest water, remove chemical and biological contaminants, and store and deliver this water for human use. USAID investments in biodiversity conservation, facilitated by payments for ecosystem services schemes, can thus complement and protect investments in WASH by increasing the reliability and quality of water flows to human populations. Indeed, recent research has found that forest cover in watersheds is a key predictor of rural child diarrheal disease. Similarly, by improving the treatment of waste water and increasing water use efficiency, USAID water programming can reduce the pollution of aquatic ecosystems and lessen the amount of water taken from rivers or lakes. Add-on investments in biodiversity conservation can potentially yield benefits for water programming and vice-versa. Following are examples of these opportunities and tools, based on both water and sanitation and biodiversity funds, that can facilitate this integration.



Legend: Opportunities for biodiversity and water and sanitation to benefit each other are presented on the left and right, and key tools for integration are presented in the center.

PAYMENT FOR ECOSYSTEM SERVICES

Payment for ecosystem services programs allow downstream water users to pay for the upstream water management that safeguards their water supply, including the conservation of natural ecosystems. In Indonesia, the USAID Environmental Services Program used a "Ridge to Reef" approach to water resources management that included forest conservation, critical land rehabilitation and water resource protection. Links were made between upstream and downstream communities through payments for ecosystem services where downstream water resource users pay or reward upstream water resource providers for safeguarding a sustainable supply of safe water.

WATER RESOURCE PROTECTION

Natural ecosystems are a critical source for drinking water supplies, as they can capture, store and filter rainwater for delivery to human populations. To help conserve the natural environments from which Indonesia's freshwater supply originates, USAID's LESTARI program secured protection for more than 24,000 square kilometers of forest through improved natural resource management in Indonesia's Aceh, Central Kalimantan and Papua Provinces thus improving the availability of safe water for consumption and sanitation. LESTARI is also assisting the Government of Indonesia to conserve the country's extraordinarily high levels of biodiversity contained within its vast remaining tracts of forests and mangroves, which contribute to local livelihoods in the form of a burgeoning ecotourism industry.

WATER RESOURCE QUALITY

Natural ecosystems also serve to purify water of both biological and chemical contaminants, and thus reduce water treatment costs and improve its availability for use. In Uganda, the USAID Africa Biodiversity Collaborative Group worked to improve watershed health and increase access to WASH services in 10 villages in the Budongo-Bugoma Forest Corridor. The project's conservation activities focused on tree planting in riverine forest in coordination with ongoing work to protect chimpanzee habitat. Through the development of protected springs in four villages and installation of a rainwater tank in each of five schools, this project doubled the number of potable water sources in the selected target villages and the number of schools with access to water within their premises.

WATER STORAGE AND FLOW REGULATION

Changes in climate bring changes in the timing and quantity of rain, resulting in water shocks ranging from drought to flooding. Due to their ability to capture and store water, natural ecosystems can balance water delivery and thus increase the resilience of water supply systems. The USAID RESILIM (Resilience in the Limpopo Basin Program) program reduced the vulnerability of people and ecosystems in South Africa and Mozambique through improved transboundary governance and management of natural resources. The program was grounded in a grassroots approach to understanding the systemic causes of vulnerability, including climate vulnerability, and promoted new ways of thinking and acting to promote integrated water and biodiversity management.

POLLUTION REDUCTION

By better treating human wastewater, USAID water programming can yield substantial benefits for aquatic ecosystems. With support from USAID, the Philippine Sanitation Alliance sought to conserve biodiversity in key biodiversity areas by reducing pollution discharged into the marine environment. The alliance contributed to conservation of biodiversity and protection of both ecosystems and public health by working with public and private sector partners to build wastewater treatment facilities in order to reduce the amount of pollution entering water bodies that flow into these areas; assisting cities to develop citywide action plans; and scaling up both private and public pilots through national associations. Making a direct link between pollution reduction and biodiversity conservation requires careful planning, but can yield substantial benefits for both sectors.

SUSTAINABLE MANAGEMENT AND EQUITABLE ALLOCATION

By promoting the equitable allocation and efficient use of water resources as part of DR 4 (see "Approaches," above), USAID water programming can both reduce costs to water-dependent populations and impacts upon natural ecosystems. Since 2010, the USAID Water Resources Integration Development Initiative (WARIDI) project has worked with Tanzania's public and private sectors, civil society and USAID partners to improve equitable delivery of water services and enhance watershed management approaches from the basin to the household level. Working within critically threatened watersheds, WARIDI promotes improved water resources management, improved service access, climate change adaptation and biodiversity conservation in Tanzania.

WATER PROTECTION AND RESTORATION

By taking a watershed approach to water resource management as part of DR4 (see "Approaches," above), USAID programming has the opportunity to consider and connect both the needs of human populations and the natural ecosystems that live alongside and often sustain them. USAID/Nepal's Program for Aquatic Natural Resources Improvement uses an integrated, whole-of-basin approach with activities at the watershed, river basin and national scales, to reduce threats to freshwater biodiversity and increase the ability of targeted human and ecological systems to adapt to the adverse impacts of climate change through improved water management.

