Freshwater Conservation and Water, Sanitation, and Hygiene

INTEGRATION GUIDELINES

A Framework for Implementation in sub-Saharan Africa

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Acknowledgments

Acronyms

ABCG	Africa Biodiversity Collaborative Group
BCC	Behavior change communication
CI	Conservation International
DHS	Demographic and health surveys
FGDs	Focus group discussions
IUCN	International Union for the Conservation of Nature
MERL	Monitoring and evaluation for results and learning
M&E	Monitoring and evaluation
MCH	Maternal and child health
MOH	Ministry of Health
MUS	Multiple Use Services
NGO	Non-governmental organization
NRM	Natural resource management
PRA	Participatory rural appraisal
SSIR	Stanford Social Innovation Review
ToC	Theory of change
TNC	The Nature Conservancy
UNICEF	United Nations Children's Fund
USAID	U.S. Agency for International Development
WASH	Water, sanitation, and hygiene
WHO	World Health Organization

FRESHWATER CONSERVATION AND WATER, SANITATION, AND HYGIENE INTEGRATION GUIDELINES:
A FRAMEWORK FOR IMPLEMENTATION IN SUB-SAHARAN AFRICA

Executive Summary

Water, poverty and environmental quality are deeply connected. The poor are most vulnerable to environmental risk factors such as unsafe water and climate change. Human communities living in remote areas with high biodiversity value are often impoverished with little to no access to improved water sources and sanitation facilities. The sustainability of freshwater resources and safe drinking water projects depend on the appropriate conservation of the broader watershed. Preserving free-flowing river systems, intact wetlands, and groundwater recharge areas is essential for maintaining ecosystem resilience and protecting Water, Sanitation and Hygiene (WASH) infrastructure against the impacts of natural disasters and climate variability.

Humans are integrally linked to their environment. WASH activities associated with conservation integrate health objectives with watershed management approaches, and link rural and urban water supply and sanitation. These linkages reduce the impact of pollution on the watershed and the ecosystem goods and services that it provides. Conservation efforts more traditionally intersect with WASH at the rural or community level. However, the rapid growth of towns and cities, increased water variability related to climate change, and water stress such as aquifer over-exploitation, saline intrusion, and eutrophication, have increased attention on the upstream watersheds that filter and regulate urban water supplies.

Recognizing the need to better link freshwater conservation and WASH initiatives, the US Agency for International Development Bureau for Africa-supported Africa Biodiversity Collaborative Group (ABCG) and its member organizations came together with development non-governmental organizations, academics and USAID and other donors, to produce these guidelines for integrated programming in sub-Saharan Africa. Their purpose is to provide guidance to health, development, and conservation professionals in sub-Saharan Africa on how to plan, coordinate, develop and achieve mutually supported WASH and freshwater conservation outcomes.

A set of core guiding principles are included as critical elements to consider before developing and implementing integrated projects:

A WASH projects should protect or enhance ecosystem health and water-related ecosystem services, such as sustainable water quantity and quality.

B Conservation projects should incorporate/consider WASH goals that provide social/environmental benefits in conjunction with conservation goals.

C WASH and conservation programs should promote resilience to future changes in water use, availability, and climate patterns through adaptive management of both natural and built infrastructure.

D Climate-smart siting, design and operation of built infrastructure should be utilized to conserve and protect the broader watershed for sustainable WASH services.

E WASH projects should use natural infrastructure to complement built infrastructure in planning and implementation.

F Multi-level, multi-stakeholder engagement should be included for the adoption and long-term sustainable management of integrated WASH and conservation programs.

G Stakeholder efforts to integrate freshwater conservation and improved WASH services should include gender sensitivity and a comprehensive approach to increase equitable access, participation and benefits among men and women, youth, elderly, and vulnerable groups.

The guidelines include the primary steps needed to design integrated WASH and freshwater conservation interventions, using the core principles as their foundation. The steps are:

1 Setting a common vision

2 Gathering information

3 Design

4 Implementation

5 Monitoring and Evaluating.

Finally, this document includes recommended resources for each step and additional information for implementers.

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Introduction

The purpose of this document is to provide guidance to health, development, and conservation professionals in sub-Saharan Africa on how to plan, coordinate, develop, and achieve mutually supported WASH and freshwater conservation outcomes. It was designed to provide an overall framework to consider when working across sectors. It is not intended to be a training or implementation manual. These guidelines draw on input from the Africa Biodiversity Collaborative Group (ABCG) hosted workshop and the evidence base and lessons learned from integrated projects referenced in the 2012 ABCG publication *Linking Biodiversity Conservation and Water, Sanitation, and Hygiene: Experiences from sub-Saharan Africa*.

The ABCG is comprised of seven international conservation Non-Governmental Organizations (NGOs). Member organizations are the African Wildlife Foundation, Conservation International (CI), the Jane Goodall Institute, The Nature Conservancy (TNC), Wildlife Conservation Society, World Resources Institute, and World Wildlife Fund (WWF). ABCG's mission is to tackle complex and changing conservation challenges by catalyzing and strengthening collaboration, and bringing the best resources from across a continuum of conservation organizations to effectively and efficiently work towards a vision of an African continent where natural resources and biodiversity are securely conserved in balance with sustained human livelihoods. ABCG and its activities are currently funded by its members and by a collaborative agreement with USAID.

Several development and conservation organizations have committed to working together to promote policies, plans and projects that integrate access to water supply and sanitation with the conservation and sustainable management of freshwater resources. Their commitment was articulated in a Joint Statement on water, sanitation and hygiene (WASH) and Freshwater Ecosystem Conservation issued by a coalition of NGOs[1]. The Joint Statement can be found in Appendix A.

In June 2012, ABCG issued a report titled, *Linking Biodiversity Conservation and Water, Sanitation, and Hygiene: Experiences from sub-Saharan Africa* which identified numerous organizations and projects in sub-Saharan Africa integrating WASH and biodiversity conservation on an ad-hoc basis. Building from that study, ABCG hosted a workshop for WASH and conservation NGOs and USAID to increase awareness and understanding of the value of integrated programs, and to gather input for developing these Freshwater Conservation and WASH Guidelines. This effort was led by ABCG members, Janet Edmond and Colleen Sorto (CI) and Sarah Davidson (TNC) and was supported by a working group made up of coalition and ABCG members.

USAID WATER and DEVELOPMENT STRATEGY

In 2013, USAID released its global water and development strategy to guide USAID's approach to water programming (USAID 2013). The goal of the strategy is to save lives and advance development through improvements in water supply, sanitation, and hygiene (WASH) programs, and through sound management and use of water for food security. These guidelines are designed to support USAID's water strategy and to improve health and conservation outcomes as a result of integrated programming.

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[1] The coalition supporting the integration of WASH activities and freshwater conservation for sustainable development includes CARE, Catholic Relief Services, Conservation International, Millennium Water Alliance, Natural Resource Defense Council, The Nature Conservancy, WASH Advocates, World Vision, and WWF.

Overviews of WASH and Freshwater Conservation

Water, Sanitation, and Hygiene (WASH)

The field of water supply, sanitation and hygiene is frequently referred to by its acronym, WASH, and focuses on the household and community scale. There is an implicit emphasis on health, with WASH activities intended to improve the health of household and community members.

WASH programs are undertaken to address a number of key concerns, including public health, water quality and quantity, water source protection, drainage, and disease vector control[2]. While WASH programs vary widely, there are a few core areas that capture a majority of the activities:

Community and household water supplies

- drinking water
- cooking
- bathing
- laundry
- cleaning
- gardens (horticulture, fruit trees, herbs)

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[2] This is defined as the control of the transmission of disease by pathogens or actors in the environment. Preventing disease through healthy environments: Towards an estimate of the environmental burden of disease. Geneva, Switzerland: WHO

Sanitation

- excreta disposal
- solid waste management
- storm water drainage

Hygiene promotion

- awareness raising and education
- behavior changes in personal and household hygiene practices

