

Introduction to Monitoring





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CAWST is a Canadian non-profit organization focused on the principle that clean water changes lives. Safe water and basic sanitation are fundamentals necessary to empower the world's poorest people and break the cycle of poverty. CAWST believes that the place to start is to teach people the skills they need to have safe water in their homes.

CAWST transfers knowledge and skills to organizations and individuals in developing countries through education, training and consulting services. This ever expanding network can motivate individual households to take action to meet their own water and sanitation needs.

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Acronyms and Abbreviations

ACI	Aqua Clara International
BSF	Biosand filter
CAWST	Centre for Affordable Water and Sanitation Technology
CHP	Community Health Promoter
cm	centimeters
HWTS	Household Water Treatment and Storage
L	Litre
LFM	Logical Framework Model
Min	minutes
mL	millilitre
WASH	Water, Sanitation and Hygiene

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1 Introduction

Imagine you are going on a trip to see some friends that lives in a village 90 kilometers away. You rush out the door with a few things to help you get there. You get on a bus, sit down, fall asleep and then wake up when it stops. You realize that you have arrived in the wrong town, hungry, thirsty. You feel defeated.

Another scenario could be that you decide to ride your bicycle there. This requires more planning and organizing to get ready to go; figuring out the route with a map, packing what you need to take with you, and deciding where you will stop to eat and sleep. Your bicycle and supplies need to be checked to make sure it all works. You test it out on a short ride around the community where you live and then set off.

As you are travelling at the perfect pace, you can take everything in that is around you and that is passing you by. Every once in a while you stop to ask if you are on the right road and going in the right direction. Sometimes you are not and have make adjustments to get back on track. Once reoriented you keep going. Once in a while you to stop to check to make sure your bicycle is in good condition to continue. And sometimes you stop to pick up supplies along the way, like water and snacks. As you ride along you realize that some of the things you brought aren't needed, so you take the time to discard them along the way.

Some of the locals you pass are so excited about your adventure that they decide to join you. It is a long way, so you and your growing team decide to stop and rest giving you the chance to meet the local people and learn about their situation.

Checking that you are going in the right direction, that you have the right people with you, and that you are going about things in the right way is how to monitor your progress. By monitoring the journey along the way you are better able make changes to reach your destination efficiently and successfully.

After your friends celebrate your arrival you take the time to reflect and evaluate the trip. This helps determine if you reached your intended destination, whether there could have been a better way to reach it, and what lessons were learned to make the next journey a greater success.



(Credit: bicycle-touring-guide.com)

Household water treatment and safe storage (HWTS) and sanitation projects are similar to this journey. **Monitoring** the project along the way and **evaluating** at a point in time or at the end are essential for successful implementation.

Monitoring and evaluation are popular terms in development projects and crucial for effective implementation. Good monitoring provides opportunities for improving processes, building capacity, and increasing the overall impact of a project. It is not meant to be a policing or judgement system, conduct academic research, prove a technology, or guide policy. Evaluations are important for a final and thorough review of the project's outcomes and impact.

CAWST's intent is to take the complex, broad and conceptual topic of monitoring and present it in a simple and practical way. With these documents, training sessions and consulting support CAWST is providing practical guidelines to implementers and field staff on how to monitor their projects. Through this, we want to help improve the implementation of HWTS and sanitation projects.

The guidelines and activities use example situations to make monitoring understandable, accessible and easier to use. They can be applied whether the project is in the planning phase or is already being implemented. As the project scales up and becomes more complex, monitoring can also scale up with it.

2 Difference Between Monitoring and Evaluation

Key Messages:

- *Monitoring is an on-going process that checks in with the day to day and week to week activities*
- *Monitoring tells you how close the activities are meeting the expected outputs*
- *Evaluating tells you how close the project came to achieving the outcomes and desired impact*

The terms “monitoring” and “evaluation” are often used as if they mean the same thing. Although many of the activities and considerations are similar between them, their use and purposes are very different.

Monitoring is an *on-going process* done throughout the project. It is a way of checking in and following up on the day to day, week by week activities that move the project toward its objectives. Monitoring is a warning system to catch the small problems as they arise and make small adjustments before they become large problems that require large adjustments.

It is designed to answer the question:

“Are we doing things **right**?”

Information is collected and used to make immediate improvements to the project’s outputs and activities. Improvements can be done by:

- Correcting what is not working in production, operation and maintenance
- Feeding information back to manufacturers on product quality
- Increasing staff capacity
- Improving education of end-users

Evaluation is a *snapshot at one-time* in the life of a project. It asks bigger questions once the project is over (or well on its way). It is designed to answer the question:

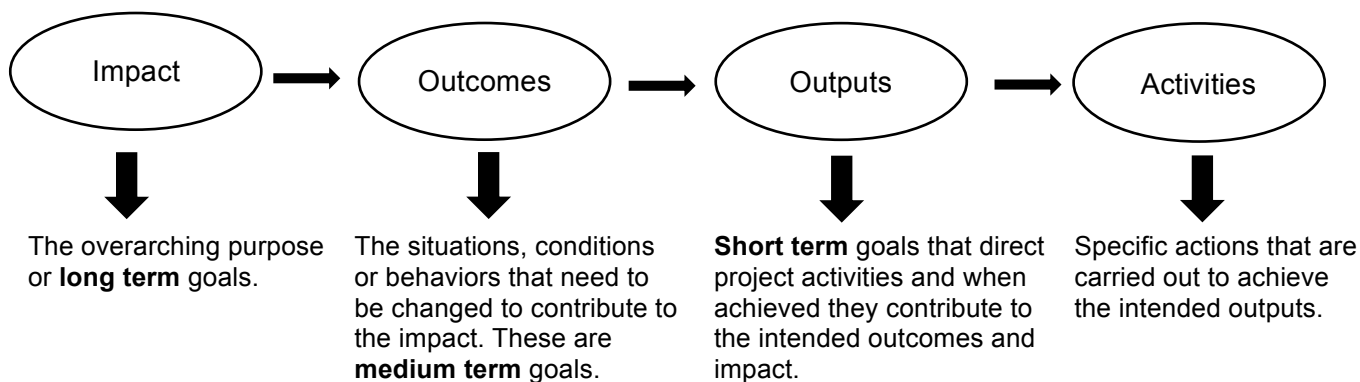
“Are we doing the **right things**?”

Evaluations collect information to determine if the project has achieved its desired outcomes and impact. The information is used to answer the following questions:

- How close is the project to meeting its goals?
- What lessons can be learned?
- Could there have been a better way to do things?
- What needs to be changed to the project design and implementation?

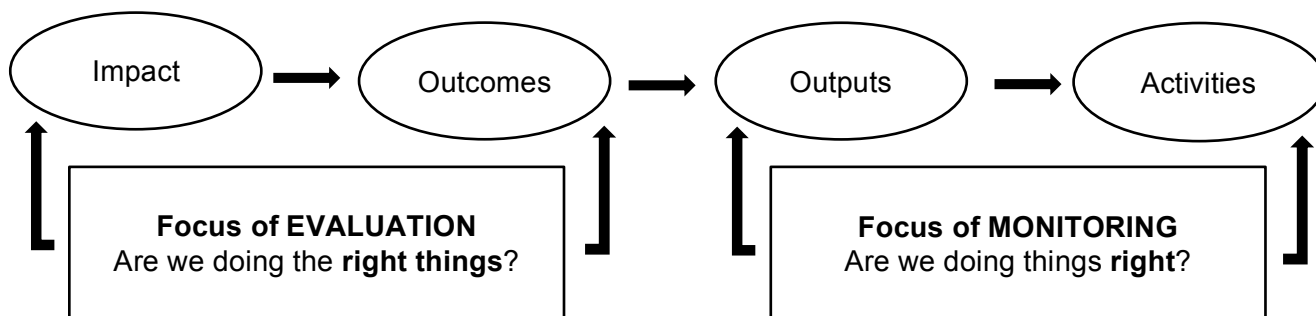
Monitoring and evaluation can be further separated based on how they are linked to the Logical Framework Model (LFM), a tool often used in project planning by implementers and donors. The LFM establishes long, medium and short term project objectives with the details of what is going to be done to achieve them. To tell the difference between monitoring and evaluation, we can look at what each part of the LFM is meant to establish.

Figure 2.1: Logical Framework Model



Monitoring and evaluation should be designed to set the benchmarks of success and determine to which degree the project has met success. Each of them address different parts of the Logical Framework Model.

Figure 2.2: Monitoring and Evaluation and the Logical Framework Model



Based on the objectives of evaluations and monitoring, they clearly do not mean the same thing and so they will be discussed separately. The information contained from this point forward is specific to monitoring.

3 Monitoring for Improvement

Key Messages:

- *The purpose of monitoring is to determine level of success at meeting short term goals*
- *To do so, monitoring collects and analyzes necessary information, resolves problems, and make improvements*
- *Monitoring assesses activities and the capacity of those involved*

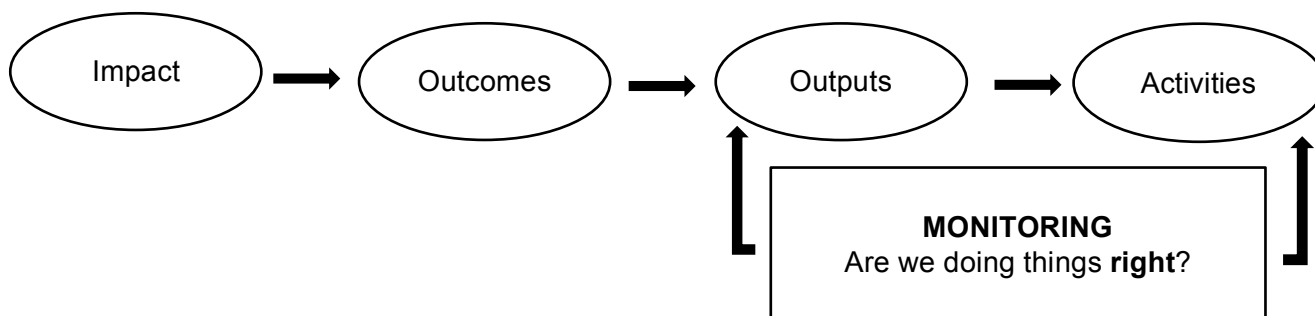
Projects that are well planned, organized and funded do not automatically mean that the desired results will be achieved, regardless of the project size (small to large scale). There are countless ways that project activities can go off track during production, installation, operation, maintenance and training.