KEY DOCUMENTS

This guide references a variety of documents that support programming and integration at USAID ranging from Agency policy to how-to guidance. These documents are listed below:

- Water for the World Act of 2014
- U.S. Government Global Water Strategy
- USAID Water and Development Strategy - Implementation Field Guide
- USAID Biodiversity Policy
- USAID Biodiversity and Development Handbook

Additional resources are available from:

USAID Water and Sanitation: https://www.usaid.gov/what-we-do/water-and-sanitation

USAID Biodiversity Conservation Gateway: https://rmportal.net/biodiversityconservation-gateway

KEY TERMS

- **Basic drinking water:** Drinking water from an improved source, provided collection time is not more than 30 minutes roundtrip, including queuing time. Note that basic drinking water for health care facilities is defined as water from an improved source that is available on-premises.
- **Basic sanitation:** An improved facility that is not shared with any other household. Improved sanitation facilities include flush toilets connected to sewer system or septic tanks, pit latrines with slabs or composting toilets, which each provide the largest health benefits by safely separating excreta from human contact.
- **Biodiversity:** Biological diversity, or biodiversity, refers to genetic diversity within a species, species diversity within ecosystems and the diversity of ecosystems on the Earth.

- **Ground water:** Water found underground in the cracks and spaces in soil, sand and rock. It is stored in and moves slowly through geologic formations of soil, sand and rocks called aquifers. It is a preferred source of drinking water as it is often isolated from sources of contamination at the surface.
- **Improved drinking water source:** Improved drinking water sources are those that have the potential to deliver safe water by nature of their design and construction, and include piped water, boreholes or tubewells, protected dug wells, protected springs, rainwater and packaged or delivered water.
- **Improved sanitation facilities:** Improved sanitation facilities hygienically separate excreta from human contact and include flush/pour flush connected to piped sewer system, septic tanks or pit latrines; ventilated improved pit latrines; composting toilets; or pit latrines with slabs.
- **Integrated water resources management:** A process that promotes the coordinated development and management of water, land and related resources in order to maximize the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems.
- **Open defecation:** The disposal of human feces in fields, forests, bushes, open bodies of water, beaches and other open spaces or with solid waste.
- **Safe drinking water:** Safe drinking water, also known as potable water, is considered acceptable for drinking or to use in food preparation.
- **Safely managed drinking water:** Drinking water from an improved water source that is located on premises, available when needed and free from fecal and priority chemical contamination.
- **Safely managed sanitation:** The use of improved facilities that are not shared with other households (basic sanitation) *and* where excreta are safely disposed in situ or transported and treated off-site. Improved sanitation facilities are facilities that provide the largest health benefits by safely separating excreta from human contact. Such facilities can include flush toilets connected to sewer system or septic tanks, pit latrines with slabs or composting toilets.
- **Surface water:** Water that comes from rivers, streams, creeks, lakes or reservoirs. Surface water is also the lowest rung on the Joint Monitoring Programme drinking water service ladder and is defined there as drinking water directly from a river, dam, lake, pond, stream or irrigation canal. Drinking water from such sources poses the greatest risks to health because of the high likelihood of contamination.
- **Unimproved sanitation:** The use of pit latrines without a slab or platform, hanging latrines or bucket latrines. Such facilities enable fixed-point defecation but do not protect from contact with feces, thereby limiting health benefits.
- **Unimproved drinking water sources:** Drinking water that comes from an unprotected dug well or unprotected spring. Such sources are difficult to protect from contamination.
- **Water scarcity:** Lack of adequate quantities of water for human and environmental uses. While there are many definitions of water scarcity, it is generally considered to be a physical characteristic of the environment and is often quantified in terms of the total water resources available to the population in a given region or country.
- **Water stress:** Refers to the ability, or lack thereof, to meet human and ecological demands for water. Compared to scarcity, water stress is a more inclusive and broader concept. It considers several physical aspects related to water resources, including water scarcity, but also water quality, environmental flows and the accessibility of water.
- **Water security:** USAID defines water security as the availability of an acceptable quantity and quality of water for health, livelihoods, ecosystems and production, coupled with an acceptable level of water-related risks to people, environments and economies.
- **Water quality:** Refers to the chemical, physical, biological and radiological characteristics of water. It is a measure of the condition of water relative to the requirements of one or more biotic species and/or human need or purpose. It is most frequently used by reference to a set of standards against which compliance, generally achieved through treatment of the water, can be assessed.

OTHER REFERENCE SHEETS IN THIS SERIES

Biodiversity

Democracy, Human Rights & Governance

Health

Food Security

For more information on the topics discussed here, or to discuss opportunities for integration with USAID biodiversity programming, please contact:

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