

# Connecting Water, Sanitation, and Hygiene with Fresh Water Conservation and Climate Resilience:

## The Need to Facilitate Integration in Development Assistance



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Girl collects water in Bangladesh, Spring 2010



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## INTRODUCTION

In the United States, even the most impoverished people generally have easy access to a toilet and clean, safe water for drinking, cooking, hand washing, and bathing. This is not the case in many developing nations. In many African countries, more than a quarter of the population lacks drinking water coverage, and more than half of the population does not have an adequate place to go to the bathroom.<sup>1</sup> Drinking water and/or sanitation coverage is also lacking in several countries in south and west Asia and South America. Many areas that lack safe drinking water, sanitation, and hygiene (WASH) also need to restore or protect fresh water ecosystems and enhance resilience to climate change.<sup>2</sup> Likewise, many communities in the developing world are struggling with major health challenges due to their lack of WASH. WASH, fresh water conservation, and climate are inextricably linked. Many fresh water ecosystems that provide the water needed for WASH are at risk due to pressure from land-use change, population growth, and climate change. Improper disposal of human waste is also deteriorating fresh water ecosystems, meaning that WASH is important for the environment.

Integrated solutions can help end extreme poverty and ensure long-term access to basic human needs such as food, clean water, and sanitation facilities. Currently, the development sector all too often addresses WASH, climate resilience, and fresh water conservation as separate issues. Fortunately, though, awareness about the importance of integrated efforts to solve these challenges in development projects is increasing. The United States Agency for International Development (USAID) has publicly spoken about and financially supported some efforts to promote integrated solutions for addressing WASH, conservation, and climate.<sup>3</sup> However, more can and should be done to fully facilitate integrated approaches.

This issue brief is focused on examples from U.S. government development aid funding, however, its recommendations are relevant for any funder or implementer, including development agencies, foundations, or nongovernmental organizations (NGOs).



**WOMEN SPEND  
200 MILLION  
HOURS PER DAY  
CARRYING WATER**

Girls carrying water home  
Haiti before the earthquake.  
September 2009

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## WASH, CLIMATE RESILIENCE, AND FRESH WATER RESOURCES ARE CRITICAL PARTS OF SUSTAINABLE DEVELOPMENT

### People Are Dying without Access to Safe Drinking Water, Sanitation, and Hygiene

Today, nearly 750 million people lack access to safe drinking water, and 2.5 billion people (more than a third of the world's population) lack access to an adequate place to go to the bathroom.<sup>4</sup> This is in spite of considerable efforts and resources dedicated to mitigating severe poverty, including the lack of safe drinking water and sanitation faced by billions of people in developing countries. These efforts have made a difference, with 2.3 billion people gaining access to safe drinking water between 1990 and 2012 and a quarter of the world's population gaining access to sanitation facilities.<sup>5</sup> But the quantity of people remaining without access is unacceptable. Water and sanitation are critical for maintaining dignity and sustaining life. Each day, thousands of people become ill or die from diseases, including diarrheal diseases and giardiasis, that could be prevented with WASH. Diarrhea kills 2,195 children every day, making it the second leading cause of death among children under the age of five; 88 percent of diarrhea-associated deaths are due to a lack of safe drinking water and sanitation facilities, and insufficient hygiene.<sup>6</sup> Access to WASH is vital for health, nutrition, education, and livelihoods. WASH services are a critical component of alleviating poverty and confronting gender inequality, allowing people (most often women and girls) to pursue their education or economic endeavors in the time that would have otherwise been spent carrying water.<sup>7</sup>

In the 2012–2013 fiscal year, the U.S. government granted \$424 million for foreign assistance in water supply and sanitation, \$257 million for natural resources and biodiversity, and \$276 million to the environment—including work on climate change.<sup>8</sup> Significant additional resources to address these issues come from foundations, other governments, and NGOs.<sup>9</sup> This money has improved the lives of millions, but failure to consider climate impacts could undermine some of these investments completely.