Monitoring should be used for improving project design and implementation. In doing so, monitoring also safeguards the health of the end users.

Its purpose is to help:

- **Clarify** the outputs of a project and how they will be achieved
- Decide what will **indicate** achievement of these outputs
- **Collect** and **analyze** relevant information for tracking progress
- **Maintain** what is working, fix any problems and make systematic **improvements**
- **Assess** and **improve** capacity of staff and end users
- Use the information to **explain the reasons** for success and failure

Figure 3.1: Focus of Monitoring in a Project's Logical Framework Model



3.1 Benefits and Costs of Monitoring

Key Messages:

- *The benefits of monitoring outweigh the costs*
- *The earlier monitoring is put into action, the lower the overall cost will be*

Effective monitoring has significant benefits to the overall project making it worth the effort and resources that it takes to plan and put into action.

The benefits of monitoring include the following:

- Provides key stakeholders with the information needed to guide the project towards its objectives
- Provides early warning of problems that need corrective action so day to day improvements can be made
- Ensures the proper use of a technology which will then have a greater health impact on the end users
- Provides opportunity for continuing education of end users
- Incorporates learning and problem solving opportunities to build the capacity, ownership and empowerment of any individual involved in the project – staff or end user
- Builds and strengthens the relationship between the implementers and the end users
- Builds and strengthens the relationship between project staff

(IFAD, 2001)

The costs of monitoring should be estimated after planning the scope and activities and included in the overall budget. An average figure of 1% to 5% of the total project budget is recommended.

Even though the benefits are many, it is often argued that the costs of monitoring are too high and therefore it is not included in the project. Often the value of monitoring is only realized once a project encounters significant problems. At this point, the costs now include having to resolve all the problems on top of starting new monitoring activities. Therefore, the cost to implement monitoring after problems have started can be much higher than if monitoring was done from the beginning.

3.2 Challenges to Monitoring

Key Message:

- *The key to overcoming monitoring challenges is having a realistic and feasible plan and the capacity to carry it out*

There is no question, monitoring can be difficult and many challenges come up along the way. Common challenges can be organized into the same three elements of what monitoring needs: **resources, capacity and processes**. The strength of monitoring lies in realistic and feasible planning and a combination of the right resources, capacity and processes. To overcome the challenges monitoring starts with a plan.

The following challenges were collected from various studies on monitoring programs.

Resources:

- A lack of **understanding and attention to the value of monitoring** in project design and therefore a lack of resources are allocated
- A top down approach to decision making and analysis
- A **lack of commitment** by the organization's management to monitoring, which leads to delays in implementing monitoring and using the information for improvement
- Very **few internal project reviews** resulting in improvements, only done after external evaluations are completed and demonstrate problems and negative results

Capacity:

- **Obligatory and mechanical filling in of forms** by staff as it is seen as purely of data collection for writing of reports instead of a system for improvement
- Staff that **lack relevant skills and experience** to do monitoring, with no effort to build capacity to fill the gap

Processes:

- Over-ambitious monitoring that is **asking too much** in terms of information and methods
- **Irrelevant and poor quality information collected** that ignores the project indicators and outputs
- Almost **no attention to the monitoring needs** of the end users, community health promoters and technicians
- **Lack of integration and cooperation** between monitoring staff and management
- **Documentation that fails** to address or resolve identified problems
- **Poor use** of participatory and qualitative monitoring methods
- A system of information collection but **lacking analysis and an integrated approach** for using the information to make improvements

(adapted from IFAD, 2001)