Given the importance of water to so many sectors, there are frequent opportunities to link WASH-related problems with other sectors. Two such areas are water for productive uses (potentially connecting with agriculture or livelihoods) and water for environmental sustainability (potentially connecting with ecosystem management). Productive uses of water include those that contribute to strengthening the livelihoods of project beneficiaries. Examples of relevant agricultural uses of water include small scale irrigation, animal husbandry and fish farming. Small industrial uses include activities such as brick-making and food processing. Water for environmental protection refers to activities which contribute to the environmental sustainability of water resources in the watershed. Examples include watershed management to recharge groundwater aquifers, prevent soil degradation, enable climate change adaptation, increase the biodiversity of plants and animals or improve the health and well-being of people.
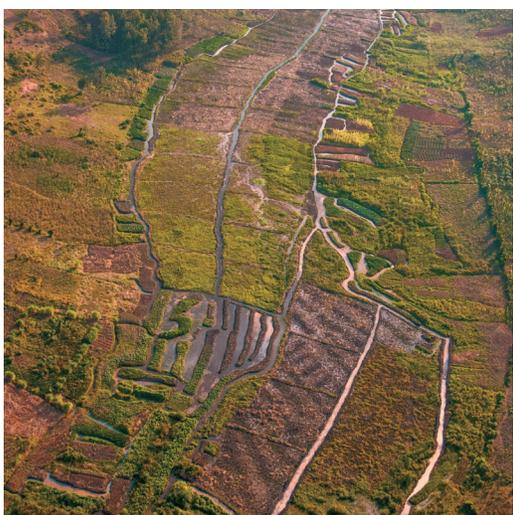
Freshwater Conservation

Freshwater conservation efforts are designed to protect or restore freshwater biodiversity, ecosystems and ecosystem services. The term biodiversity refers to the variety of plants, animals and microorganisms and the ecosystems in which they occur. Ecosystem refers to a dynamic complex of plant, animal, and microorganism communities and the nonliving environment interacting as a functional unit (UNEP 2003). Ecosystem services are the benefits that people obtain from these systems, for example flood control or the provision of drinking water and food.

Actions undertaken to achieve freshwater conservation goals are extremely diverse. Some common examples include:

- Design and implement effective watershed management plans to ensure sustainable watershed functions such as water supply, water quality, and improved drainage.

- Compensation through payment for ecosystem services (PES) programs by downstream water users like cities, agricultural growers' associations or hydropower companies. These payments are made to upstream communities and farmers whose land management practices influence the quantity, quality and sedimentation of the water.

- Application of environmental flow protection or restoration with water managers. This could include dam operators and urban water suppliers collaborating with environmental scientists to determine and then ensure the quantity and timing of water flows which are necessary to support functioning ecosystems.

- Protecting natural ecosystems to ensure they can continue to support water systems in times of change. Science has shown that we are going to feel the impacts of climate change in the form of extreme events, including more intense floods and droughts.

- Design, manage and enforce protected areas for freshwater biodiversity and freshwater ecosystem health.

Humans are integrally linked to the environment. WASH activities associated with conservation may integrate health objectives with watershed management approaches, as well as both rural and urban water supply and sanitation, which can reduce the impact of pollution on the watershed and freshwater species found within it. Though conservation efforts more traditionally intersect with WASH at the rural or community level, the rapid growth of towns and cities, increased water variability related to climate change, and water stress have increased attention on the upstream watersheds that filter and regulate urban water supplies.

Rationale for Integration Guidelines

Unfortunately, it is a common misperception among some development and conservation groups that WASH and freshwater conservation projects are unconnected and may compete for resources and political attention. Collaboration and cooperation, however, could produce a better outcome and impact for both priorities. Thus, an improved understanding of the potential overlaps in goals and activities is warranted.

Water, poverty and environment are deeply connected. The poor are the most vulnerable to environmental risk factors such as unsafe water and climate change. Areas of high endemism[3] and biodiversity, linked with an abundance of freshwater, are often remote. Human communi-

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[3] Areas of high endemism are areas with high numbers or concentrations of species found nowhere else but within that region.

ties living in close proximity to these areas tend to be impoverished with little to no access to improved water sources and sanitation facilities. The sustainability of freshwater resources and safe drinking water projects depend on the appropriate conservation of the broader watershed. Protecting free-flowing river systems, intact wetlands, and groundwater recharge areas is also essential for maintaining ecosystem resilience and protecting WASH infrastructure against the impacts of natural disasters and climate change and variability.

Pollution, unsustainable withdrawals[4], water diversions, and the loss of vegetation in aquifer recharge areas pose major threats to rivers, lakes, and aquifers. These factors impact the ability of ecosystems to store, deliver, purify, and transport water for people and nature. Improving access to sanitation serves fresh water conservation by addressing wastewater pollution through reducing the runoff, trash, and fecal matter that would otherwise be emptied into the watershed. Securing access to water depends on water availability within the wider watershed for social and environmental sustainability over time. This is especially true with climate change. More frequent and severe floods and droughts could have major consequences to water availability and the resiliency of water and sanitation infrastructure.

Gender, in particular, is a key issue at the intersection of freshwater conservation and WASH programs in the developing world. Women are often responsible for domestic and community water management, from collecting water to water storage and use. In many developing countries, women and girls walk over 3.5 miles every day to collect water (ONE Campaign, 2013). Experience shows that projects with the full participation of women are more sustainable and effective than those that are not (Wijk-Sijbesma, 2001). Freshwater conservation efforts leading to improved access to clean water lead to multiple benefits in health, income, and education, particularly for women and girls.

Because the impact on women can be increased by combining efforts, integrated freshwater conservation and improved WASH services should include gender analysis. This should also include a comprehensive approach to increase equitable access to water resources, participation in water management and shared benefits among men and women.

Integrated or multi-sectoral projects combine health interventions with conservation activities, creating synergies and greater conservation and human well-being outcomes than if they were implemented in single-sector approaches. According to recent studies, interlinked health, development and conservation activities promote synergies across sectors, creating multiple benefits to project participants and suggesting that the integrated approach adds value (Pielemeier *et al.* 2007; D'Agnes *et al.* 2010; Kleinau *et al.* 2005).

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[4] Unsustainable withdrawals are withdrawals of water from surface or aquifer sources that exceed the system's capacity to maintain sufficient water in it for intended needs and purposes (including supporting biodiversity or for desired human uses).

WASH, Freshwater Conservation, and Sub-Saharan Africa

Sub-Saharan Africa has considerable aquatic treasures, containing a rich diversity of life (Shumway, 1999). The Zaire River basin is the most species rich in the world, while the Great Lakes—Tanganyika, Victoria and Malawi—each harbor rich diversity of fisheries. It is also home to nine of Earth's 34 biodiversity hotspots, including the Cape Floristic Region, Coastal Forest of Eastern Africa, Madagascar and the Indian Ocean Islands, Guinean Forests of Western Africa and Succulent Karoo. The region also has extensive inland waters including the Nile, Congo and Zambezi river basins, the Great Lakes of the Rift Valley and the Okavango Delta in Botswana, all harboring a vast repository of biodiversity and high level of endemism. The productivity and diversity of Africa's ecosystems are, unfortunately, threatened by deforestation, agricultural production and municipal and industrial production.

Around four in ten people in Africa rely on unimproved sources for their daily water needs and two-thirds are still without improved sanitation (UN, 2011). While access to improved water sources in the region has noticeably improved, population growth rate is outpacing these efforts leaving ever more people dependent on unprotected water sources. The fast growth rate also puts pressure on the natural resource base and surrounding ecosystems.

In downstream reaches of rivers, acute water shortages are becoming the norm in some areas, as multiple stakeholders use water to meet their disparate needs such as heavy industry, irrigation for agriculture, fisheries, tourism, and municipal water and electricity utilities. In urban, peri-urban and suburban high-density areas of Africa the poor tend to lack access to improved sources of water and sanitation facilities resulting in environmental health problems. Compounding the problem the poor, lacking of economic and political power, are often the least able to bring about improvements in their living standards. Integrated, multi-sectoral approaches provide a vehicle to break this cycle and bring about improvements in each sector.

In sub-Saharan Africa particularly, people are extremely vulnerable to water-related risks such as droughts, floods and other natural disasters. According to USAID's resilience policy and program guidance, resilience is the ability of people, households, communities, countries, and systems to mitigate, adapt to, and recover from shocks and stresses in a manner that reduces chronic vulnerability and facilitates inclusive growth (USAID 2012). In order to build resilience among the vulnerable populations, integrated programming should consider the benefits of increasing and improving ecosystems services for water and linking to development outcomes.

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Integrated Theory of Change

This section presents a Theory of Change (ToC) on how integration of freshwater conservation and WASH approaches can:

- promote improved human health, education, and economic growth
- protect the environment
- contribute to sustainable development

The ToC is built on a web of interrelationships between the health and sustainability of both communities and vital ecosystem services, when improved and sustainable water management is a major goal. This type of integration between water-related priorities provides numerous direct and indirect benefits to societies and ecosystems that reinforce each other through positive feedback loops.