### Climate Change is Already Threatening Fresh Water Resources

As stated in the Africa Biodiversity Collaborative Group's *Freshwater Conservation and Water, Sanitation, and Hygiene Integration Guidelines: A Framework for Implementation in sub-Saharan Africa*, "Securing access to water depends on water availability within the wider watershed for social and environmental sustainability over time."<sup>10</sup> However, water availability is far from a guarantee in the face of climate change, which includes rapidly changing precipitation levels. A study published in the *Proceedings of the National Academy of Sciences of the United States of America* found that a temperature increase of 2 degrees Celsius from pre-industrial



School children collecting water in Ethiopia. For children, time spent collecting water is time they cannot spend learning in school.

levels—the threshold below which society should endeavor to remain in order to limit catastrophic impacts from climate change—would cause a severe decrease in water resources for nearly 15 percent of the global population.<sup>11</sup> Furthermore, it is estimated that by 2030, water scarcity in Africa will displace as many as 700 million people.<sup>12</sup> That does not include water scarcity or flooding impacts to people in other developing nations such as Indonesia, which has already suffered from severe flooding.

While lack of safe drinking water and sanitation seems like a more immediate, important need, USAID has indicated that a failure to address climate change can threaten our ability to meet development goals. Planning for climate change and fortifying fresh water ecosystems can make development projects more sustainable and bring new approaches for addressing development challenges to light.<sup>13</sup> Thus, it is critical to establish mechanisms to ensure integration between WASH, climate resilience, and fresh water conservation.

## **INTEGRATED DEVELOPMENT PROJECTS: MORE EFFICIENT AND EFFECTIVE**

This issue brief starts with the premise that projects that integrate WASH interventions, climate resilience and fresh water conservation are more efficient and sustainable. From an efficiency standpoint, two separate projects operating in the same region covering different but related work will require separate resources, such as staff and funding. On the other hand, one integrated project has the potential to reduce time and related expenses—leaving more resources for another community or need. As shown in the map on p. 5, seven of USAID’s WASH priority countries are also part of USAID priority areas for climate resilience and/or biodiversity, further underscoring the importance and efficiency of integration.

It’s clear that people need clean, fresh water, the availability of which is threatened by climate change, land-use change, and pollution. In particular, fresh water is being contaminated by inadequate sanitation facilities and open defecation, making WASH part of the solution for protecting fresh water resources.<sup>14</sup> These links mean that addressing only WASH, or only fresh water resources and climate resilience in areas that lack WASH infrastructure, could prevent projects from achieving their full potential.

## **PERCEIVED AND REAL BARRIERS TO PROJECT INTEGRATION**

There are a variety of barriers to providing integrated solutions to these interrelated problems. Understanding these barriers is the first step toward overcoming them.

### **Desire to see easily measurable results during short grant periods**

Most development aid grants require awardees to present quantifiable results. Funders need to know how successful the project was to determine next steps to resolve problems encountered for existing and future projects and to make educated decisions about future funding allocations. Many USAID WASH grants only cover short timeframes that allow for the emergence of some standard indicators of success (e.g., people with first-time access to improved water or sanitation). However, the grants are usually too short to lead to significant positive environmental or health impacts. For example, it takes longer to restore an acre of wetland than it does to build a well or latrine. This means that short grants are likely to remain focused on water, sanitation, and hygiene infrastructure, rather than expanding to activities to address long-term water availability. This challenge may be overcome

by integrating WASH projects into those that address environmental objectives, lengthening grant timelines, and addressing the full picture of community needs.