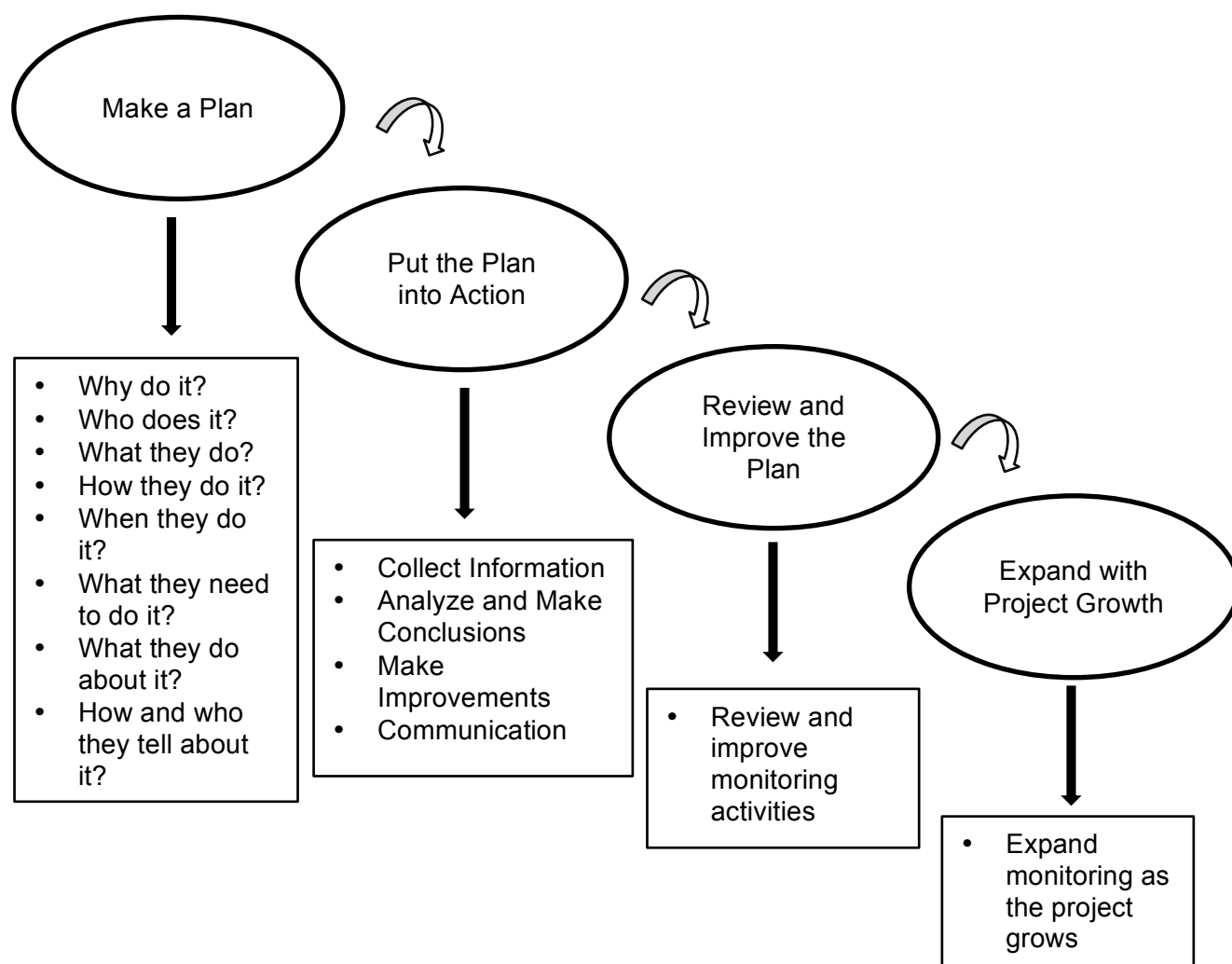
3.3 Monitoring: Getting Started

Key Message:

- Monitoring involves planning, putting the plan into action, reviewing and improving the plan, and expanding the activities when the project grows

Monitoring is a series of steps, as illustrated in the following Figure 3.3.1.

Figure 3.3.1: Steps to Planning, Using, Improving and Expanding Monitoring



It is important for organizations to pilot their monitoring processes for two to three months after it has been planned. Then, get the team back together, review how it is going, make necessary changes, and plan how to expand monitoring with anticipated project scale up.

3.3.1 Monitoring Plan

Key Messages:

- *Monitoring should be planned with all key stakeholders present*
- *Each plan should contain the key components: purpose, indicators, and details on what, who and how to collect information, analyze it, resolve problems, make improvements and communicate results*
- *Keep the monitoring simple, straightforward and easy to do*

Ideally, monitoring is planned as the project gets started; although, the same considerations need to be made if it is planned once the project is already in full operation.

Individuals from all departments and all levels of the project should be involved in the planning. Everyone in the project will likely be involved in one way or another in the monitoring activities, either directly or indirectly. Having a variety of staff participate in the planning will bring in different perspectives on what are feasible, realistic and appropriate monitoring activities. They will also be able to identify what staff capacities are necessary and any current gaps in knowledge or skills.

When first planning, it is important to keep the monitoring simple, straightforward and easy to do. Organizations should plan monitoring to build the processes as well as the capacity of people, including opportunities for discussion, feedback, training, and a chance to make changes along the way.

Monitoring plans that are well designed share the following characteristics:

- Have a clearly defined purpose
- Collect relevant information on a small but well defined set of indicators**
- Are fully integrated into the project activities
- Are simple and focused on factors within complete control of the project
- Are analyzed at regular intervals to determine what is working and what is not
- Stimulate resolution of day to day and week to week problems
- Results in project modifications and improvements

**Indicators are created based on the expected outcomes and outputs of a project. They guide what will be monitored in order to determine the level of success of a project.

For example: # filters properly installed or % latrines in use 6 months after construction.

