

INTRODUCTION TO PROJECT PLANNING FOR HOUSEHOLD WATER TREATMENT

A CAWST PARTICIPANT MANUAL
August 2012 Edition



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CAWST, the Centre for Affordable Water and Sanitation Technology, is a nonprofit organization that provides training and consulting to organizations working directly with populations in developing countries who lack access to clean water and basic sanitation.

One of CAWST's core strategies is to make knowledge about water common knowledge. This is achieved, in part, by developing and freely distributing education materials with the intent of increasing the availability of information to those who need it most.

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Acronyms

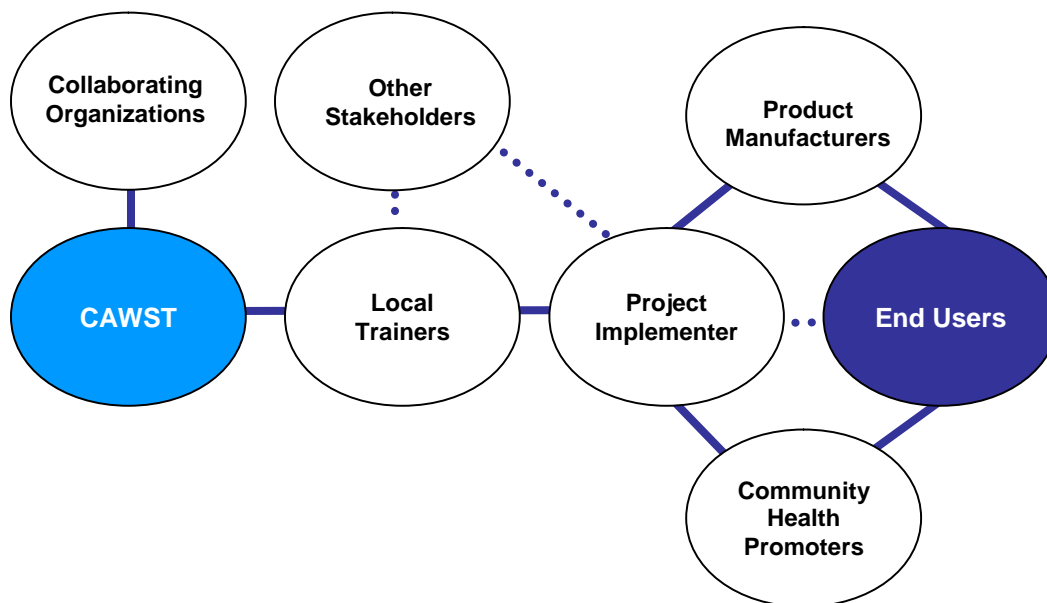
CAWST	Centre for Affordable Water and Sanitation Technology
CHP	Community Health Promoter
CIDA	Canadian International Development Agency
ITA	International Technology Advisor
LFA	logical framework approach
MOU	memorandum of understanding
RBM	results based management
USAID	United States Agency for International Development.

1 WASH Training and Project Implementation

The Centre for Affordable Water and Sanitation Technology (CAWST) started with the belief that the poor in the developing world deserve safe water and basic sanitation. We also believe that the place to start is to teach people the skills necessary to have safe water in their homes. The goal of the CAWST WASH Training and Project Implementation model is to pass knowledge and skills to organizations and individuals in developing countries through education, training and consulting services. They, in turn, can motivate households to take action and meet their own water and sanitation needs.

This model is sometimes called “technology transfer” because it enables and develops the capacity of local populations to meet their own needs for safe water and basic sanitation. Most people that CAWST reaches are not water and sanitation professionals. CAWST training programs and educational materials are designed to be appropriate for a wide variety of non-technical audiences.

As shown in the following diagram, there are different roles that are important in making household water treatment and sanitation projects successful and sustainable. This model promotes a shared responsibility between everyone involved.



1.1 Centre for Affordable Water and Sanitation Technology

The Calgary-based Centre for Affordable Water and Sanitation Technology (CAWST) provides technical training and consulting services, and acts as a catalyst bringing together the right partners and funders to make water and sanitation projects a reality for the poorest of the poor in the developing world.

CAWST has taken a different approach to the problem of water and sanitation for the poor. Instead of starting with technology solutions, CAWST starts with education and training to build local capacity. CAWST sends International Technical Advisors (ITAs) to diverse and often remote locations around the world to deliver training directly to the people. Training is customized for each of the roles shown in the WASH Training and Project Implementation model.

After providing training, CAWST follows up with ongoing technical consultation to help them with project development, overcome problems to implementation, and make connections with other local organizations. ITAs provide support to organizations and individuals working around the world by telephone, e-mail and in-country visits.

1.2 Collaborating Organizations

CAWST recognizes that it is important to work with and create effective relationships with other organizations who work in the water and sanitation field. CAWST is an active member of the World Health Organization (WHO) Network to Promote Household Water Treatment and Safe Storage and has Special Consultative Status with the Economic and Social Council of the United Nations. CAWST also supports universities and others to conduct research that would be useful for technology development and project implementation.

1.3 Local Trainers

Experienced in-country organizations can act as Local Trainers and provide ongoing consultation and technical support. These Local Trainers are capable of training other community organizations in the various roles required to implement household water treatment and sanitation projects. The Local Trainers also facilitate networking between project implementers and ensure that lessons learned are shared.

The Local Trainer should be knowledgeable about the subject matter and technology appropriate to each of the various roles. An individual or organization becomes a Local Trainer through participating in trainings, and later by apprenticing with other qualified trainers. Once fully-trained and competent, these individuals and organizations can then act as local centres of expertise to pass on their knowledge and skills to other community organizations.

1.4 Project Implementer

The Project Implementer is the person or organization who initiates and organizes a household water treatment or sanitation project. They are the key driver and provide support to all of the others who are involved in the project. The Project Implementer should have a reasonable level of knowledge on water and sanitation issues and may be very knowledgeable about the local situation. They are generalists and know a little bit of everything, but don't need to be an expert on all aspects of the project.

The Project Implementer is the center of the activities and needs to keep things moving to ensure an effective and successful project. Strong planning, management, organizational and communication skills are essential for this role. To successfully implement a project, the Project Implementer should be able to:

- Understand how to construct the household water treatment or sanitation technology
- Develop project plans and write funding proposals
- Put together a team of individuals (Product Manufacturers, Community Health Promoters) and work with other stakeholders (government agencies, funding organizations, community groups, etc.) needed to implement the project
- Teach some skills to Product Manufacturers, Community Health Promoters and End Users
- Perform monitoring and evaluation activities

1.5 Product Manufacturer

The Product Manufacturer is responsible for constructing and installing the household water treatment or sanitation technology and is the local expert on production and troubleshooting. The Product Manufacturer may also be the first person to teach the End User about how to use and maintain the technology. They are sometimes called by other names, such as Filter Technician in the case of a biosand filter project.