### **Perceived specificity of funding allocations**

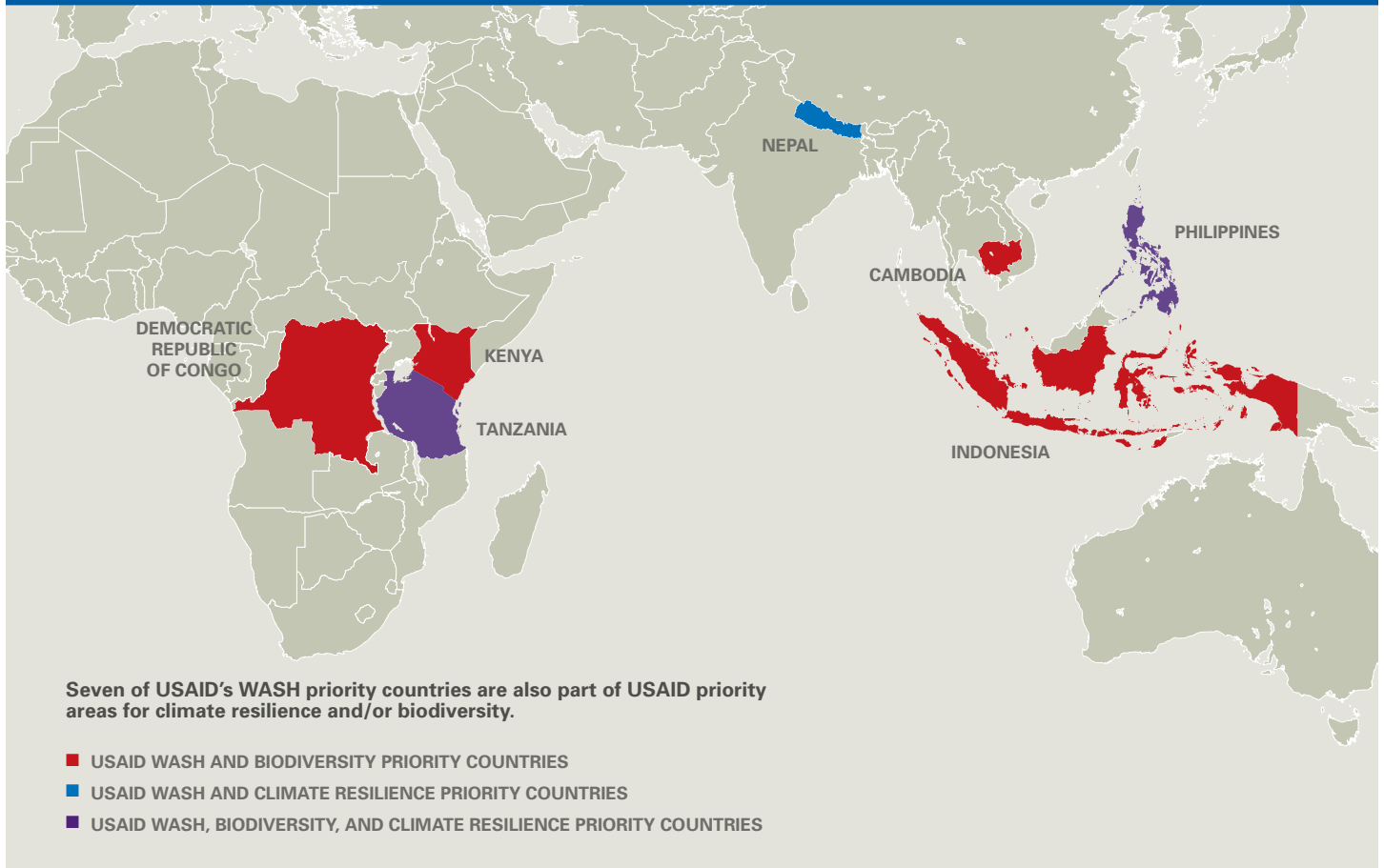
Actual or perceived limitations of funding allocations can also pose challenges for programming and implementing government development aid. For example, the Senator Paul Simon Water for the Poor Act of 2005 guides USAID’s work on water and sanitation. For the 2013–2014 fiscal year, Congress provided \$365 million to implement this legislation.<sup>15</sup> This requires USAID to address WASH issues. As part of its foreign assistance budget, Congress also appropriated \$1,153,500,000 for “environment programs,” \$212,500,000 specifically for protecting biodiversity, and varying amounts of funding for other areas of work.<sup>16</sup> These distinct funding allocations can create challenges for cross-sector collaboration. However, a closer look at the legislation reveals sufficient flexibility in these Congressional mandates for USAID to facilitate integration. For example, USAID may be able to ensure WASH projects are resilient in the face of climate change and pressures on fresh water ecosystems. Additionally, environmental projects can incorporate proper disposal of human waste to prevent environmental contamination, while reaching the other goals of sanitation projects.

### **Lack of coordination within and between organizations and agencies**

Governmental and nongovernmental organizations have specific missions and objectives. These organizations are structured into departments, allowing staff to specialize in their fields. At USAID, there is a Water Office, and also a Global Climate Change Office—both housed within the Bureau of Economic Growth, Education, and Environment (E3). USAID grants are often implemented by nonprofit organizations, some of which focus on environmental and conservation issues<sup>17</sup> while others focus on alleviating poverty or on WASH.<sup>18</sup> While sensible, these divisions can lead to fairly narrow knowledge bases that do not always consider the full picture of different—but relevant—sectors. Later in this paper, we discuss simple steps for USAID to facilitate coordination and integration.