WASH and Healthy Societies

WASH projects improve human well-being in multiple ways. They can decrease disease burden from water-related pathogens and increase the time people have for other vital tasks, promoting better school attendance, especially among girls. They also have the potential to enable economic improvement, and facilitate a greater well-being, specifically for children and women (African Development Bank 2010).

According to WHO, diarrheal diseases are the second leading cause of death in low-income countries and are the fifth leading cause of death globally (WHO 2013). WASH-related diseases constitute 9.1% of the total disease burden in terms of disability-adjusted life years or DALYs (Pruss *et al.* 2002). Worldwide, lack of adequate sanitation supports the cycle of soil-transmitted helminthes (worms) that infect more than one billion people (WHO 2013). The world's leading cause of blindness is trachoma, which is entirely preventable with improved hygiene and sanitation (CDC 2013). Additionally, an estimated 800 million people around the world treat their water by boiling it on indoor stoves, leading to respiratory illnesses. Reducing the need to boil water could reduce the respiratory disease burden in such households. Improvements in water quality, water access, and sanitation and improving hygiene practices can save millions of lives each year and improve the health of tens of millions more.

In addition to the disease burden, some studies estimate that a significant portion of the benefits from a WASH program can be attributed to time-saving (Hutton *et al.* 2007). These benefits can be attributed to the reduction in time spent accessing services, decreasing days lost in school and economic activity due to illness and the reduction in time spent collecting fuel for boiling water. The WHO estimates that the economic benefits of achieving the drinking water and sanitation target of the Millennium Development Goals amount to a total savings of 20 billion working days a year. According to the 2006 Human Development Report, women spend 40 billion hours a year in water collection in sub-Saharan Africa alone (Carr and Hart 2010). Improved access to sanitation in the form of nearby latrines reduces the travel time to areas where open defecation is practiced. Latrine use reduces the incidence of diarrheal disease, which reduces

time caring for sick households, sick days and clinic or hospital visits. Approximately 443 million school days are lost annually because pupils and teachers are not able to attend due to WASH-related diseases (Walter 2013).

In addition to the impact of WASH programs on the disease burden and time savings benefits, WASH initiatives disproportionately help key vulnerable populations such as women and children. Lack of safe water and sanitation facilities during child birth significantly impacts infant and maternal mortality. Children under five-years of age are the most vulnerable to diarrheal diseases. Each year approximately 800,000 children under five die from malnutrition induced by unsafe water, inadequate sanitation and insufficient hygiene (Prüss-Üstün 2008). Time to fetch water and time with illnesses and lack of sanitation services at schools all form a barrier to children receiving a good education, particularly for girls. WASH interventions disproportionately save more time for women than for men. This impact on women has a multiplier effect, since increasing women's opportunities and control over resources have been shown to also have a positive impact on poverty alleviation and other key development goals (UN 2009). Helping the most vulnerable groups in society reduces inequality and has

greater impact on net social welfare. Women are also subject to violence and sexual abuse while fetching firewood or water in remote areas (Bizzarri 2009). This suggests that improved WASH could reduce injury, psychological trauma and loss of life.

WASH and Healthy Ecosystems

The goals of WASH projects are partially determined by human factors—water and sanitation infrastructure, hygiene-related behavior, and various socio-cultural considerations—but they are also determined by ecological factors. These include the hydrology and ecological diversity of a given watershed which control the quantity, flow, and quality of water available for human and livestock consumption. For example, wetlands stabilize water levels by recharging groundwater systems and maintaining baseflows in streams and rivers (Wetlands International 2010). Vegetation along stream banks and within watersheds improves water quality by reducing erosion and slowing rainfall runoff, which reduces risk of severe flooding and helps recharge aquifers. Wetlands and floodplains can also absorb and reduce many types of pollutants. In general, the quantity, flow, and quality of water from the natural environment affect the types and costs of water treatment, storage options communities need, and the baseline of water-availability.

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. Excessive eutrophication [5] typically leads to decreases in biodiversity. In freshwater ecosystems, eutrophic algae blooms have negative impacts on fish species, fishery productivity, water quality, recreational value or aesthetic appeal, and extreme cases can lead to hypoxic dead zones. Plant species adapted to low-nutrient environments like meadows, forests and bogs are often displaced when nitrogen and phosphorous from human waste changes the local nutrient balance in the favor of fast growing invasive species (Pullin 2002). Improved sanitation also prevents the spread of pathogens harmful to wildlife as well as humans, such as *giardia* and *cryptosporidium* (Appelbee *et al.* 2005). Improved water quality can also reduce the need to boil water, which helps forest resilience by reducing unsustainable harvesting of firewood and supports climate change mitigation by reducing emissions from deforestation, greenhouse gases and black carbon from stovetops[6].

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[5] This is an accelerated addition of natural or artificial nutrients to bodies of water, caused by human activity.

[6] Although a few back of the envelopes estimates have been conducted, there are no precise estimates for the global contribution of household stove use to climate change.

Increasing the well-being of a community through improved WASH can also aid the development of a sense of stewardship to protect ecosystems and natural resources, particularly when integrated freshwater conservation and WASH programs increase people's understanding of the role that nature plays in sustaining the resources on which they depend. Promoting environmentally sound waste disposal as part of a comprehensive WASH program concretely demonstrates the real benefits of sustainable water management practices. Healthy ecosystems, resulting from the direct environmental benefits of improved WASH and sustainable water management, can have an effect on people's aesthetic or cultural perceptions of nature, enabling them to see their environment as something valuable or beautiful and worth treasuring.

This ToC proposes that integrated freshwater conservation and WASH programs include an educational component to help communities understand the connections between the environment and their well-being. This can nurture a sense of stewardship in communities to develop sustainable water management practices and creates a positive feedback cycle. The benefits of improved WASH to communities are also leveraged to improve the freshwater ecosystems and freshwater ecosystem services that underpin water security for people, economic activities and nature.

Core Principles: Freshwater Conservation and WASH Project Implementation

I n order to ensure integrated WASH and freshwater conservation interventions meet both health and conservation goals, the following core principles were developed to guide implementers. These principles were refined by the participants in the May 2013 ABCG workshop. The core principles are included here as critical elements to consider before developing and implementing integrated projects.

A   WASH projects should protect or enhance ecosystem health and water-related ecosystem services, such as sustainable water quantity and quality.

B   Conservation projects should incorporate/consider WASH goals that provide social/environmental benefits and make links to conservation goals.

C   WASH and conservation programs should promote resilience to future changes in water use, availability, and climate patterns through adaptive management of both natural and built infrastructure.

D   Climate-smart siting, design and operation of built infrastructure should be utilized to conserve and protect the broader watershed for sustainable WASH services.

E   WASH projects should use natural infrastructure to complement built infrastructure in planning and implementation.

F   Multi-level, multi-stakeholder engagement should be included for the adoption and long-term sustainable management of integrated WASH and conservation programs.

G   Stakeholder efforts to integrate freshwater conservation and improved WASH services should include gender sensitivity and a comprehensive approach to equitably increase access, participation and benefits among men and women, youth, elderly, and vulnerable groups.

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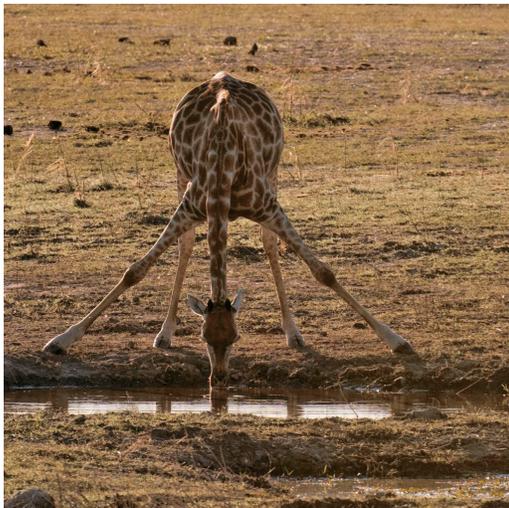
Translating the Core Principles into Action

Setting a Common Vision

One critical aspect of common goal setting is to **think big**. Think at a scale where integration can occur and can succeed. The project will need to be politically supported, at local to national levels, and have a long-term investment plan that includes local investment.

Another aspect will be to **think catalytically**. Undergirding the success of achieving audacious goals will be a rethink of what are the appropriate inputs for international organizations and donors to make in achieving successful and permanent WASH services and freshwater ecosystem programs. An adaptive learning process is important in the goal setting process and throughout the program cycle. It should be repeated yearly and based on data collected as a part of robust monitoring and evaluation procedures.