It would be an asset if the Product Manufacturers already have construction skills related to the type of technology being produced, such as a mason for building biosand filters or constructing latrine slabs, or potter for making ceramic filters.

A competent Product Manufacturer should be able to complete the following tasks:

- Explain how and why the technology works, its advantages and limitations
- Assemble and prepare the required tools and materials
- Construct and install the technology using appropriate quality control steps
- Teach other workers how to construct and install the technology
- Teach End Users how to use and maintain the technology

The Product Manufacturer role can also be taken by a microentrepreneur and it can be run as a profit making business. These individuals should have or be able to develop business skills such as:

- Production planning
- Budgeting for production costs and selling price
- Accounting of money
- Customer service
- Marketing to promote the technology

1.6 Community Health Promoter

The Community Health Promoter is essential for the successful implementation of any household water treatment, sanitation or hygiene project. They are sometimes called other names, such as Community Steward, Community Health Promoter or Hygiene Educator, depending on the organization, language and country.

The primary role of Community Health Promoters is usually to visit with households to help people learn about how to treat their drinking water, improve their hygiene and sanitation practices, and answer questions that they might have about water and health in general. Another role the Community Health Promoter may have is to provide support to schools and community groups with education programs about water, sanitation and hygiene. They could act as the principal organizer of awareness raising activities or as a resource person for teachers and community leaders.

Community Health Promoters can be individuals from the community, members of a local non-governmental organization (NGO) or community based organization (CBO), health workers, nurses, or teachers. Community Health Promoters don't necessarily have to be experts in water, hygiene and sanitation. This is knowledge that they can gain through training. It is more important for Community Health Promoters to be trusted by the local community and have the capacity to learn new skills and communicate.

Community Health Promoters should have the following knowledge, skills and attitudes:

- Trusted by the members of the community or group they are facilitating
- Able to speak the local language of that community
- Able to understand the culture of the group or community
- Able to communicate effectively and listen to others
- Understanding of water, hygiene and sanitation issues
- Skilled in using participatory learning tools
- Possess the appropriate attitude to facilitate participatory learning activities
- Demonstrate good water, hygiene and sanitation practices within their own household

The Coordinator is the person responsible for training and supervising Community Health Promoters, monitoring behaviour change in the community, and reporting to the Project Implementer. Coordinators are generally the technical and health staff of the implementing organization. The following are some suggested knowledge, skills and attitudes required for an effective and successful Coordinator:

- Ability to organize projects and make decisions
- Has experience in water, hygiene and sanitation, community development, or health education projects
- Aware of the need for safe water and have some familiarity with household water treatment, good hygiene and basic sanitation
- Able to communicate effectively and train others
- Skilled in using participatory learning tools
- Possess the appropriate attitude and behaviour to facilitate participatory learning activities

1.7 End Users

End Users are the people who are interested and willing to adopt and use a new water treatment or sanitation technology for their home. End Users should be informed about water, sanitation and health issues, and practical options to improve their quality of life, including the following topics:

- How water is contaminated and diseases are transmitted
- Proper hygiene and hand washing
- Basic sanitation options
- Household water treatment options
- How to protect their water source
- How to use and maintain a technology
- Options for safe water storage

End Users should be supported by Community Health Promoters and Product Manufacturers following the installation of their new household water treatment or sanitation technology. Education materials targeted for the End Users must be culturally appropriate and suitable for the local situation. Participatory learning activities and visual materials are often used so that all members of the community can take part and learn together. Educational materials should also be adapted for women, men and children because they may have different priorities and views about water, hygiene and sanitation.

1.8 Other Stakeholders

There are usually several stakeholders that play different roles at various times in a household water treatment or sanitation project. Potential stakeholders may include government officials, funding agencies, health staff, academic personnel, religious organizations, and schools.

1.8.1 Government

Support and endorsement from the local and national government can be useful; even though they are not often directly involved in the implementation of household water and sanitation projects. Governments can benefit from household water and sanitation projects since they reduce the burden on their resources and contribute to the local economy. Household projects

also contribute to reaching the water and sanitation targets of the Millennium Development Goals which generally fall under the responsibility of government. In many cases, a local government can provide some in-kind resources to support a project, such as a centralized workspace and transportation.

1.8.2 Funding Agencies

Financial support from local and international community organizations, foundations, agencies and individuals is usually a critical element in starting and sustaining a new project. End Users are often supported financially since they may not be able to afford the cost of adopting a new technology.

1.8.3 Health Departments and Educational Institutes

Health departments and educational institutes tend to be very knowledgeable about the local situation and the issues related to water and sanitation. They can support projects by sharing their expertise and knowledge with the Project Implementer. Health staff and academic researchers often rely on local projects for data to support their investigations and studies.

1.8.4 Religious Organizations

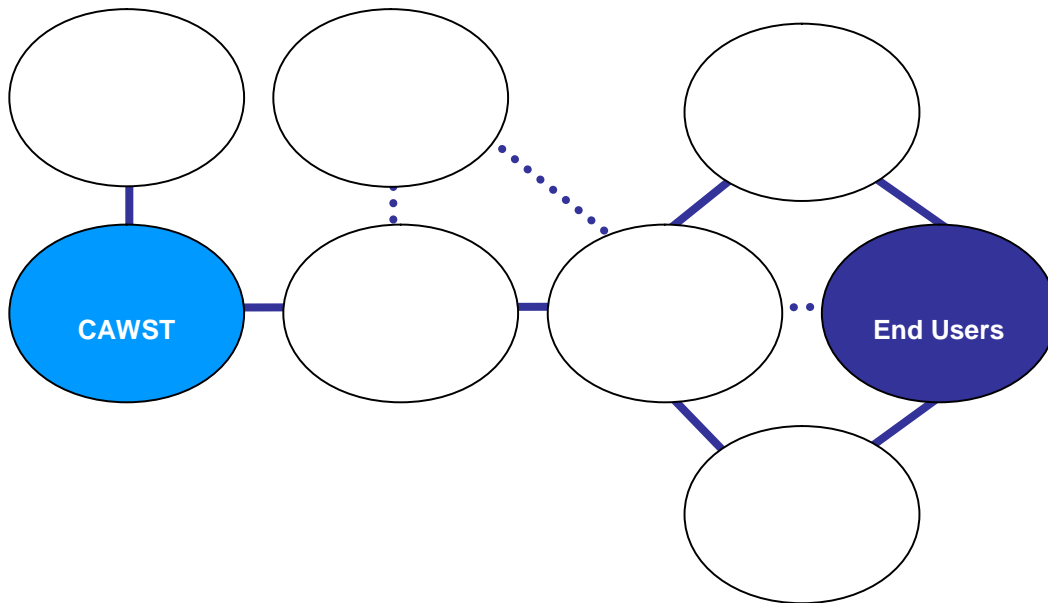
Religious communities often support household water and sanitation projects since they share a common goal of helping those in need. Religious organizations can often reach a large number of people through their regular activities and events, such as daily prayers and weekly gatherings.