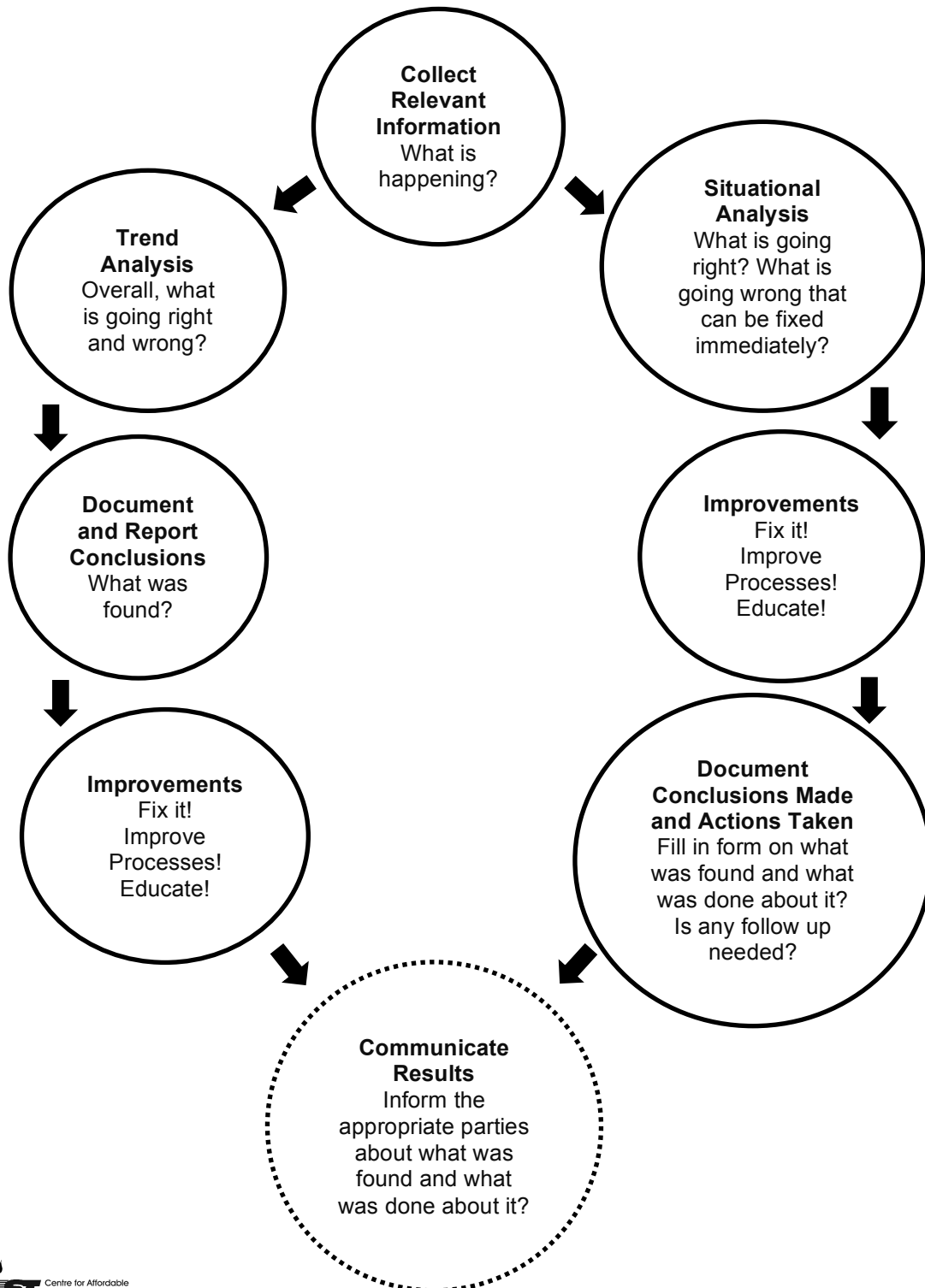
Table 3.3.1: Planning Monitoring Activities Checklist

1. **Why do it?**
 - Establish the purpose and scope of monitoring (specific to the project)
 - Determine indicators that support the projects outputs and activities and collectively support the overall project objectives
2. **What they do?**
 - Decide on the necessary information needed to support the indicators
 - Determine what happens to the information that is collected
 - Decide what problems can be resolved immediately and what problems will need to be reviewed by a team
 - Determine what the process of making improvements to project activities will be to prevent the problems from happening again
3. **Who does it?**
 - Determine who is going to collect the relevant information
 - Determine who is going to analyze and report the trends
 - Determine who is going to respond to the outcome of the analysis
 - Determine who is going to act on the problems found, how they will do so and what support they will need
 - Determine who is going to report the successes, challenges and improvements made
4. **How they do it?**
 - Determine how the information will be collected
 - Determine how the information will be analyzed and trends reported
 - Determine how the information will improve processes and capacity
 - Determine how the information will be documented and reported
5. **When they do it?**
 - Plan a timeline for all processes: collection, analysis, improvements and reporting
6. **What they need to do it?**
 - Determine what resources are necessary for each activity (human, financial and material)
 - Determine the logistics that will be necessary to organize all the activities, movement of information and people

3.3.2 Putting the Plan into Action

Planning monitoring is the first step and essential. However, it needs to be put into action to see if in fact what was planned is useful to find out if the project is being implemented successfully.