What emerges from this necessary reflection will most likely challenge conventional program thinking and approaches. Current programming is not bringing about the transformative results that either the WASH or conservation sectors, or a growing list of donors and philanthropists, want to see. This presents an opportunity to rethink how both sectors work together in partnership to achieve bold results.

The success of sustainably delivering WASH and ecosystem services to people and institutions hinges on the clarity of permanent local institutions to be able to lead and deliver. A concerted effort should be made in the goal setting process to lay all of that out and clearly define responsibilities, evaluate capacity, and where needed, set a goal to build capacity.

The following are a set of guidelines and ideas to enable common goal setting aimed at achieving transformative change in WASH and freshwater conservation efforts.

1 **Integrate WASH and Freshwater Conservation Activities Monitoring.** The process of goal setting starts with open dialogue and reflection among stakeholders in both the WASH and freshwater conservation/ecosystem sectors. Thought should be given to what is the overarching vision and goals that are needed to create impactful and lasting change. In other words, what is the desired end state or outcome? What does the outcome look like in terms of different permanent institutions − family, local government, national government, relevant ministries, relevant local boards/bodies, and private sector? Describe the interventions that each outside organization would like to accomplish through a lens of supporting the permanent local institutions to be able to lead and deliver on permanent service delivery and solutions. Determine links and ability to collaborate in order to articulate shared motivations, goals, and expectations (include multidisciplinary and sector-specific expertise). Opening up this common dialogue should also aim to overcome sector barriers/differences in relation to language, points of view, time scale, and M&E. This process is about visioning an end state where both sectors, and others, can have success.

For example, success would be a situation where:

- Freshwater resources are protected/enhanced in an environment where such resources are under threat
- Coordination and cooperation exists between households, clinics, schools, business, agriculture, and tourism. When resources are competed for, families, clinics, schools, and ecosystems will lose.

2 **Listen to stakeholders.** As part of this process discussions should take place with relevant stakeholders from local level all the way up to national level about what they really want, rather than make assumptions about desired outcomes. This listening process can help clarify the roles and responsibilities of these stakeholders and existing capacities. It should help to clarify the needed inputs from external organizations. A sample partnership readiness matrix is included in the resource section. Such a tool could be adapted and used for engaging stakeholders during the goal setting process and during the suggested yearly reflection period.

3 **Solicit multi-sector expertise.** The process should engage multi-disciplinary expertise from both the WASH and freshwater conservation sectors, and other sectors where relevant e.g. business, micro-finance, tourism, etc. It should describe interventions (recommended by sector experts) each group would like to bring to the table to determine areas of links/ability to collaborate.

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4 **Leverage local resources.** To ensure sustainability, effort must be made to ensure that there are locally leveraged resources (money) made available to the proposed work. This is a part of the conversation with local stakeholders. Outside investment needs to be seen as co-investment with the goal of supporting local leadership and action in order to create permanent solutions.

5 **Review and understand the enabling environment.** In relation to the broad goals and program areas, a review of four main thematic areas will help develop a clear picture of what external inputs are needed. These should be reviews of policies and practices (both environmental and WASH) as well as existing activities and successes:

- Regulation environment, such as tariffs, monitoring, and legal frameworks.

- Demand, such as affordability, ability to pay, and social norms

- Finance, such as access to international finance, local tax collection, good governance

- Capacity, such as management and procurement procedures, quality of service providers, and adequate human capital

6 **Inclusion of core principles.** The process of goal setting should take into account all core principles of fresh water conservation and WASH integration as locally relevant. The core principles can also be used to frame the argument and explicitly explain where there are linkages between the WASH and conservation sectors, and why integration is important for achieving the broader goals.

7 **Building an evidence base and measuring progress.** A goal should be included specifically on building the evidence base for integration. A way of measuring this goal should be included in the monitoring and evaluation (M&E) learning framework and reflection process. The goals should demonstrate a clear commitment to integration throughout the project cycle and be flexible enough to allow for adaptive management and course correction as learning takes place during the project. This is about setting the goals big enough and having robust monitoring, evaluation, and learning to be able to know whether good progress is being made towards those goals or what needs to be shifted to get back on track. This is also about some common measuring framework (a key piece of working towards collective impact) to be able to jointly and clearly judge process.

8 **Determine what organization(s) can provide operational support.** Effective support is critical for guiding the vision and strategy, supporting aligned activities, establishing shared measurement practices, building public will, advancing policy, and mobilizing funding.

9 **Optimize efforts for integration.** Selecting a critical path such as going for the most cost effective or efficient solutions will be important in the goal setting process. These decisions should be informed through an evaluation process about the appropriate inputs to be made by external organizations and donors in order to have a catalytic impact on the overall enabling environment.

10 **Commit to communications.** It is important to articulate expectations and share goals/motivations openly before planning actions and during all phases of the project cycle. This is a part of the open dialogue needed to challenge conventional thinking and commit to broad and bold goals. There is also a need to build these partnerships with a voice that is heard; this is a bold effort to tackle a complex problem.

THINGS to CONSIDER

To frame the common goal setting process it is possible to learn from the extensive research that the Stanford Social Innovation Review (SSIR) has done on collective impact. The concept embedded in collective impact is "that large-scale social change comes from better cross-sector coordination rather than from the isolated intervention of individual organizations.[7]"

The emerging research done by SSIR provides an evidence base for establishing collective impact approaches, which are in line with the complex, inter-connected problems and challenges that coordination amongst the WASH and freshwater conservation sectors present. Figure 1 shows the five key conditions for shared success taken from the SSIR collective impact series.

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[7] Kania, John and Kramer, Mark. "Collective Impact". Stanford Social Innovation Review, Winter 2011.

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Collective Impact: Five Key Conditions for Shared Success

Common Agenda	All participants have a shared vision for change including a common understanding of the problem and a joint approach to solving it through agreed upon actions
Shared Measurement	Collecting data and measuring results consistently across all participants ensures efforts remain aligned and participants hold each other accountable
Mutually Reinforcing Activities	Participant activities must be differentiated whild still being coordinated throught a mutually reinforcing plan of action
Contunuous Communication	Consistent and open communication is needed across the many players to build trust, assure mutual objectives, and appreciate motivation
Backbone Support	Creating and managing collective impact requires a separate organization(s) with staff and a specific set of skills to serve as the backbone for the entire initiative and coordinate participating organizations and agencies

FIGURE 1 ■ SSIR Conditions for Shared Success with Collective Impact Coordination.

A good communications and outreach strategy can improve the scale and impact of the programs. It needs to identify target communicators and their audiences and link messages to concerns.

■■■ suggested
resources ■■■

Series from Stanford Social Innovation Review (SSIR) on Collective Impact

Article from SSIR : Understanding the Value of Backbone Organizations in Collective Impact

Sample Partnership Readiness Assessment Matrix for Water Services

Infographic on visualizing the Everyone Forever end state and relevant external inputs

Gathering Information

Collection of information and credible data is critical to ensure that any project or intervention addresses the expressed needs of the people living in the target area. This chapter includes details on the types of information that *could be* collected, problem and stakeholder analysis, identification of stakeholders, and stakeholder meetings. The degree of detail or formality of each step is dependent upon the nature of the proposed project.

While differences may exist in how information is collected between the health and environment sectors, there are several common threads such as the value of credible, verifiable information from a range of stakeholders, need for consultation and consensus among stakeholders on program objectives, and the need to monitor and evaluate information in the later design and implementation phases of the project.

The following suggested steps for collecting and analyzing data for integrated programs are illustrative and can be prioritized based on project budget and staff capacity. Suggested data collection activities include:

1 Determine the **scope of the project** or intervention including the geographic area (community, landscape, watershed, etc.) and the relevant government and political boundaries such as districts and regions. Address the scale of the project and potential for replication or expansion in future years.

2 Identify **stakeholders** in the target area through a transparent, open process in line with cultural and traditional practices. Primary stakeholders are the men and women who have a direct interest in the proposed intervention, resource or project. Secondary stakeholders have a more indirect interest, such as those involved in institutions or agencies concerned with managing the resource or those who depend at least partially on wealth or business generated by the resource (FAO 2013). The stakeholders should include government and other relevant players and local leaders to ensure comprehensive vetting of project objectives and local ownership of project goals and outcomes.

3 As part of the stakeholder analysis, gather information on the **champions or leaders** in the target area in order to assist with the design phase and securing buy-in and ownership from the community members. Identify possible conflicts between stakeholders. Also look for potential challenges and road blocks and consider strategies to overcome these in the project implementation.