1.8.5 Schools

Water, sanitation and hygiene education can be incorporated into formal school curricula or informal child education programs. Children tend to be more open to adopting new practices, and they can influence the hygiene behavior of their families, peers, and neighbors. Once convinced, children can teach others about improved water, sanitation, and hygiene practices. There have been many successful programs using child-to-child programs; where one group of children is educated and then goes on to share what they've learned with other groups of children.

Activity – What is Your Training and Project Implementation Model?

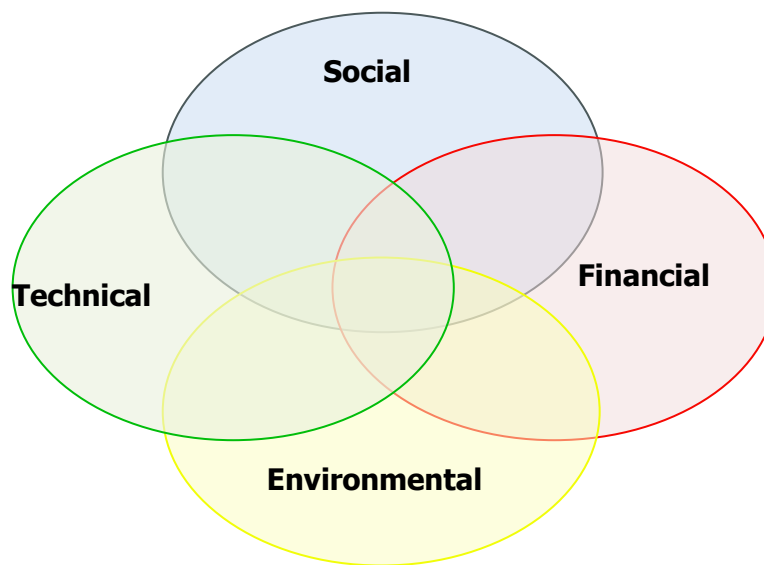
Complete the following model by filling in the names of the people or organizations that do each job. Sometimes, the same person can have more than one role or more than one person can share a role, in which case, you would enter that individual’s name more than once. As well, there may be nobody who performs a specific job so you would leave that space blank.



2 What Makes a Project Successful?

For a project to be successful, it must be sustainable. There are two aspects to sustainability: implementation and impact. Implementation refers to the sustainability of conducting project activities. Impact refers to the sustainability of changes that a project has achieved beyond the end of the project activities. For a project to be sustainable, it must consider in combination technical, social, environmental and financial aspects.

Factors that Influence Sustainability

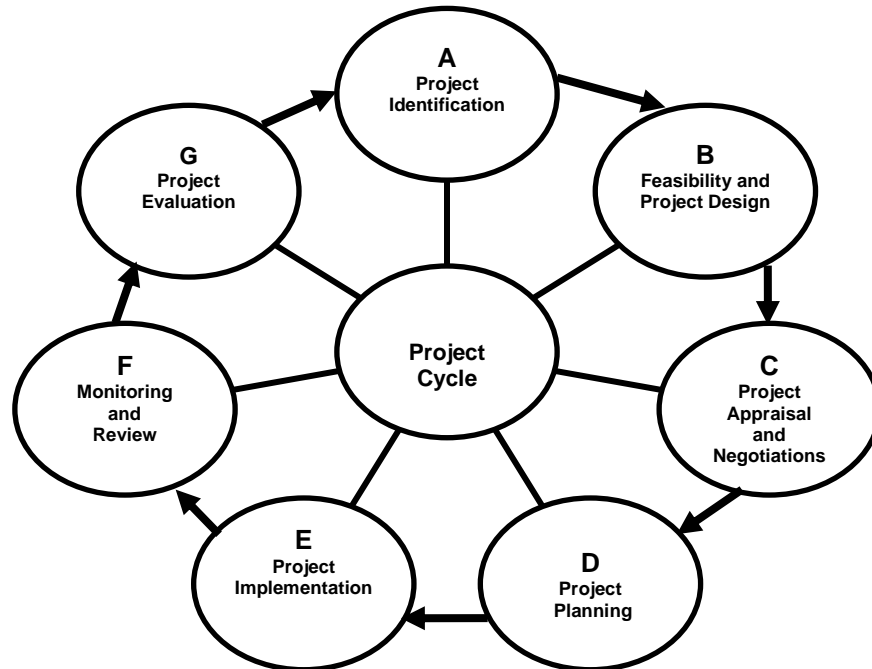


<p>Factors that influence social sustainability include:</p> <ul style="list-style-type: none"> • Social – Relates to a need felt within a community and its’ social acceptability • Cultural – Relates to the customs and belief systems of any society • Health – Impact of improved water supply on public health • Gender – Role of men and women members within the household and community • Politics – Household, local, regional, national and international levels • Community participation – Meaningful involvement of community members 	<p>Factors that influence technical sustainability include:</p> <ul style="list-style-type: none"> • Quality and quantity of water produced over the life of the product • Design – appropriateness, simplicity, robustness, reliability • Quality of construction • Use of locally available materials/parts • Maintenance requirements • Need for and availability of materials for repair/replacement • Training/knowledge of the user • Provision of training, adapted for every role/group in the program • User access to technical support • User ability to tell if the technology is functioning properly
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<p>Factors that influence environmental sustainability include:</p> <ul style="list-style-type: none"> • Protection of source water quality • Conservation of water resources to ensure sufficient quantity for both human use and for the ecosystem (for current and future generations) • Safe disposal of human feces • Safe disposal of wastewater • Appropriate solid waste management • Hygiene and sanitation education which encourages all of the above • Promotion of technologies that are not energy-intensive 	<p>Factors that influence financial sustainability include:</p> <ul style="list-style-type: none"> • No subsidies for construction, but only for technical support, awareness promotion, and development of local enterprise • Ensuring that users are able to afford recurrent and replacement costs • Development of each organizations' own financial support network with funding from a wide variety of sources • Cross subsidies – wealthier users pay extra for the technology and, in effect, subsidize the cost of providing the same technology to the poor • Micro-financing enables the start-up of small scale production of the technology, and allows users to pay in installments as opposed to paying the entire cost at one time • Minimize the product cost by promoting user's labour contribution and participation
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3 Project Cycle

A project is more likely to be successful if each phase of the project cycle is well-defined. Project planning plays a critical role in ensuring that a project is effective, efficient and sustainable. Your project plan is in many respects, a reflection of your project proposal. The project cycle is made up of several major activities:



The activities can be organized into three phases:

1. The 'beginning phase' includes activities A, B, C, and D
2. The 'implementation phase' includes activity E
3. The 'consolidation phase' includes activities F and G

It is also important to differentiate between a project and a program. For a project, the magnitude of the activities is relatively small in scale. For a program, the magnitude of the activities is relatively large in scale. Under the program there can be more than one project.