## USAID WASH, Biodiversity and Climate Resilience Shared Priority Countries



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“Preserving free-flowing river systems, intact wetlands, and groundwater recharge areas is essential for maintaining ecosystem resilience and protecting water, sanitation, and hygiene infrastructure against the impacts of natural disasters and climate variability.”

—Freshwater Conservation and Water, Sanitation, and Hygiene Integration Guidelines<sup>33</sup>

## SUCCESSFUL INTEGRATED PROJECTS

Despite barriers, there have been a number of successful integrated projects that can provide inspiration and emerging lessons:

- In Kenya's arid and semi-arid lands, there are competing demands for water during periods of drought, which limits water availability for drinking and sanitation. USAID and The Netherlands supported local stakeholders in developing a plan to match the water resources and infrastructure with long-term water demand and access. The stakeholders proposed to capture some of the water during higher rainfall periods for use in times of drought, and determined that building sand dams in the nearby mountains could further recharge existing wells—a climate-resilient, drought-resistant solution that solved a WASH problem.<sup>19</sup>
- In the Pangani River Basin in Tanzania, which includes Mount Kilimanjaro National Park, urban and agricultural water demands have increased. Other water needs include drinking, cooking, sanitation, industrial operations, and hydro-power generation. It is crucial to manage the region's water resources to meet the community's needs—including water for drinking and sanitation purposes—and ensure that their wetlands do not dry up. The Pangani River Basin Management Project assessed the community's water needs and "environmental flows," including determining the minimum flows necessary to maintain the ecosystem, conducting hydrological studies, and studies about the socioeconomic values of the water resource. A key take-away was that the main area for improvements was in increasing water-use efficiency in agriculture, to prevent river depletion and promote water access. There has been extensive training of local personnel in the Pangani's Basin Water Office, and the next step is to incorporate the findings of the studies into water resource management plans for the region.<sup>20</sup>
- *Linking Biodiversity Conservation and Water, Sanitation and Hygiene: Experiences from sub-Saharan Africa*—a report from The Africa Biodiversity Collaborative Group—provides several additional case studies about successful integrated projects that used tools such as integrated river basin management; environmental flows; payments for watershed services; and population, health, and environment approaches.<sup>21</sup>

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Community in Kenya passes rocks for building the Kumina wauni sand dam.



The new sand dam provides water for a vegetable nursery.

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The construction of the Kumina wauni sand dam in June 2011 was supported by Excellent Development.



## COMMITMENT TO INTEGRATION NEEDS TO GO FURTHER

Development aid organizations have begun to recognize the importance of project integration. USAID has explicitly affirmed the importance of integration, acknowledging at a high level that fresh water ecosystems and climate resilience are critical for the long-term sustainability of WASH projects, and that water is one of the key resources that will be affected by climate change. Resilience is core to USAID's mission<sup>22</sup> and climate change resilience is an increasingly important part of that. However, more needs to be done to fully realize project integration in USAID's activities.<sup>23</sup>

“Consideration of climate change in strategic planning, program design, and project implementation across a wide range of development sectors is essential to the success of USAID's mission. It is the responsibility of all development professionals to consider the impact climate change will have on their efforts and to search for opportunities to promote greener, cleaner, more resilient approaches to driving development results in areas as diverse as agriculture, health, energy production, tourism, and microenterprise.”<sup>24</sup>

—USAID Administrator Rajiv Shah

The USAID Climate Change and Development Strategy recommends that those planning and managing WASH projects should anticipate climate-related stressors (e.g., less predictable rainfall and water flows), analyze climate threats (e.g., risk of extreme weather events and decreasing water availability), incorporate this into risk management, and use knowledge gained from previous projects to inform future projects.<sup>25</sup> However, this integration does not continue in USAID's Water and Development Strategy and its accompanying Implementation Field Guide.<sup>26</sup> Although these publications reference climate resilience, fresh water conservation, and integration, they do not go far enough.