Figure 3.3.2: Putting the Monitoring Plan into Action



For example, when monitoring how a biosand filter is working, there are a number of things to check either by measurement or observation. The example below illustrates how checking the flow rate of filters may look.

Figure 3.3.3: An Example of Putting Monitoring into Action

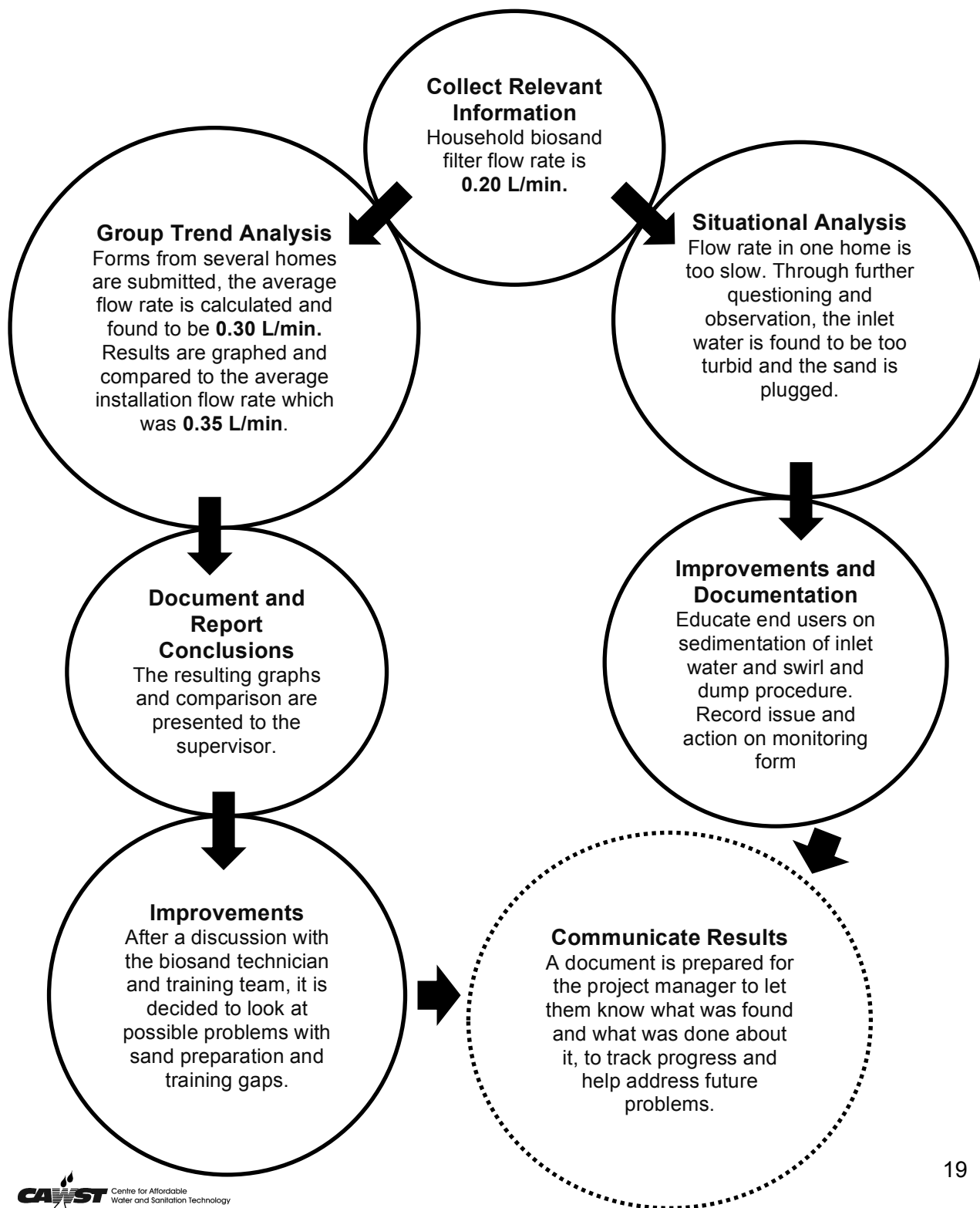


Table 3.3.2: Additional Considerations for Putting Monitoring into Action

- Management that creates supportive, safe conditions to finding problems**
 - Is there an organizational culture of celebrating a problem that was discovered and fixed or will people fear for their jobs and reputation?
 - Will the staff feel comfortable recording problems or feel the need to cover up any problems?
 - Does the management value monitoring and the resources required to put it into action?
 - Has the management and staff considered and discussed strategies necessary to create this culture?

- Clarification and delegation of key roles and responsibilities**
 - Are the key roles and responsibilities clarified and delegated appropriately?

- Building the capacity of people to fulfill their roles and responsibilities**
 - Is there a system in place to respond to the information and results gathered?
 - Does the monitoring staff have the capacity to discuss problems and resolve them?
 - What training and mentorship will be needed to build the capacity of the monitoring staff?
 - How much support will the staff need at the beginning and how will that change over time?
 - Is there a culture of team, mentorship and support in the organization?
 - Has the management and staff considered and discussed strategies necessary to create this culture?
 - Are the end users aware of the importance of monitoring and included in the process?