Exercise – How did your organization identify your project? What factors did you consider when determining whether or not you should start your project?

The Project Cycle

Beginning Phase	Project Identification	This is the first stage. Depending on the project's objectives, scope, and resources, research may have to be carried out. For smaller projects, information from websites and reports, visiting the community firsthand and understanding the needs and priorities of the end users may be enough to identify a project.
	Feasibility and Project Design	A feasibility study looks at the social acceptance and financial viability of the project and typically involves doing a field study. Information about human resources, security, government policies, water sources, water storage, handling practices at home, incidences of water borne diseases, and current knowledge of safe water would ideally be collected. Cost effectiveness and the impact on the end users are also important factors to consider. During this stage looking at the availability of construction materials is important.
	Project Appraisal and Negotiations	<p>A project proposal can be assessed by the funding agency. For large funding projects, the proposal assessment committee in communication with the government and other stakeholders, would look at the project's technical, financial, economic, environmental and management aspects, and the potential social impact. The donor agencies can review the proposal and project risks to assess the viability of the project.</p> <p>After appraising the project proposal, the organization implementing the project may have to develop a memorandum of understanding (MoU) with the donor organization. Sometimes it is required to keep a signed agreement with the local government authority to obtain approval.</p>
	Project Planning	<p>A project's success is always based on how well it is planned, how well it meets the needs of the community, and how well it considers the limits of the local environment. Planning involves:</p> <ul style="list-style-type: none"> • Setting priorities and solving problems • Controlling situations by preparing activities ahead of time • Communicating a community's wants and needs • Applying traditional knowledge • Promoting creativity
Implementation Phase	Project Implementation	During project implementation, all activities are implemented according to the annual plan. Implementing activities according to the timelines is important to make a project successful. Quality control of products, delivering participatory training and providing community support services to solve any technical problems are the major activities in the implementation phase.
Consolidation Phase	Monitoring and Review	Monitoring should be done periodically to assess the project's approach, adoption of technology, users' perception, timelines, and progress to provide feedback for the project manager or planner.
	Evaluation	An evaluation is a careful examination of an ongoing or completed project. Evaluations usually include examination of the project design (goals and plans), implementation (inputs and outputs), and results (effects and impacts). Project evaluation focuses on what has been achieved and the lessons learned from their process or approach. The main purpose of evaluation is to guide project implementers or decision makers. Evaluations are undertaken selectively and only as needed.

4 Logical Framework

The Logical Framework Approach (LFA) was developed in 1969 for the U.S. Agency for International Development (USAID) and has since been widely adopted and adapted by the international development community. The LFA presented here is the current approach promoted by the Canadian International Development Agency (CIDA). A logical framework, or log-frame, describes the project plan in terms of what resources it will require, what activities will be carried out, and what the intended results or outcomes of the project will be.

With the push for Results-Based Management (RBM) in CIDA and other agencies, the logical framework has been modified to be more “results-oriented” and less input-oriented (CIDA, 2007). A results-oriented LFA can be used most effectively in the beginning phase by asking the following key questions:

- Who will the project reach out to and benefit?
- What are the different needs and priorities of women and men from the target group?
- How will progress be measured?

To understand the logical framework process, we must first understand several key terms: input, activity, output, outcome and impact.

Let us imagine the project by using the analogy of throwing a stone in a pond.

- Think of the stone as a **material input** and the person holding the rock as the **human resource input**
- The act of dropping the rock is an **activity**
- When the rock reaches the water, it creates a splash which is considered to be **output**
- The ripples spreading out from the splash are **outcomes**: intermediate, short-term and long-term
- When the ripple reaches the edge and leaves some sand or debris is considered the **impact**. The edge of the pond represents the geographic and population boundaries of your project.

Key Terms

Inputs: Financial, human, and material resources required for the operation and implementation of the project.

Activity: Actions taken as a result of an input to achieve the overall objective of the project. Many activities have to be performed to achieve a project goal.

Outputs: Short-term achievement of the activities.

Outcomes: Medium-term results of the activities.

Impact: Long-term result of the activities.

The following table demonstrates the relationship between inputs, activities, outputs, outcomes and impacts.

Inputs	Activities		Results		
			Outputs	Outcomes	Impact
Human Resources Equipment Funds	- Biosand filter production -Provide health and hygiene awareness training -Prepare community awareness information materials	➔	- 100 filters manufactured - 2 health and hygiene training carried out - Field kit prepared for raising health and hygiene awareness in community	- # of filters used for drinking purposes - # of Community Health Promoters who are working - # of field kits used for social marketing - # beneficiaries satisfied with services	- # of families improved in health conditions - # of incomes increased

A log-frame usually also includes Performance Indicators. Indicators are things that you plan to measure to prove that your project is achieving its intended outputs, outcomes and impacts. Log-frames also include a list of assumptions you are making, so that you can decide what the risk will be to the project if those assumptions turn out to be wrong or if the situation changes, and you can be prepared to adjust your plan. A description of the parts of a results-oriented logical framework is provided in the following table.