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4 Conduct a **threats or problem analysis** to identify the environmental and social threats, drivers and opportunities in a given place, including economic livelihoods. To identify threats to biodiversity and watershed ecosystem services in general, stakeholders can identify processes and actions that may diminish biological diversity, including conversion of natural habitats, overexploitation of valuable species, introduction of invasive species, and environmental change, such as climate change, desertification, urbanization, and pollution (USAID 2005). It is also useful to gather information about water sources, groundwater and surface water availability, recharge areas, and water quality, quantity and variability issues, such as occurrences of floods and droughts. This is usually an early step in a USAID-funded project that aims to protect biodiversity, as it provides a framework within which to address the complex factors and drivers of ecosystem degradation.

5 Engage local stakeholders in a **participatory analysis** that examines the community identified needs for water resources, watershed and sanitation. Analysis tools can include focus groups, random-sample surveys, key informant interviews and community-based meetings. Forging effective partnerships is a key step as WASH practitioners seek conservation partners, and conversely conservation partners reach out to work with WASH partners.

6 In order to quantify actual changes over time, where funding and other resources are available, project implementers should conduct **baseline surveys** of community members in order to critically assess the current situation on knowledge, attitudes and practices (KAP) among the target population, community leaders, WASH service providers, and local government leaders in WASH, health and environmental issues. The KAP baseline survey uses formal, standardized questionnaires in order to interview members of the target population. The common set of questions help to collect generate data from community members in order to establish baseline values for the important indicators against which achievements can be measured. At critical implementation points and at the end of the project, a KAP survey can help generate data in order to compare the situation in the target population over time. The endline survey generally uses the same questions as the baseline survey with additional questions as needed. Project implementers can then assess achievement of project objectives (expressed via indicator targets) within the target community.
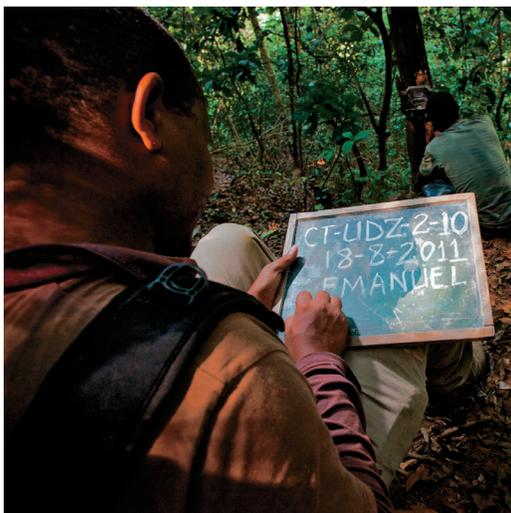
Other types of data collection instruments can be also be used, depending on the information required. Some examples include:

- **Participatory Rural Appraisal (PRA):** A growing variety of participatory approaches and methods emphasize local knowledge and enable local people to make their own appraisal, analysis, and plans. PRA uses group animation and exercises to facilitate information sharing, analysis, and action among stakeholders (World Bank 2013).

- **Focus Group Discussions (FGDs):** Gather in-depth qualitative information on people's perceptions, thoughts and ideas, by conducting a group discussion with select community members. FGDs are usually led by an independent moderator and topics discussed can range from consumer habits to communication messages. The opinions gathered are then used to inform the program.

- Building upon the threats or problem analysis mentioned above, project designers may also undertake a baseline survey of biophysical aspects of the project such as water quality and flows. Where budgets allow, these types of surveys can prove useful in showing positive changes as a result of specific interventions. Designers may also examine the administrative and legal conditions in a target site in order to better understand the enabling policy factors and challenges to implementation.

7 Conduct a **gender** analysis of the conditions, situation, and position in the area with respect to the social, economic, productive and political status of various social groups, existing organizations, and degree of involvement of men and women. Gender is the economic, social, political, and cultural attributes and opportunities associated with being women and men. To accurately understand the impact of the project on men and women in the area of planned activities, data collected should be disaggregated by sex.

8 Analyze the **policy context** and enabling institutional environment for water, environment, health, and development issues in the target area. Engage the government in information gathering to address the importance of governance in integrated programs. Analyze opportunities and challenges in the context of national priorities, development plans and policy agendas. This can help determine what interventions are feasible.

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9 Use **existing data sources** from government, academic, multilateral and NGOs that show the current state of WASH and the environment, such as Demographic and Health Surveys (DHS), watershed, climate change vulnerability and biodiversity assessments and other potential sources of information. This information will help support the choice of interventions in the design phase.

10 Conduct a **trend analysis** to understand the "business as usual" scenario and to project the proposed project impacts on the target population and area.

11 Consider conducting an environmental flows assessment to help identify existing coping strategies among the target population and point out gaps in adaptation measures on the ground.

THINGS to CONSIDER

- Foster participatory decision-making among all stakeholders and ensure information is shared with the target population to keep them informed of the project progress.

- Use language carefully in describing the project goals and objectives and adapt terminology from the WASH and environment sectors respectively to find common ground for consensus.

- Determine the most effective and efficient time for data collection activities taking into consideration of seasonal floods, agricultural work schedules, daily chores and tasks, and other factors relating to availability of stakeholders for interviews.

- Keep in mind that working with people must always be based on trusted relationships and mutual respect

■■■suggested resources ■■■

Aguilar, L., Briceno, G., Valenciano, I. and Chacon, E. February 2000. Seek…and Ye Shall Find: Participatory Appraisals with a Gender Equity Perspective. San Jose, Costa Rice: IUCN

PHAST Toolkit—participatory community planning guide

Global Water Partnership Integrated Water Resources Management (IWRM) ToolBox

Conservation Measures Partnership (CMP). 2004. Open Standards for the Practice of Conservation. Bethesda, MD: Conservation Measures Partnership

Grimble, R. and Chan, M. 1995. Stakeholder analysis for natural resource management in developing countries: some practical guidelines for making management more participatory and effective. Natural Resource Forum (19) 113-124

Reed, M., 2008. Stakeholder participation for environmental management. Biological Conservation*, 141 (10) 2417-2431

Watts, M.E, I.R. Ball, R.R. Stewart, C.J. Klein, K. Wilson, C. Steinback, R. Lourival, L. Kircher, and H.P. Possingham. 2009. Marxan with Zones: software for optimal conservation based land- and sea-use zoning, Environmental Modelling & Software (2009), doi:10.1016/j.envsoft.2009.06.005

USAID. September 2005. Biodiversity Conservation: A Guide for USAID Staff and Partners. Washington, DC: USAID.

IUCN Water and Nature Initiative Toolkits

Global Water Partnership—Toolbox

FAO. 2013. Stakeholder Groups

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Design

An integrated vision is best constructed when stakeholders identify the interventions that will most positively impact the communities and watershed affected. The final outcome may not have equal parts WASH and freshwater conservation. The step-by-step design process outlined below uses components that occur in many watershed or community-level projects. But one size fit does not fit all.

1 **Clearly articulate the problem the project is intended to address.** The statement can be phrased as a development objective, a conservation objective or contain elements of both. This statement should focus the project planning on answering "Where are we going?" and "How will we get there?" To facilitate a shared outcome, review the information gathered about threats/drivers, stakeholders and community roles, watershed dynamics, and other factors that may influence your outcome. One approach is to create a visual representation of how the project will achieve its goals by constructing a Results Framework that follows the Theory of Change.

The references section of this chapter includes a link to USAID's ProjectStarter interactive toolkit, which provides detailed information of how USAID's Program Cycle approach uses these elements. The theory of change should be[8]:

- Conceivable—Does the information gathered about the site and the research teams understanding of the situation suggest that if implemented, these activities would meet the project goal?

- Feasible—Will any barriers around the resourcese—economic, technical, political, institutional, environmental, etc.—prevent the project from reaching its goal?

- Measureable—Is the theory of change clear enough for outside parties to be able to track its progress and evaluate results?

2 **Involve partners.** Once the project has been clearly articulated, focus on identifying the stakeholders and capacities needed to reach this goal.

- Understand that each discipline has its own terminology or language as well as process for project development. An example of this difference can be seen in how each sector often uses the word "ecosystem." In terms of freshwater conservation, ecosystems are defined as the complex of living and non-living organisms interacting within a biological system as a functional unit. Often in the international development context, an ecosystem could refer to the human or cultural landscape or surroundings, like the "relief and development ecosystem."

- Make assumptions explicit. Closely related to the previous point, it is helpful to be aware that WASH and Conservation organizations often use different vocabulary and approaches.