- Allocating appropriate resources (e.g. human, material and financial)**
 - Are there appropriate resources (e.g. human, material, financial) allocated to support all of the monitoring activities?
 - Is monitoring completely integrated into project activities and managed as such?

3.3.3 Review, Improve and Expand

Key Messages:

- *Monitoring activities and processes should be trialed and then go through a process of review and improvement*
- *Adjustments should be made as the project grows and changes and staff capacity increases*

A review of the monitoring plan is important and necessary after it has been implemented for two to three months, or long enough to trial the monitoring activities and processes. The team should discuss how all the processes worked, what didn't work, and what they think could be improved to make it more efficient and effective.

Here is a list of topics to start reviewing each step of monitoring. For each discussion point the follow up question is: *How can it be improved?*

Table 3.3.3: Review Session Discussion Questions

Information Collection:

- Were the forms easy to use? Why or why not?
- How effective was the process of collecting information?
- What information was difficult to collect?
- What resources were necessary or unnecessary?
- What problems were encountered while collecting information?

Analysis:

- How effective were the staff at analyzing problems on the spot?
- How effectively were on the situational problems recorded?
- How did the transfer process work to get the forms to a central location?
- How effective and efficient was the transfer process of inputting the information in to a database?
- How effective were the staff at determining trends in the information?
- How effectively and efficiently were the conclusions communicated?

Improvements:

- How effective were the staff at fixing situational problems and recording what was done?
- How efficiently were problems that could not be addressed on the spot followed up?
- How was the flow of information from group or long term trend analysis to making improvements?
- How were the agreed upon improvements carried out and how sustainable were they?

Communication:

- How efficiently and effectively was information communicated to stakeholders?
- How did the end users respond to being part of the communication flow?
- How was the information received by the staff, management and donors?

Overall:

- How timely were the monitoring activities carried out?
- How does the staff feel about the processes and lines of communication?
- How could the whole process be more efficient?
- What areas need more training or mentorship?
- Who is going to check in with the changes that have been made?
- What challenges could they anticipate with project scale up?
- What resources were necessary or unnecessary?
- How is training and mentoring being sustained?

There may be only small adjustments made or larger ones. Testing out the changes will be important as well as continuing to make adjustments as the project continues, staff capacity increases and as the project grows and changes.

3.4 What to Monitor?

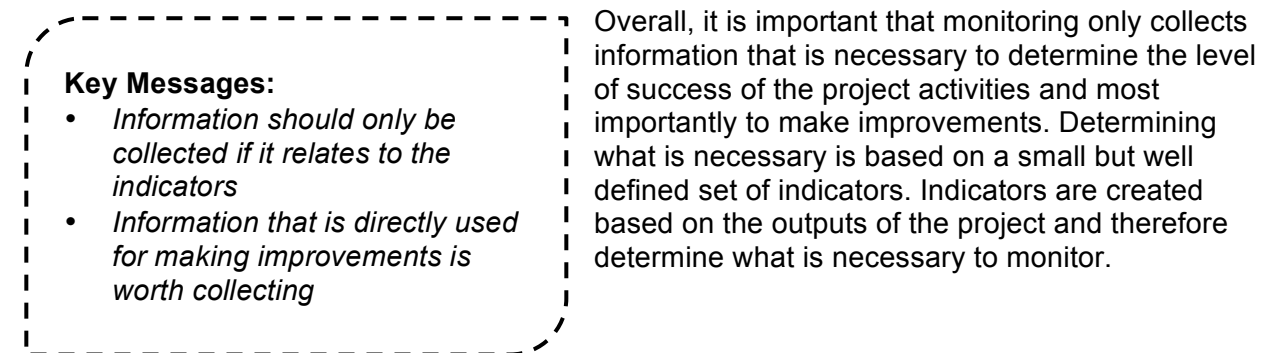
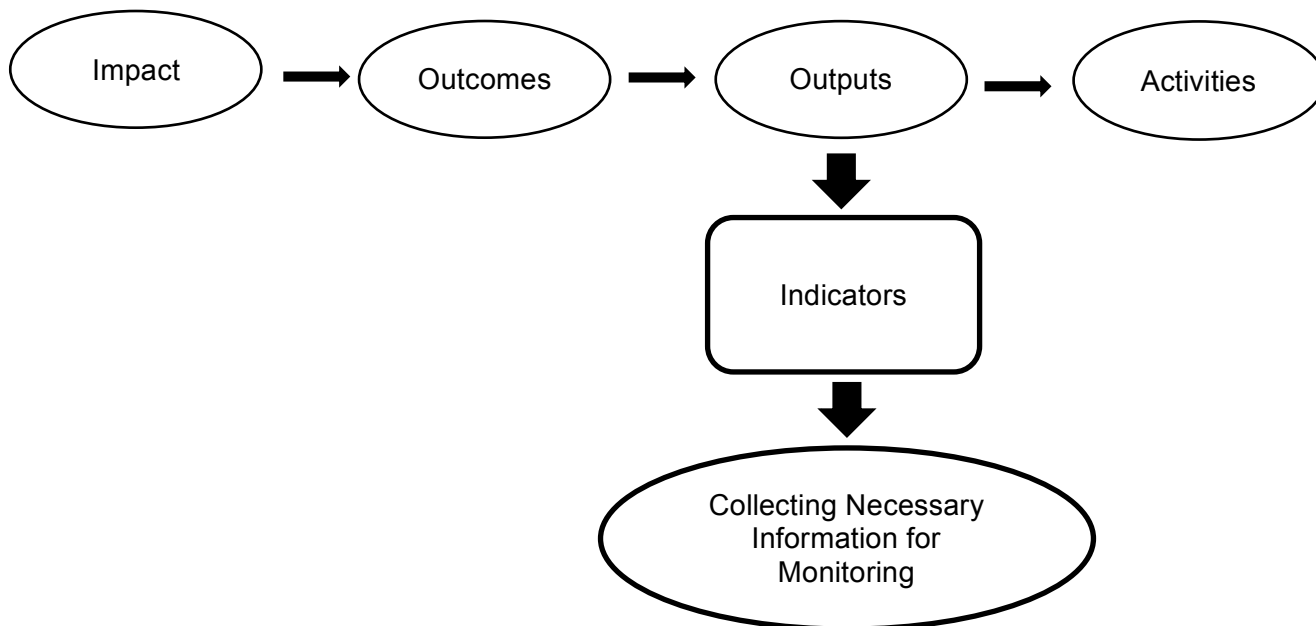