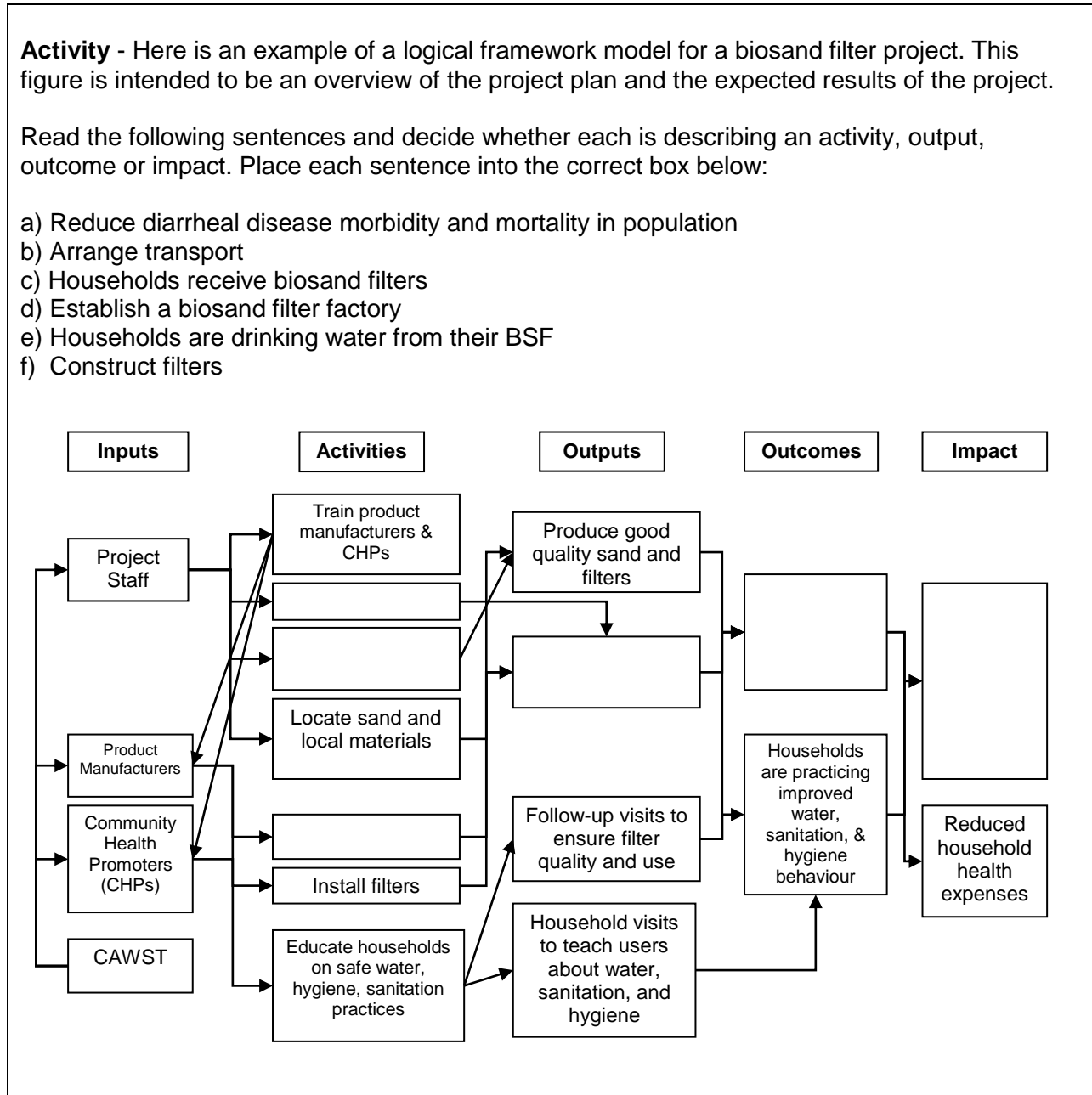
Inputs and Objectives	Expected Results	Performance Measurement	Assumptions
Goal or Program Objective What is the intended contribution of the project to a larger goal or program?	Impact What is the long-term result at the societal level? Are they the logical result of achieving your outcomes?	Performance Indicators What can be measured to show that the project has made the intended impact?	Assumptions What are the necessary conditions that must exist for the cause-effect relationships between outcomes and impact to occur as expected? What assumptions have you made about people, resources, climate, availability, demand, or funding?
Project Objective How will the project address the needs of the beneficiaries? Is this achievable within the scope of the project activities?	Outcomes What are the medium-term results that will benefit the target group? Are they achievable within the timeframe? Are they the logical result of achieving your outputs?	Performance Indicators What are can be measured to show that the project has achieved the outcomes?	

<p>Inputs</p> <p>What are the inputs and/or activities required to achieve the project purpose?</p>	<p>Output</p> <p>What are the short-term results that are the immediate consequences of project inputs and activities?</p>	<p>Performance Indicators</p> <p>What are can be measured to show that the project has achieved the outputs?</p>	
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Activity - Here is an example of a logical framework model for a biosand filter project. This figure is intended to be an overview of the project plan and the expected results of the project.

Read the following sentences and decide whether each is describing an activity, output, outcome or impact. Place each sentence into the correct box below:

- a) Reduce diarrheal disease morbidity and mortality in population
- b) Arrange transport
- c) Households receive biosand filters
- d) Establish a biosand filter factory
- e) Households are drinking water from their BSF
- f) Construct filters



5 What is Your Mission Statement?

A mission statement is a brief explanation of what an organization does. It answers the questions, "Who are we?", "Why do we exist?", "What do we do?". Even before beginning your project, it is important to determine whether the goals of your project are in line with your organization's mission as reflected in the organization's mission statement.

The content of the mission statement should:

- Define what values your organization seeks to promote
- Explain what are the needs that your organization fills
- Explain how your organization meets these needs
- Explain who the organization serves
- Describe the geographical location of operations (local, national, worldwide)
- Explain how your organization is unique

An effective mission statement should:

- Be simple, short 3 - 4 word sentence
- Be clear and concise
- Be easy to understand
- Use verbs that connote action (e.g. provide, create) since they tell people what you do
- Provide inspiration

Activity – Compare the following mission statements. Do they meet the criteria for an effective mission statement?

Organization	Mission Statement
Clean Water For Haiti	To demonstrate our love for the Lord and our neighbors by providing support and expertise for sustainable clean water projects in Haiti. This Mission is dedicated to responding to the needs of the Haitian people in the area of availability to clean water, using simple technology and proven effective methods for development of clean water projects.
The Trailblazer Foundation	The Trailblazer Foundation is committed to principles of sustainability through water programs and community projects, networking with appropriate agencies to expand resources. We train people in developing countries to identify causes of impoverishment and create solutions by establishing self-managing projects as a means to a sustainable community, thus improving the health, welfare, and economy of people within the world society.

<p>Pure Water for the World</p>	<p>Pure Water for the World works in remote regions of developing countries which lack sustainable clean, safe drinking water. We work with local governments and community partners to select, analyze the appropriate technology for the community, and to implement cost effective projects.</p> <p>Our projects include a comprehensive education program to provide the community with the basic knowledge of water use, storage and personal hygiene and how all of these factors contribute to the health and well-being of the users. To reinforce the health benefits of having clean, safe drinking water, we also provide parasitic treatment and the follow up and monitoring to make sure that the technologies are being used and that they are being used properly.</p>
<p>Potters for Peace</p>	<p>Our goals are to offer support, solidarity and friendship to developing world potters; assist with appropriate technologies sustained using local skills and materials; help preserve cultural traditions; and assist in marketing locally, regionally and internationally.</p>