The USAID Water and Development Strategy notes that watershed and environmental degradation, climate change, and other factors are putting increased pressure on water resources, restricting access to safe water and sanitation.<sup>27</sup>

Yet while the Strategy and Implementation Field Guide acknowledge the importance of “integrated water and watershed management practices,”<sup>28</sup> research about best practices,<sup>29</sup> and other activities that ensure climate resilience and long-term water supplies,<sup>30</sup> they do not provide incentives or guidance to ensure that these practices are incorporated. There are no measures or specific requirements around anticipation of climate stressors, analysis of climate threats, or learning from integrated projects as recommended in the Climate Change and Development Strategy. Additionally, while the Climate Change and Development Strategy does provide recommendations about how to make WASH projects climate resilient, it too does not offer incentives for this integration or mention the fact that improper disposal of human waste can be a barrier to creating a healthy, climate-resilient ecosystem. In carrying out these strategies, USAID can and should select activities that help predict climate threats and ensure that WASH projects are climate change-resilient.

Further, in USAID's Biodiversity Policy, one of the objectives is to “integrate conservation and development for improved biodiversity and development outcomes,” and USAID indicates that biodiversity loss is damaging the natural systems that help to provide clean and plentiful water.<sup>31</sup> Yet the importance of sanitation to protect fresh water ecosystems and biodiversity is not even mentioned in the strategy. This is problematic, as sanitation facilities are critical for human dignity, health, and protecting and restoring ecosystems on which humans and wildlife depend.

### WASH and Conservation Guidelines

On a practical level, USAID supported project integration through the Bureau for Africa's support of The Africa Biodiversity Collaborative Group to create the Freshwater Conservation and Water, Sanitation, and Hygiene Integration Guidelines: A Framework for Implementation in sub-Saharan Africa.<sup>32</sup> The purpose of this document is to help health, development, and conservation professionals design and implement integrated fresh water, health, and WASH projects. The guidelines walk practitioners through setting a common vision, gathering the information needed for a successful integrated project, designing an integrated project, implementation, monitoring, and evaluation.

**“WASH programming can directly benefit ecosystems by reducing fecal contamination on land and in water, reducing nutrient loadings to streams and lakes, making aquatic and terrestrial ecosystems healthier, and promoting more sustainable water management practices.”**

–Freshwater Conservation and Water, Sanitation, and Hygiene Integration Guidelines<sup>34</sup>

## **ADDITIONAL OPPORTUNITIES FOR INTEGRATION**

Even in the relatively short term, there are several areas in which USAID facilitate integration. USAID should be able to interpret its Congressional mandate with the flexibility needed to support and implement the most effective interventions for providing long-term WASH. In some cases, this will mean including fresh water conservation and climate resilience in WASH projects. Further, USAID should develop and use indicators that encourage integration. Enhancing cross-institutional relationships and ensuring that the length of grants is not a significant limiting factor in determining project goals will also help with integration.

### **Interpreting Congressional mandates to achieve big picture goals and justify integrated programs**

A close look at Congressional WASH funding language indicates that integrated projects would meet the goals of the legislation. For example, the 2013–2014 fiscal year Appropriations legislation provides \$365 million for implementing the Senator Paul Simon Water for the Poor Act, as discussed earlier.<sup>35</sup> One of the Act’s objectives is to “protect the supply and availability of safe water through sound environmental management, including preventing the destruction and degradation of ecosystems and watersheds.”<sup>36</sup> This indicates that the funds for implementing the Water for the Poor Act need to create incentives for WASH projects to meet the objectives of safeguarding our ecosystems and climate change resilience.

Additionally, the Foreign Assistance Act of 1961 found that if trends in degradation of natural resources continue, they would undermine our ability to meet basic human needs.<sup>37</sup> The Foreign Assistance Act therefore goes on to authorize the President “to furnish assistance... for developing and strengthening the capacity of developing countries to protect and manage their environment and natural resources,” with

a focus on land restoration, vegetation, water, and wildlife that are important for human well-being and economic growth.<sup>38</sup> Projects that ensure proper disposal of human waste to prevent environmental contamination in places with inadequate sanitation facilities clearly meet the objectives of this legislation. These interventions could be funded with the money appropriated for “environmental programs” in developing countries (\$1,153,500,000 in the 2013-2014 fiscal year).<sup>39</sup>

### **Developing and using indicators that encourage integration**

Indicators play an important role in project design, as managers generally want their efforts to measure well against indicators of success. The current indicators in the water for health component of USAID’s Water and Development Strategy Implementation Field Guide are focused on how many people gained access to WASH. These indicators do not encourage efforts around natural resource management and/or climate resilience to ensure long-term availability of water. They, instead, compel implementers to focus more on interventions that will allow the quickest access to WASH for the most people.