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[8] Adapted from theoryofchange.org

3 **Create a list of illustrative activities for the project to be a menu of options.** Do not edit activities just yet, really outline all potential design elements to allow watershed conservation and WASH success. Two existing resources that may helpful are:

i) The Economics of Ecosystems and Biodiversity for Water and Wetlands (TEEB):

The specific influence of ecosystems on water availability and quality at any location is subject to three major variables:

1. Physical features and the underlying geology, in particular the slope and elevation of the land, the presence of physical infrastructure such as roads or dams, and geo-physical structure of the soils;

2. Geographic location, such as latitude and the relative location in relation to coastlines; and

3. Ecological factors, in particular the nature of land cover, wetlands and soil biodiversity and their relative condition.

ii) The Catholic Relief Service Tools for Participatory Natural Resource Management:

While the TEEB report examines physical aspects of watersheds and ecosystems, it is important to also explore knowledge, attitudes and practices in the target community about water and its use in everyday life. Designing effective interventions requires looking at both the physical and social aspects of water.

Water use
- What are the community's main water sources?
- How do they use water—for irrigation, drinking water, household use, animals?
- Are water resources increasing? Decreasing?
- Why?
- What needs to change?

Watershed management
- Do people manage their watershed?
- What is happening within local watersheds?
- Losing trees?
- Losing soil?
- Losing water through too much run-off?
- What needs to change?

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4 **Select activities and define roles and responsibilities.** No project can accomplish all things. Choose activities that will best serve the project goals. Develop agreed upon criteria and engage key stakeholders in identifying activities and each stakeholder's roles and responsibilities.

Ask questions about cross-cutting themes that impact stakeholders:

- What has been done to ensure equitable access to water sources?

- Does the project have a gender strategy?

- What will be the impact on vulnerable populations?

- Are there any endemic or threatened species that will be impacted?

- How will this impact communities and ecosystems downstream?

- What are the anticipated impacts of climate change on this system? What can be done to improve socioeconomic and ecological resilience?

5 **Integrate messaging and communications.** Look for opportunities to mix and reinforce messages to anchor core project ideas and increase community engagement. Behavior change and communications play an important role in the long term success of a WASH or freshwater conservation project. While each sector has existing resources on sector-specific communication and messaging, an integrated project has additional opportunities to broaden the dialogue by pairing conservation and WASH messaging. A dialogue that begins around the connections between water, nature, and a community's or an individual's own health and well-being, offers more potential points of engagement than traditional sanitation and hygiene or conservation messaging. This can also help introduce sensitive discussions around otherwise taboo subjects such as personal hygiene practices or begin to lay the ground work for behavior change components that will come later in the project timeline.
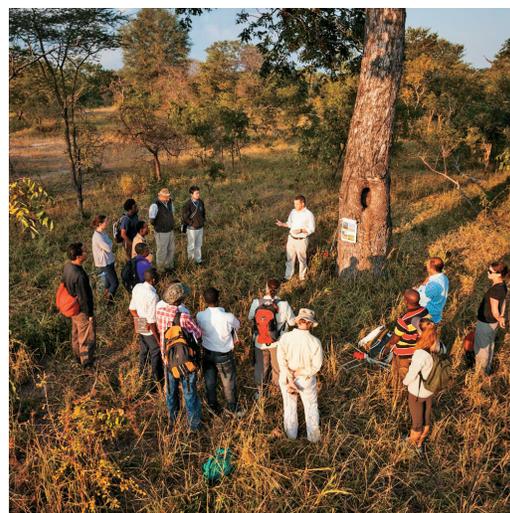
6 **Create timelines.** Plot a timeline to correspond with the activities selected. Have each activity leader make sure enough time is factored into the plan and, because often multiple activities can take place simultaneously, consider mapping it out to get a complete picture. Connect each activity with a milestone and estimate the time required in quarters.

Keep in mind that conservation projects often have longer project timelines than WASH projects. For example, reforesting a degraded water source will take longer for the activity itself as well as for the time needed to show results than implementing and evaluating a water supply project based on the installation of hand pumps. Careful timing of activities can mean that both types of project benefit from integration. Staggering shorter term activities across a longer time scale maintains a project's momentum. Activities that take less time to deliver can also benefit from being part of longer project.

Imagine if a reforestation and hand pump installation project are combined. The installation of hand pumps can be a quick win to help engage communities in the project goals. As reforestation takes longer, there continues to be a presence of people on the ground who can help monitor progress of hand pump use and continue education about water use hygiene. Better data is collected and implementation is improved.

7 **Project monitoring and evaluation.** Incorporate monitoring and evaluation plan into the project design. Start by returning to the project map, look at each activity and ask, "How will we know when this is complete?" Chapter five provides detailed guidance around setting up a monitoring and evaluation (M&E) plan, which would also be helpful to reference at this stage.

8 **Create a clear, transparent budget.** Ask the activity leaders to cost out all activities by thinking through the staff, travel, equipment, etc. funds needed, instead of asking for an estimated total per activity. If it is necessary to condense or cut part of the budget, it will be clear what can and cannot be completed if certain sections of the budget are reduced. It also aids transparency because everyone involved will be able to see what is going into each activity.

9 **Review.** Now that the plan, timeline, budget, and method of evaluation are completed, return to the first step in this process to make sure they clear the challenge of each step. This provides the opportunity to examine the plan as a whole and provides an opportunity to refine or flag areas that may need to be adapted over time.

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THINGS to CONSIDER

- Resist the urge to design a 50/50 project between WASH and freshwater conservation activities and do not be afraid to rule things out. Projects are context specific. Not all implementation elements can be incorporated for many reasons including lack of financial resources, capacity, community ownership, or other constraints. No project can do everything, what matters most is that the project achieves the agreed upon goals.

- Include community stakeholders "at the table" as early as possible in the planning process. Ideally, this will have begun during the common goals setting, so they are invested and engaged throughout the life of the project. Whenever possible:

  - Build on traditional community structures

  - Use a participatory design process

  - Clearly define stakeholder roles and responsibilities

- To ensure the design is fully integrated and not just developed in parallel, consider designating someone who is charged with looking at the big picture of planning.

- When considering trade-offs, return to the common goals to determine the right course of action with the team. If serious disagreement over the vision or activities needed exists, reconsider whether taking an integrated approach is the right choice.

- Leave adequate time to plan. Integrated projects are more complicated than single sector projects, so a longer planning period may be needed.

- Use the common goals determined at the beginning of the project as a "compass" for navigating the design process. There will likely be trade-offs along the way, but this will help make sure the main objectives are at the heart of each activity.

- It is never too early to be thinking about M&E. Don't give into the temptation to think of M&E as something that is done at the end of a project and, therefore, it does not have to be addressed until then. Start asking early on in the design process, "How will we know if we are making progress?"

■■■ suggested
resources ■■■

USAID ProjectStarter interactive toolkit Results Framework guidance

USAID Results Framework

Theoryofchange.org, a collaborative project of the Aspen Institute and
ActKnowledge, offers a wide array of resources, tools, tips, and examples
of theories of change.

Russi D., ten Brink P., Farmer A., Badura T., Coates D., Förster J., Kumar R. and
Davidson N. (2012) The Economics of Ecosystems and Biodiversity for
Water and Wetlands. Final Consultation Draft.

Catholic Relief Services (CRS). 2011. Natural Resource Management: Tools for
Planning and Implementing Participatory NRM Projects. Baltimore, MD:
CRS.

Implementation

Implementation follows the work of partners in aligning goals, collecting information, identi-
fying stakeholders and designing projects. Detailed attention to preparations improves the
chances for successful implementation but does not guarantee a smooth implementation
process. This chapter outlines steps for implementing integrated programs. It is beneficial to
spread lessons from existing programs that showcase the feasibility and value of integration.

Understanding that each local context offers unique challenges for implementation, this
section includes information on recommended steps to implement integrated WASH and
conservation programs. It can serve as a checklist for field staff to adapt to their local context.

1 **Execute roles and responsibilities.** Develop rules regarding internal
communication, sharing expenses, security, resources, facilities or trans-
port with partner organizations. To the fullest extent possible, identify across
key stakeholder groups including:

- Community leaders
- Implementing partners
- Government players
- Donors

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Establish an operating committee with members from both WASH and conservation partners. This committee would be led by a designate project coordinator and should have equal representation from both groups. It would responsible for overseeing communication, tracking financial or budget issues and administering conflict resolution to ensure that operations run smoothly.