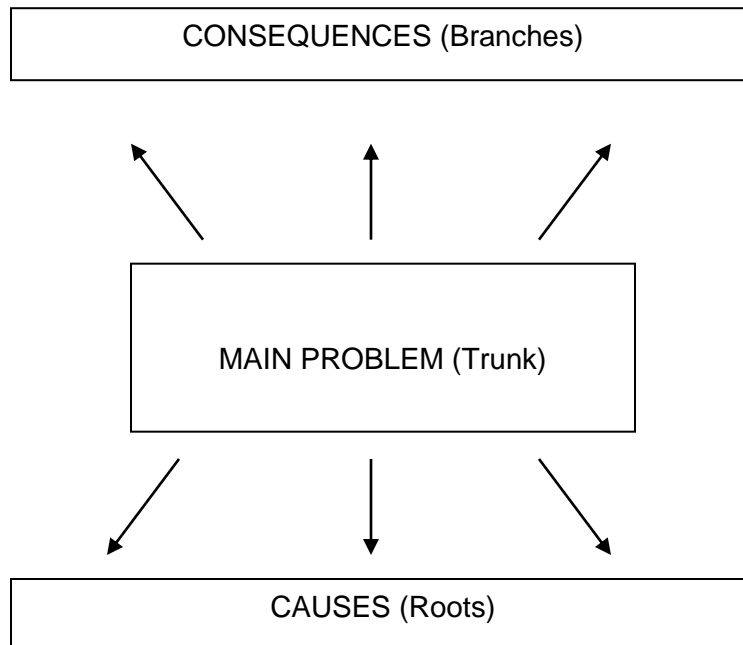
Activity – Develop an effective mission statement that best describes your organization.

6 Why Are You Doing This?

A problem tree analysis (also called situational analysis or problem analysis) can help to find solutions by looking at the causes and effects around an issue. This has several advantages:

- The problem can be broken down into smaller manageable parts. This helps to clarify priorities and helps focus objectives.
- There is more understanding of the problem. This is often the first step in finding win-win solutions.
- It can help establish whether further information, evidence or resources are needed to make a strong case.
- Present issues - rather than future or past issues - are dealt with and identified.
- The process helps build a shared sense of understanding, purpose and action.

Problem Tree Template



Activity – Use a problem tree analysis to identify the issues that exist in the community that you are working in. Specify the water issues.

7 How Does Your Project Address the Problems?

The problem tree can be converted into an objectives tree by rephrasing each of the problems into positive desirable outcomes - as if the problem had already been treated. In this way, root causes are turned into root solutions and key objectives for change are established.

Activity – How does your organization plan to address the water problems in your community? Convert your problem tree into an objective tree to define the solutions. Ensure that your solutions are aligned with your program objectives. Organize your solutions into long-term results (impacts), medium-term results (outcomes), and short-term results (outputs).

8 What Are Your Objectives?

The objectives of your project should be aligned with your organization's overall mission. Recall that setting your objectives is a key part to the logical framework process as it will outline your outputs and outcomes.

A simple acronym used to set objectives is called SMART:

1. Specific: Do your objectives specify what you want to achieve?
2. Measurable: Can you measure how the objectives are being met?
3. Achievable: Can you reach the goals of your objectives?
4. Realistic: Do you have the resources to realistically achieve your objectives?
5. Timely: Can you reach your objectives within the time permitted?

Activity – Creating SMART Objectives

Read the following set of objectives. What changes could be made to make them SMART objectives?

- Reduce the incidence of diarrhea among children.
- Reduce the cases of cholera by 100% in three years.
- Install biosand filters in 60% of the households within three months.
- Train three community health promoters in six months.
- Promote water, hygiene and sanitation education.

Activity – Create a list of SMART objectives that will serve as the outputs and outcomes for your project. Are your project objectives in line with your organization's mission?

9 What Are Your Inputs, Activities and Milestones?

Recall that inputs are the financial, human, and material resources required for the operation and implementation of the project.

Activities are the actions taken as a result of an input to achieve the overall objective of the project. Many activities have to be performed to achieve the project’s milestones along the way.

A milestone provides an indication of short and medium-term objectives which allow for the measurement of achievements throughout a project rather than just at the end. They also indicate times when decisions should be made or action should be finished.

Activity – Identify the main milestones to be achieved in your project. List these milestones in the first column of the table that follows. For each milestone, list a number of activities that will be performed to achieve each one. For each activity, list the inputs required to meet that activity.

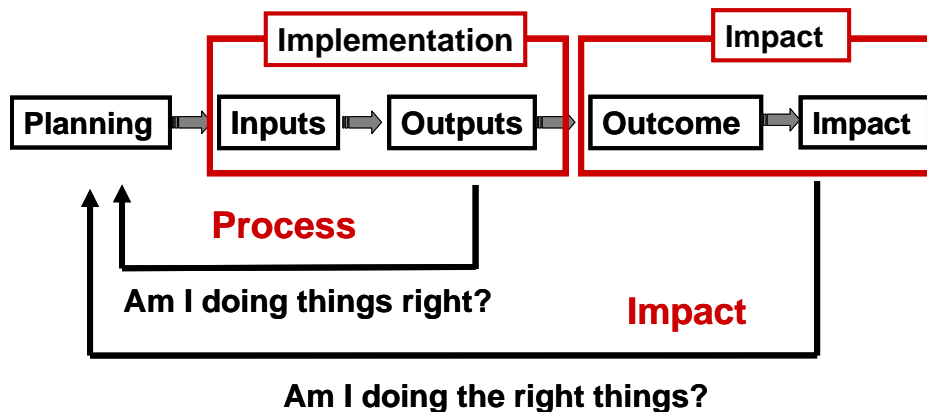
Milestones	Activities	Inputs
Milestone 1		
Milestone 2		
Milestone 3		
Milestone 4		

Milestone 5		
Milestone 6		
Milestone 7		

10 How Will You Measure Success?

There are two broad categories of indicators that can be used to measure the success of the project – process and impact indicators. Process indicators help us to answer the question, “Am I doing things right?” Impact indicators help us to answer the question, “Am I doing the right things?”

For the purpose of monitoring the project, process indicators will be the most useful to measure the progress the project is making and whether it is achieving your organization’s mission. Impact indicators are commonly used when conducting an evaluation, to show the longer-term health impacts or benefits to the community. Impact indicators can be difficult and expensive to measure, whereas process indicators are easier to collect and do not require as much time or money to measure.



Source: Mitchell (2007)

Just like setting objectives, good indicators also need to be SMART. As well, they should be:

- Relevant to the project and to national standards
- Feasible to collect and easy to interpret
- Easy to track change over time.

For each indicator that you select, ask yourself the following questions:

- Is it accurate? Is it always going to measure what you need to know or could it be telling you something else?
- Is it cost-effective to collect the information? For example, would a health impact study for a biosand filter project evaluation be practical?
- Does it give useful information for making management decisions?
- Will the information be easily understood by stakeholders, including funders?

Activity – Select four activities outlined in the ‘Milestones and Activities’ section for your project. For each activity create an indicator that can be used to measure each one. Ideally you would have performance indicators to measure your outputs, outcomes and impacts.