The U.S. Department of State and USAID have a list of Standard Foreign Assistance Indicators, from which USAID chooses relevant indicators for measuring success on various projects and strategies.<sup>40</sup> USAID staff can also update the list if needed. Several of the indicators already on the list could be applied to the Water and Development Strategy and the accompanying Field Guide to encourage integration with climate resilience and fresh water conservation. They can be used in addition to the above-mentioned indicators. These include:

- Number of hectares of biological significance and/or natural resources under improved natural resource management as a result of U.S. government assistance<sup>41</sup>
- Number of people receiving U.S.-supported training in natural resource management and/or biodiversity conservation<sup>42</sup>
- Number of stakeholders with increased capacity to adapt to the impacts of climate change as a result of U.S. government assistance<sup>43</sup>
- Number of laws, policies, strategies, plans, or regulations addressing climate change (mitigation or adaptation) and/or biodiversity conservation officially proposed, or adopted as a result of U.S. government assistance<sup>44</sup>

Requiring the use of indicators like these will likely encourage project designers and implementers to consider the connections between WASH, fresh water conservation, and climate resilience.



## Development of WASH and Conservation Integrated Indicators

Building on the WASH and conservation integration guidelines publication, Conservation International, the African Wildlife Foundation and The Nature Conservancy co-hosted a two-day workshop in Nairobi, Kenya in July 2014. At the workshop, Africa-based conservation, health, and development practitioners designed an integrated WASH and fresh water conservation monitoring and evaluation (M&E) framework. The *Workshop on Integrated Indicators for Freshwater Conservation and WASH Programming* was co-sponsored by the USAID Bureau for Africa and the Africa Biodiversity Collaborative Group. The workshop's draft M&E framework and indicators for integrated programming are under technical review as of the publication of this issue brief. They will be shared at an event in Washington, D.C. and will be available on [www.abcg.org](http://www.abcg.org) in September 2014. This framework and its indicators will be useful to consider when articulating the added benefit of development assistance that integrates multi-sector approaches.

## Enhancing cross-institutional coordination and communication

Within most organizational structures, strong mechanisms for regular communication are important. While both the USAID Water and Global Climate Change offices belong to the same bureau, this does not automatically ensure strong coordination. Regular meetings that discuss integration are important for coordinating between different, but related, strategies. The Water and Development Strategy Implementation Field Guide has set up the Water Sector Council and the Strategy Implementation Group. However, these groups include representation from all of the Regional Bureaus and a wide range of other USAID offices, but not from Global Climate Change. Adding this group would be a sensible step toward encouraging the regular, thoughtful communication necessary for integrating climate resilience into WASH planning and management. Similarly, representation from the water office, including someone with expertise on WASH, should be included in any regular cross-agency meetings focused on climate resilience or fresh water conservation.

## Not being limited by short grant periods

Donors want to see results from their investments in a reasonable timeframe. It is important that project implementers assure donors that projects are on track and meeting goals. At the same time, the grant period for WASH grants is not always long enough to securely set longer term

goals and objectives. Projects that protect and restore the natural environment often take longer to produce results. Several steps—some of which have already been taken by many project implementers—can help to overcome this barrier and allow for the planning and implementation of longer-term projects:

1. Setting appropriate indicators to measure both final results and intermediate steps (e.g., community education and empowerment to support and implement a longer-term project) may help with goal-setting beyond the grant timeline.
2. Taking the steps to foster community buy-in and prepare communities to implement the projects after assistance ends.
3. Establishing structures and funds for continued, long-term project and method monitoring and evaluation to ensure continued, post-grant success.
  - There are tools to monitor countries' populations and health, allowing development workers to determine the impact of their efforts. Specifically, the USAID-funded Demographic and Health Surveys Program surveys 5,000 to 30,000 people to generate nationally representative data.<sup>45</sup>
  - Project managers and implementers should dedicate a small portion of the total award to long-term monitoring and evaluation.
  - Projects should create monitoring and evaluation plans that build in resolution and learning. The projects should address problems encountered in services, infrastructure, or programs, learn from previous challenges, and apply those lessons to future programs.
  - Implementers should aim to identify local champions in the target community, and set aside a small portion of the award to support the continued success of project outcomes.