2 **Foster integrated community engagement.** WASH and conservation staff should build relationships with key community stakeholders to foster community buy-in. Build from pre-existing trusting relationships with target audiences that are hard to reach to benefit both WASH and conservation entities and increase the likelihood of sustainable success. Outreach should be made to national (district, regional) advocacy meetings/outreach, local government and multi-sectoral ministries. It is also recommended to engage government departments like the Department of Public Works, Ministry of the Environment, Finance Department or Public Health from the beginning to get an understanding in advance to gauge how they would be willing to participate. They can also lobby support from other key partners.

3 **Develop an operating and fundraising plan.** Components should include a work plan, budget, plan for fundraising, as well as a calendar of activities for several months. Develop a work plan and budget jointly with conservation and WASH entities and formal and informal partners. One important aspect of the operating plan includes using periodic evaluations to refine and adapt activities. If it is within the budget a third party assessment could provide helpful and unbiased assessment of activities. Finally, both entities should consider conflict resolution mechanisms.

4 **Promote transparency.** Communicate actions and results openly and in as many forms (meetings, electronic, newsletters, etc.) as possible. Schedule coordination meetings between partners to share information on project logistics.

5 **Ensure delivery of services.** Share the complete menu of activities among partners, including time schedules and geographic coverage. Include appropriate indicators as they serve as a roadmap and help communicate among partners the expected deliverables for each type of service. One important aspect during implementation is for both WASH and conservation entities account for flexibility during implementation.

6 **Construction.** Involve WASH and conservation entities jointly during project construction phases. Build familiarity with the various technologies and approaches used by both WASH and conservation entities. Additionally when selecting appropriate technologies to meet local needs, share the full range of built and natural infrastructure options.

THINGS to CONSIDER

- Consider developing a checklist to monitor integration as activities are implemented.

- Schedule partner coordination meetings at different intervals of the project planning to check-in on progress.

- Integrating activities is difficult and can at times be costly in terms of resources and time to develop additional programs. Consider potential gaps and plan accordingly to avoid higher costs of integration.

■■■ suggested resources ■■■

Conservation Measures Partnership. April 2013. "Implement actions and monitoring" in Open Standards for the Practice of Conservation, Version 3.

World Vision. 2011. "How do we manage together?" in Good Practices for Putting WV's Development Programmes Into Action: Synthesis of Learning from the Field.

USAID. 2005. "Conservation Approaches" in Biodiversity Conservation: A Guide for USAID Staff and Partners. Washington, DC: USAID.

USAID. 2007. "Forming Institutional Arrangements" in Integrating Population, Health, and Environment (PHE) Projects: A Programming Manual. Washington, DC: USAID

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Monitoring and Evaluation

The practice of monitoring and evaluation (M&E) and using results to address findings are essential to attain improved services over time. M&E provides the ability to track and analyze performance. Tracking service results and using them to improve outcomes helps support community needs over time and helps ensure effective use of program funds. As defined below, these steps combined are known as MERL—monitoring and evaluation **for** resolution and learning. For the purposes of this document, the MERL process may begin during a project cycle but continues for several years beyond to track long term results.

The MERL process presented here may present a dramatic shift from current practices. Currently, the practice of post-project monitoring and evaluation rarely happens. Following up to make changes and improve future outcomes is also rare. The relatively high rate of failure of WASH projects has caused sector professionals to take a critical look at why projects fail and what action can support higher success over time. The WASH/conservation collaboration presents the opportunity to leverage cross-sectoral participation because both sectors want sustained results.

M **Monitoring** is the process of using indicators to measure program changes over time. Post-implementation monitoring is undertaken after installation of the WASH/conservation service or program.

E **Evaluation** is the long-term systematic and objective assessment of an ongoing or completed project, program, or policy, and its design, implementation and results. Evaluations should be performed by an external third party.

R **Resolution** is the process of addressing problems identified through monitoring and evaluation results.

L **Learning** is the process of incorporating lessons learned into ongoing practices to increase effectiveness and sustainability over time.

Note: These four steps combined are referenced as MERL in this chapter.

The four steps of MERL are an iterative process. Depending on a particular program, each step may happen in sequence, or concurrently. Ultimately, monitoring and evaluation results will inform what needs to happen to resolve and learn from problems. The resolution and learning process subsequently feed into future monitoring and evaluation. This chapter explains the MERL process and ways to incorporate MERL components into organizational agreements and processes.
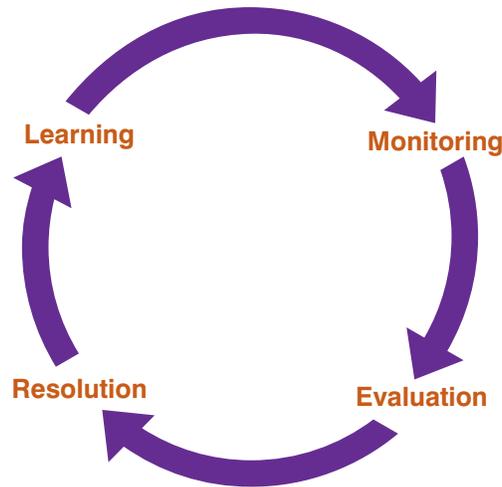
1 **Perform periodic monitoring.** Monitoring takes place during and after project cycles end. It refers to the process by which stakeholders obtain regular feedback on the progress being made towards goals and objectives. Several references exist that address project monitoring and evaluation such as *A Guide for Monitoring and Evaluating Population-Health-Environment Programs.* However, few references exist for post-implementation monitoring and evaluation. These guidelines elaborate further on the principles presented in the recent Open Standards for the Practice of Conservation.

Monitoring in a Country-led Context

International statements such as the Paris Declaration, the Busan Partnership, and the New Deal for Fragile States call for country-led development. To track results, the statements also highlight the importance of country-led monitoring.

Country-led monitoring is led by the government with input from civil society and communities. External partners should facilitate country-led monitoring to the maximum extent possible. In some instances, external partners will need to support institutional and individual capacity, these should be developed over time, according to need of individual programs (Danert 2013).

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Post-implementation water monitoring indicators include service functionality, drinking water quantity and quality, and number of customers served. Other indicators that help track sustainability should also be considered, such as the level of downtime, the community's and national government's actual support of local operators (Lockwood *et al.* 2011), financial sustainability, and environmental sustainability.

2 **Ensure evaluations inform future actions.** As defined earlier, evaluation is the systematic and objective assessment of an ongoing or completed project, program, or policy, and its design, implementation and results (World Bank 2007). Evaluations in the context presented are retrospective third-party assessments of program results. These assessments occur over time from one to ten years after completing a project cycle.

3 **Use resolution and learning to improve project performance.** While monitoring and evaluation are important components used to determine a program's effectiveness, their benefits may be limited if no follow-up occurs. Furthermore, when external donors fund evaluations, local and national partners may never see results. The findings may not always be used to inform ongoing programs and policy development. Thus the process of resolution and learning (similar to the "adaptive management" term in project management circles) is essential to track ongoing results and make changes when needed to improve results.

Resolution is the process of addressing problems identified during ongoing monitoring and evaluation. For example, a community water pump handle may break. Communities can address minor repairs with a management system in place and local or national governments can resolve other issues. The role of external parties in this framework is to ensure that resolution is happening and to provide capacity building to address gaps, including technical assistance for communities and local or national governments.

Learning is the final step of the MERL process. This step "closes the loop" to share lessons and products to provide feedback into current and future programs. To support this step, organization leaders need to redefine and embrace "failure" as an opportunity to assess what mechanisms work, which ones don't, and how to incorporate lessons learned going forward: the iterative process of the MERL cycle

Examples of "Learning" outputs:

- Shared successes and failures with all parties—communities, donors, governments, and organizations (both internal and external)

- Social media to tout results and follow-up
- Conference presentations and papers
- Use results from M&E to fill gaps in national policy
- Quantify the benefit of integration, including cost effectiveness

The MERL process described represents the current state of knowledge and will certainly mature over time. Below are possible challenges or gaps involved in the MERL process.

Perceived high costs of long-term MERL—One reason for the lack of post-implementation monitoring is the perceived high cost. However, recent data indicates that the average cost ranges from .06 to .17 USD per person (Taste the Water 2012) per year. Additional funds to ensure that post-implementation *resolution* of problems are undertaken by some entity (e.g., the local community, the implementer, the national government agency) will depend on the length of time the implementer intends to monitor the project and program. Cost estimates should be included in the initial budget plan, with at least five percent of total program costs allocated in a line-item budget for the MERL process.