Activity	Indicator

Monitoring Case Study: Water for All

The following case study is intended to serve as a guide to help you think through the monitoring plan and the methods you might wish to use in your project. *Note: All names and places are fictitious.*

Instructions: Read the following case study in the two parts indicated and discuss some of the questions listed at the end of each section.

Part 1

Water for All is a not-for-profit humanitarian organization committed to household water treatment projects in several areas of Honduras. The organization is responding to the needs of the poor by improving their water quality through the use of the biosand filter.

Water for All designed their project to provide biosand filters to the surrounding communities along with an education program focused on operation and maintenance of the filters along with basic knowledge of water use, safe water storage, hygiene and sanitation. Water for All has 2 filter technicians, 1 Community Health Coordinator, and 3 Community Health Promoters and receives ongoing technical support from CAWST. To date, Water for All has installed 500 filters and is looking to expand their services to more rural communities.

Filters for the project are constructed at a central location and transported to users in surrounding communities after they have attended a workshop and requested a filter. No production records of the filter construction or delivery records were kept and no visits to households after installation were carried out.

Many months later Water for All began receiving complaints from a number of users whose filters developed problems. Some of these filter problems were due to a manufacturing error, some due to installation errors and some due to users' incorrect operation and maintenance. When Water for All investigated further they discovered that many communities had similar problems and decided to visit all the filters they had installed to check that the filters were correctly functioning and to replace those with the manufacturing fault. Unfortunately, this exercise proved very difficult since they neither had records of exactly how many filters they had constructed nor where they had delivered them.

Discussion

- What are the main problems faced by Water for All?
- What you think that Water for All could have done to improve their project?

Part 2

As a result of this experience, Water for All carried out a thorough review of their project. The reviews involved researching baseline health conditions and water quality, the security situation and talking to communities and their leaders to assess how the project met their needs. After the analysis of this review with the support of CAWST, Water for All made major changes to their project which included the addition of a comprehensive monitoring system.

One of the main strengths of the program and its monitoring system is that it engages the communities and allows them to play a significant role in both the implementation and monitoring. Two local citizens are selected in each community to train and act as community health promoters, encouraging their neighbors to improve their hygiene behaviors, correctly maintain their filters and provide support in case of problems. Using prepared checklists, the community health promoters routinely follow-up with the end users and complete monitoring forms to record their findings.

The major elements of the monitoring system are:

Production record keeping and review

Water for All use a numbering system, painted on each individual filter, to allow them to follow it from production to installation and beyond. Each filter is constructed and inspected by the manufacturing technician using a prepared checklist. The checklist includes checks on material quantities and methods and well as checks on the finished filter for cracks and adequate flow of water through the tube. Completion of these checks is recorded in a monitoring form alongside the date of manufacture and the technician who produced the filter. These records are reviewed by the project manager every 3 month to ensure they are complete and accurate.

Records are also kept for material stocks. These record deliveries of materials to the workshop and the quantities used to produce each batch of filters and their associated components. These records are used by technicians to order new materials and are reviewed by the project manager every 3 month to ensure they are complete and accurate.

A record of all the costs for the materials and labor that was used to build the filters is also kept. The project manager can then calculated the total project costs and the unit cost for each filter. This is used to determine the price that will be charged to the end users as well as when preparing proposals to various donors.

Filter delivery and installation record keeping and review

Records are kept of all filters installed in users' houses. These records include the name of the user, date of installation, the person installing, receipt of financial contribution and a checklist for the correct installation of the filter. These records are reviewed by Water for All Management every month to ensure they are complete and accurate.

Production and installation spot checks

In addition to the regular record keeping the project manager carries out spot checks a minimum of 4 times a year of both filter production and filter installation. In reality he carries out these checks every few weeks.

The spot checks for the filter production include checking the quality and storage of materials, the availability and condition of tools, the filters are being produced using the correct

methodology, the quality of the filters and that record keeping is being done adequately. The spot check for filter installation follows the same format as the checks carried out by the installing technician.

Regular follow up visits to users by community health promoters

The key element of the Water for All monitoring program is the visits by community health promoters to filter users. After installation, community health promoters visit users' houses at 1 week, 1 month, 3 months, 6 months, 1 year and 3 years. Using a checklist the community health promoters check that the filters are functioning properly and give the opportunity to users to discuss hygiene issues and any problems they have experienced. The agents record their findings on a prepared form which is collected by project staff after completion.

Regular follow up visits to community health promoters by project staff

Project staff regularly visit community health promoters to ensure they are active, collect monitoring forms and address any problems/ training needs. These visits normally coincide with the monitoring schedule of the community health promoters but are more frequent where community health promoters need additional support. These visits also generally involve spot checks of 2-3 of the filters in that community to ensure that the agent has actually made the visits and to double check that they have correctly understood how to complete the monitoring forms. The community health promoters are also encouraged to visit the Water for All office whenever they can.

Problem log

Every time a problem is found it is entered into a problem log stored at the main office. Once the problem is solved it is also reported in the log. This allows all staff to know the problems that are occurring in the field as well as how and when the problem was solved. It also allows the project manager to ensure problems are being solved and easily identify the scale of problems that are occurring in the field. The project manager reviews the log every month and all staff are encouraged to regularly review the document. The problems and solutions are discussed at the regular staff meetings and with the community health promoters.

The monitoring plan and timeline for the Water for All project is given overleaf.

Discussion

- What monitoring methods were used by Water for All?
- How effective do you think these methods are?
- What other methods could they have used?
- Which of these methods you would like to adopt for your own project?