## CONCLUSION

As the threats to fresh water resources increase and climate change worsens, it becomes ever more important to integrate WASH, fresh water conservation, and climate resilience projects. Development aid plays an important role in promoting this integration since it drives so much of the funding for these projects. Efforts such as integration guidelines are an important start, but it is time to go further. This will help broaden the reach of foreign assistance and enable more people to gain sustainable access to safe drinking water, sanitation, and hygiene.

## Endnotes

- 1 WHO/UNICEF Joint Monitoring Programme for Water Supply and Sanitation, Progress on Drinking Water and Sanitation 2014 Update, pp. 2, 7, [www.wssinfo.org/fileadmin/user\\_upload/resources/JMP\\_report\\_2014\\_webEng.pdf](http://www.wssinfo.org/fileadmin/user_upload/resources/JMP_report_2014_webEng.pdf).
- 2 In sub-Saharan Africa, 325 million people do not have an improved water source. In many countries, less than 50 percent of the population has improved sanitation. Ibid. Africa's river and wetland ecosystems—including the Okavango Delta in Botswana—are facing pressure from pollution, poor management, human activities, climate change and more. African Wildlife Foundation, Ecosystems, [www.awf.org/land-protection/ecosystems](http://www.awf.org/land-protection/ecosystems).
- 3 For example, USAID has made supportive statements about integrating fresh water conservation and WASH in its Water and Development Strategy, Global Climate Change and Development Strategy, and elsewhere. USAID also funded the Freshwater Conservation and Water, Sanitation, and Hygiene Integration Guidelines. USAID, Water and Development Strategy 2013–2018, [www.usaid.gov/sites/default/files/documents/1865/USAID\\_Water\\_Strategy\\_3.pdf](http://www.usaid.gov/sites/default/files/documents/1865/USAID_Water_Strategy_3.pdf). USAID, Climate Change and Development Strategy, [pdf.usaid.gov/pdf\\_docs/pdacs780.pdf](http://pdf.usaid.gov/pdf_docs/pdacs780.pdf). Edmond, J., Sorto, C., Davidson, S., Sauer, J., Warner, D., Dettman, M. and Platt, J, *Freshwater Conservation and Water, Sanitation, and Hygiene Integration Guidelines: A Framework for Implementation in sub-Saharan Africa*, Africa Biodiversity Collaborative Group, Conservation International, and The Nature Conservancy, 2013, [frameweb.org/adl/en-US/11003/file/1684/ABCG-Integration-Guidelines-web.pdf](http://frameweb.org/adl/en-US/11003/file/1684/ABCG-Integration-Guidelines-web.pdf).
- 4 WHO/UNICEF Joint Monitoring Programme for Water Supply and Sanitation, Progress on Drinking Water and Sanitation 2014 Update, pp. 2, 6, [www.wssinfo.org/fileadmin/user\\_upload/resources/JMP\\_report\\_2014\\_webEng.pdf](http://www.wssinfo.org/fileadmin/user_upload/resources/JMP_report_2014_webEng.pdf). 748 million people lack access to an improved drinking water source, and 2.5 billion people lack access to improved sanitation. An improved drinking water source is defined as one that is likely to be protected from outside contamination including from fecal matter. Such sources include piped water into a dwelling or yard, a public tap, a protected well or spring, or rainwater collection. Improved sanitation facilities hygienically separate human waste from human contact and include flush toilets, composting toilets, ventilated improved pit latrines, or systems that pour or flush into a pit, septic tank, or sewer.
- 5 United Nations, Millennium Development Goals and Beyond 2015, Goal 7: Ensure Environmental Sustainability, [www.un.org/millenniumgoals/environ.shtml](http://www.un.org/millenniumgoals/environ.shtml).
- 6 Centers for Disease Control, *Diarrhea: Common Illness, Global Killer*, [www.cdc.gov/healthywater/pdf/global/programs/Globaldiarrhea508c.pdf](http://www.cdc.gov/healthywater/pdf/global/programs/Globaldiarrhea508c.pdf). According to the Centers for Disease Control (CDC).