Absence of long-term funding for MERL—The lack of MERL partly occurs due to lack of budgeted funds. Project coordinators should include funds within the initial budget to conduct individual MERL cycle components over the long term, preferably up to 10 years.

The lack of trust in in-country partners—In many cases donors and non-government organizations do not trust developing country governments. In addition, implementing organizations will report to funders and bypass country governments completely. Although donor reporting is necessary, leaving out country partners does not facilitate long-term partnerships.

Community engagement—In addition to involvement in other parts of a WASH/Conservation project, communities also play an important role in the MERL process. The MERL process must be understood and used by the communities to ensure long-term sustainability.

Syncing monitoring with in-country standards—Program practices must be designed to meet national water quality standards. Although water quality standards may not exist at country level, the WASH/conservation sectors need to do their part to maintain water quality.

Finding clever ways for the WASH/conservation sectors to monitor together provides a stepping stone towards stronger partnerships. For example, in

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Uganda, the Water and Environment Sector Performance Measurement process brings diverse stakeholders together to reflect on progress for the country as a whole[9].

An assortment of options exists for WASH/conservation partners including donors and implementers—to address MERL in program agreements. Well-tailored agreements, clauses, and/or compacts can foster program sustainability, particularly when they are developed collaboratively and are easily understood by all parties.

> " USAID will seek investments in longer term monitoring and evaluation of its water activities to assess sustainability beyond the typical USAID Program Cycle and to enable reasonable support to issues that arise subsequent to completion of project implementation. "
>
> *USAID Water Strategy 2013*

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[9] See more at: www.washfunders.org "Country-led Monitoring of Rural Supplies: Is it Just a Dream?"

THINGS to CONSIDER

Sustainability Compact[10]

The sustainability compact is a requirement included in the implementing contract that provides assurances for sustainable WASH outcomes for at least 10 years. External stakeholders should collaborate with country governments or other relevant partners to agree to a sustainability compact. The compact is an agreement between the Ministry in charge of water and sanitation or [Government of X Country] or [other partner] and sector stakeholders. An example inspired by UNICEF follows:

Maintaining functional water supply services at least 10 years

Through this compact, all parties agree to work with the [Government] on cost recovery mechanisms, supply chain resources, and human resources at the local level to improve functionality of water services. The Ministry in charge of water will ensure that funding is available for operation and maintenance at the local level. When major repairs are needed, the government will take immediate action as needed to enact repairs.

The Compact commits all parties to work together over [5-10] years to advance sustainable WASH outcomes. The Compact focuses on accelerating the WASH sustainability agenda in the [country or other region] in the following areas: drinking water supply, sanitation, hygiene; WASH in schools and institutions; and humanitarian response.

Contract Language[11]

Agreements should provide clear language that describes partner expectations over the duration of the agreement.

Post-installation technical assistance and monitoring. [partner's] staff will perform follow-up monitoring visits: (1) within one week of installation as a physical visit, or at least a phone call; (2) within the balance of Quarter 1 as either a phone call or physical visit, depending upon which took place within the first week; and (3) within Quarters 2, 3, and 4 as either a physical visit or phone call. Years 2–10 will include at least two contacts per year, one of which will be a physical visit.

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[10] As inspired by UNICEF Headquarters WASH program, March 2013.

[11] As inspired by Splash.org.

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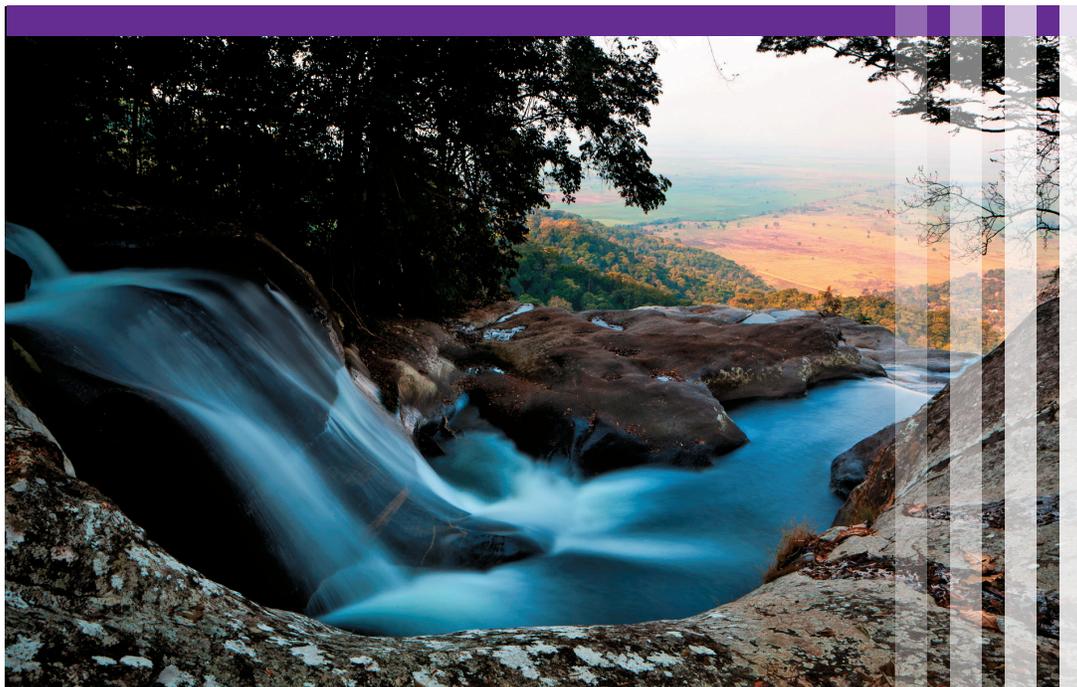
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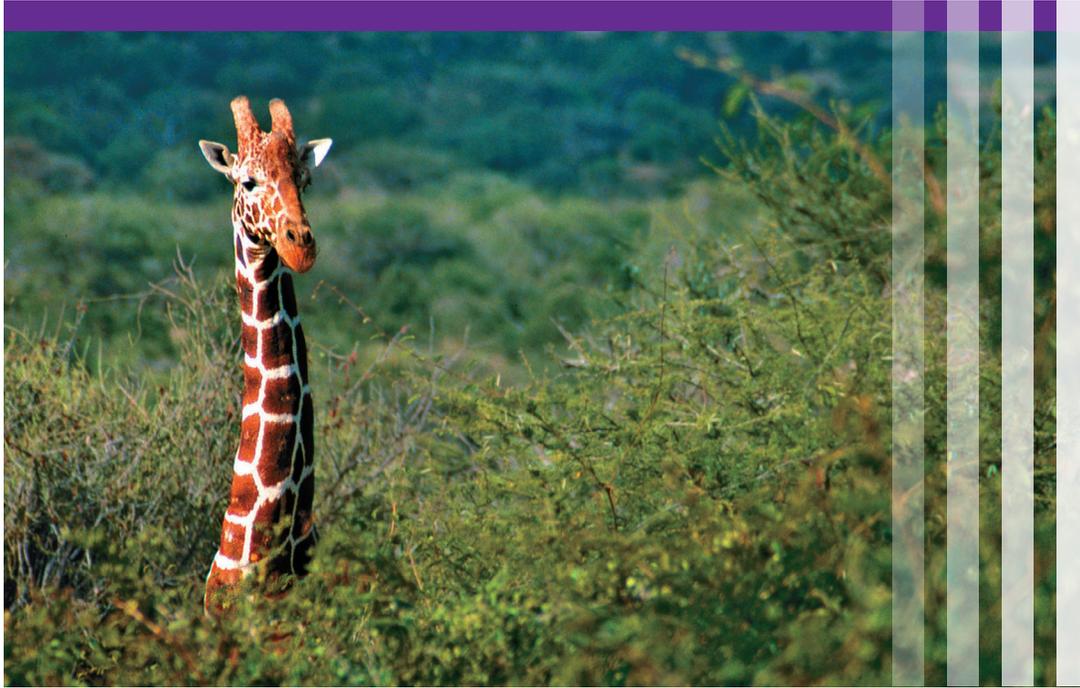
Appendix A: Joint Statement

(to be inserted during publication design)

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FROM THE AMERICAN PEOPLE

AFRICAN WILDLIFE FOUNDATION®   CONSERVATION INTERNATIONAL   the Jane Goodall Institute   The Nature Conservancy — Protecting nature. Preserving life.   WILDLIFE CONSERVATION SOCIETY   WORLD RESOURCES INSTITUTE   WWF®

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