Monitoring and Evaluation Plan

Performance questions & objectives	Information needs and indicators	Data collection methods	Sampling and frequency	Responsibility /Action	Use of information	Resources required	Training needs	Data management
How many filters have we constructed?	Number of filters/diffusers and lids made	Technician's production records	Production records, every time an item is completed – Reviewed quarterly	Technicians – Review by Project Manager	Identify problems, reference in case of problems and material ordering	Checklists, monitoring forms, filling space, data input time, manager's	Technician training for completion of records	Transfer to computer and file hard copy.
Are the filters of acceptable quality?	95% conform to quality control checklist	Technicians production records, production spot checks & problem log	Production Spot checks 4 times a year	Technicians – Review by Project Manager	Identify problems, reference in case of problems and material ordering	Checklists, monitoring forms, filling space, data input time, manager's	Technician training for completion of records	Summary given in monthly report
Are we using the correct quantiles of materials?	Conformity to expected material usage	Technicians production records and stock records	Stock records every week – Reviewed Quarterly Problems logged when found – log reviewed monthly	Technicians – Review by Project Manager	Identify problems, reference in case of problems, general project statistics	Checklists, monitoring forms, community health promoter per diems, filling space, data input time, manager's	Technician training to carry out visits and complete forms	Summary given in monthly report
Are people correctly using the filters?	85% conformity to user guidelines	User monitoring forms	User monitoring 1 week, 1 month, 3 months, 6 months, 1 year and 3 years	Community Health Promoters – Review by Community Health Promoters /Project Manager	Identify problems, reference in case of problems, general project statistics	Checklists, monitoring forms, community health promoter per diems, filling space, data input time, manager's	Community Health Promoter training to carry out visits and complete forms	Problems transferred to problem log
Are there any problems with the filters?	Number of reported problems	Community Health Promoter spot checks	Spot checks at Community Health Promoter follow up at similar intervals	Community Health Promoters	Identify problems, reference in case of problems, general project statistics	Checklists, monitoring forms, community health promoter per diems, filling space, data input time, manager's	Community Health Promoter training to carry out visits and complete forms	File hard copy
Are the Community Health Promoters carrying out their role?	Community Health Promoters actively carrying out their role	Problem log	Problems logged when found – log reviewed monthly	Community Health Promoters – Review by Project Manager	Identify problems, reference in case of problems, general project statistics	Checklists, monitoring forms, community health promoter per diems, filling space, data input time, manager's	Community Health Promoter training to carry out visits and complete forms	Summary given in monthly report

Monitoring and Evaluation Timelines

	Production and Stock Checks	Month	Construction Checks		Visits to User	Month	Visits to Community Health Promoter
Continuous Production Checks	Review Records and Spot Checks	Jan	Review Records	Continuous Installation Checks	Visit 1	Construction	Visit 1
		Feb	Review Records		Visit 2	Month 1	Visit 2
		Mar	Review Records and Spot Checks		Visit 3	Month 2	Visit 3
	Apr	Review Records	Month 3				
	May	Review Records	Month 4				
	Review Records and Spot Checks	Jun	Review Records and Spot Checks		Visit 4	Month 5	Visit 4
		Jul	Review Records			Month 6	
		Aug	Review Records			Month 7	
	Review Records and Spot Checks	Sept	Review Records and Spot Checks		Month 8	Visit 5	Visit 5
		Oct	Review Records		Month 9		
		Nov	Review Records		Month 10		
		Dec	Review Records and Spot Checks		Month 11		
					Month 12		

11 What Assumptions Are You Making?

The impact, outcomes, and outputs of your project are often based on assumptions. For household water treatment projects, some assumptions may involve:

- Having an adequate demand for training
- Accounting for the time delay between training and implementation so there isn't a significant effect on the measurability of outputs and outcomes
- Partners will develop the organizational capacity to be sustainable for the future

Activity – List at least three assumptions that the expected results of your project are based on.

12 When Will It Get Done?

A Gantt chart is a method of presenting information graphically, often used for activity scheduling. The timeline for your project may vary from weeks to months. It is important to account for the time required to fundraise, find local construction materials, and train local staff. In addition to this, it is important to leave time for you to adjust to the language, culture and climate of the region. Making a local contact before the project starts will help this process greatly.

Activity – Complete the following Gantt chart your project. To do so, fill in the milestones and activities that you determined above.

Milestone	Activities	Timeline			
		Month 1	Month 2	Month 3	Month 4
Milestone 1					
Milestone 2					
Milestone 3					
Milestone 4					
Milestone 5					
Milestone 6					
Milestone 7					

13 How Much Will It Cost?

Having a general idea of how much a biosand filter project will cost is essential for planning a project. Below is a list of items or services needed to complete a 20 filter project. The items or services have been organized as one time or ongoing costs. It is important to remember that prices will vary greatly from country to country, and even from region to region within a country. The 'Price Range US\$' column has been determined based on projects in approximately 30 countries. The 'Price in Bolivia US\$' column is based on the field experiences of the COBAGUAL organization in Ascención de Guarayos, and may not reflect prices in other parts of Bolivia.

Biosand Filter Project: Sample Budget

One Time Items or Services	Price Range (US\$)	Price in Bolivia (US\$)	Notes
Steel for mold	\$150-\$800	\$200	If possible, borrow a mold from an established biosand filter organization or find an experienced welder who has made molds in the past
Welder's fee to build mold	\$150-\$400	\$150	Wages for 2-3 weeks + supplies and profit for the welding shop
Tools	\$50-\$200	\$120	Including hammers, wrenches, saws, drill, etc.
Tubing, lids, diffuser plate material	\$80-\$300	\$80	May require a lot of time searching markets
Gravel, sand, cement	\$100-\$600	\$100	
Transportation for gravel, sand, cement	\$50-\$250	\$35	Will vary depending on distance to source, road conditions, etc.
Transportation for completed filters	\$50-\$250	\$35	Will vary depending on the distance to the community you are working in.
Educational material	\$5-\$100	\$10	Photocopies and translation (if necessary)
Water testing	\$0 - \$3000	\$0	For a small 20 filter project, investing in water testing equipment may not be a priority
Total	\$625 - \$5900	\$730	

Other possible expenditures to account for include:

- Renting or purchasing a vehicle
- Hiring a driver
- Vehicle maintenance
- Travel including airfare, visa, passports, travel and medical insurance, medications will range from \$1000 - \$5000. Price will also vary pending on personal itineraries and preferences

Biosand Filter Project: Sample Budget (cont'd)

Ongoing Items or Services	Price Range (US\$)	Price in Bolivia (US\$)	Notes
Phone, internet	\$10-\$50/month	\$0	Cell phones are readily accessible and calling cards are typically affordable. Internet access in larger cities is typical.
Meals and accommodations	\$5-\$100/day	\$5-\$10/day	Price will vary pending on personal preference and local availability.
Work space	\$0-\$300/month	\$50/month	The minimum workspace would include: a lockable box or shed for tools, a tarp or roof to keep sand and cement out of the rain. Concrete box or wooden dividers could be used to separate the media.
Local labour	\$5-\$20/person/day	\$8/person/day	*See notes below

Ongoing costs will vary greatly depending on how long the project will take. For this reason it is unwise to make a project budget without having a clear and realistic timeline for the project.

Activity – Create a budget for your project. Divide the items and services into one time and ongoing costs.

Your Project Budget

One Time Items or Services	Price	Ongoing Items or Services	Price
Steel for mold		Phone / Internet	
Welder's fee		Meals and accommodations	
Tools		Work space	
Tubing, lids, diffuser plate material		Local labour	
Gravel, sand, cement		Other	
Transportation for gravel, sand, cement			
Transportation for completed filters			
Educational material			
Water testing			
Total		Total	

14 References

Canadian International Development Agency (nd) The Logical Framework: Making It Results Oriented. Available at: www.acdi-cida.gc.ca/CIDAWEB/acdicida.nsf/En/REN-218132726-PPN