- 7 Globally, it is estimated that women spend 200 million hours per day carrying water. United Nations Women, On World Water Day, UN Women spotlights the need to ensure access to drinking water and sanitation for all, March 21, 2013, [www.unwomen.org/lo/news/stories/2013/3/on-world-water-day-un-urges-water-for-all](http://www.unwomen.org/lo/news/stories/2013/3/on-world-water-day-un-urges-water-for-all). To put this time into perspective, 200 million hours per day is equivalent to 35 million people working 40 hours per week—exclusively on carrying water. That would be like nearly the entire population of California—including children and every Silicon Valley executive—spending their entire work weeks carrying water. State of California, Facts, [www.ca.gov/About/Facts.html](http://www.ca.gov/About/Facts.html).
- 8 These numbers are pulled from the disaggregated transaction data available on [www.foreignassistance.gov](http://www.foreignassistance.gov) at [www.foreignassistance.gov/web/ObjectiveView.aspx?budTab=tab\\_Bud\\_Impl](http://www.foreignassistance.gov/web/ObjectiveView.aspx?budTab=tab_Bud_Impl). There are some additional project administration costs and monitoring and evaluation costs that are not included in these numbers.
- 9 See, for example: [WASHfund.org](http://WASHfund.org), Funding Map, [www.washfund.org/Funding-Map](http://www.washfund.org/Funding-Map).
- 10 Edmond, J., Sorto, C., Davidson, S., Sauer, J., Warner, D., Dettman, M. and Platt, J, *Freshwater Conservation and Water, Sanitation, and Hygiene Integration Guidelines: A Framework for Implementation in sub-Saharan Africa*, Africa Biodiversity Collaborative Group, Conservation International, and The Nature Conservancy, 2013, [frameweb.org/adl/en-US/11003/file/1684/ABCG-Integration-Guidelines-web.pdf](http://frameweb.org/adl/en-US/11003/file/1684/ABCG-Integration-Guidelines-web.pdf).
- 11 Jacob Schewe et al., "Multimodel assessment of water scarcity under climate change," Edited by Hans Joachim Schellnhuber, Potsdam Institute for Climate Impact Research, Potsdam, Germany, and approved August 13, 2013, Proceedings of the National Academy of Sciences, [www.pnas.org/content/early/2013/12/12/1222460110.full.pdf+html](http://www.pnas.org/content/early/2013/12/12/1222460110.full.pdf+html). Population facing absolute water scarcity is defined as the percentage of people living in countries below 500 m3 per capita annually.
- 12 United Nations, International Decade for Action 'WATER FOR LIFE' 2005-2015, Water Scarcity, [www.un.org/waterforlifedecade/scarcity.shtml](http://www.un.org/waterforlifedecade/scarcity.shtml).
- 13 USAID, Climate-Resilient Development Framework: A Framework for Understanding and Addressing Climate Change, March 2014, [www.usaid.gov/climate/climate-resilient-development-framework](http://www.usaid.gov/climate/climate-resilient-development-framework).
- 14 Roughly 2.5 billion people lack access to improved sanitation including 1 billion who practice open defecation. WHO/UNICEF Joint Monitoring Programme for Water Supply and Sanitation, Progress on Drinking Water and Sanitation 2014 Update, p. 8, [www.wssinfo.org/fileadmin/user\\_upload/resources/JMP\\_report\\_2014\\_webEng.pdf](http://www.wssinfo.org/fileadmin/user_upload/resources/JMP_report_2014_webEng.pdf).
- 15 H.R. 1973, Senator Paul Simon Water for the Poor Act of 2005, [www.gpo.gov/fdsys/pkg/BILLS-109hr1973enr/pdf/BILLS-109hr1973enr.pdf](http://www.gpo.gov/fdsys/pkg/BILLS-109hr1973enr/pdf/BILLS-109hr1973enr.pdf). H.R. 3547, p. 551, [www.gpo.gov/fdsys/pkg/BILLS-113hr3547enr/pdf/BILLS-113hr3547enr.pdf](http://www.gpo.gov/fdsys/pkg/BILLS-113hr3547enr/pdf/BILLS-113hr3547enr.pdf).
- 16 H.R. 3547, pp. 548-549, [www.gpo.gov/fdsys/pkg/BILLS-113hr3547enr/pdf/BILLS-113hr3547enr.pdf](http://www.gpo.gov/fdsys/pkg/BILLS-113hr3547enr/pdf/BILLS-113hr3547enr.pdf).
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