Figure 3.4.1: Determining what Information to Collect



Information is worth collecting as long as it is being used in a timely and relevant way that supports the indicators and the purpose of monitoring. When deciding what to monitor it is important to consider the following questions:

- What indicators need to be measured to indicate success?
- What information will be needed, no more and no less?
- How will people collect information reliably, do quick analysis and immediately resolve problems?
- How the information will be analyzed and used over time?

(Partners in Evaluation, 1986)

Organizations will often collect information that will not be used for any purpose. Over time this wastes a lot of staff time collecting and managing the information. If the staff or those being interviewed feel the information is not useful, they begin to doubt the process and either stop doing it or become mechanical in their responses and responsibilities.

Yet, if the information is directly relevant and useful to improving the project, staff will see and feel the benefits of collecting the information and continue to do so. This can be established and maintained by connecting the information to the indicators.

3.5 Who is Involved in Monitoring?

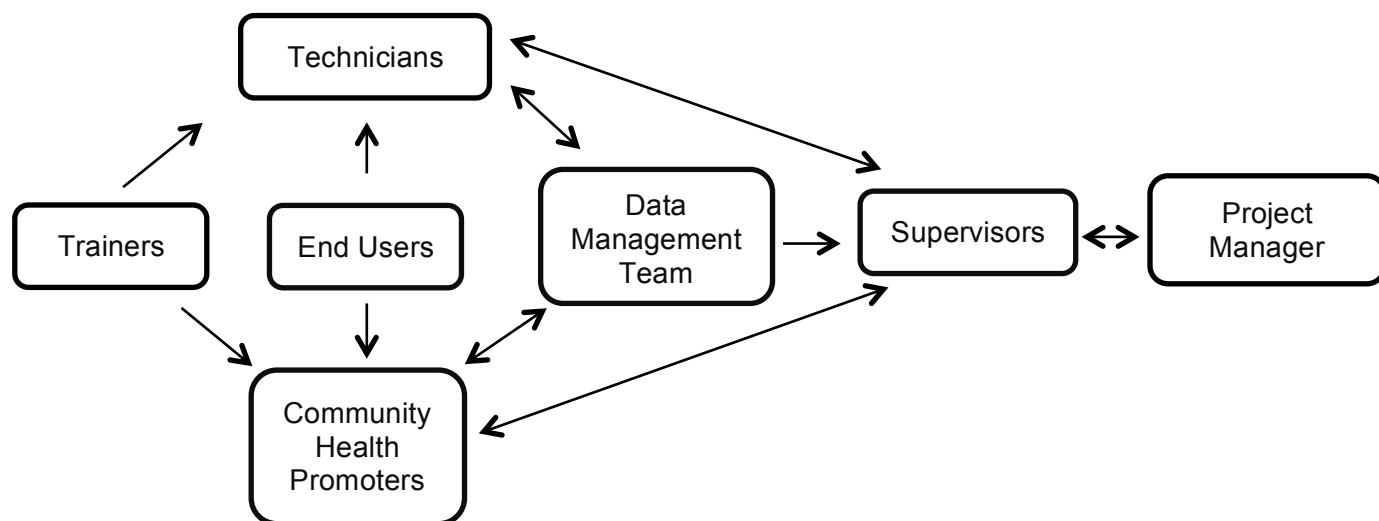
Key Messages:

- *Everyone, from project staff to end users to donors, are involved in monitoring either directly or indirectly*
- *There are key roles and responsibilities that need to be considered while planning*

Time and again it is proven that monitoring is essential to the day to day success of a project, which affects the overall impact of providing people with safe water and sanitation. And yet, depending on how monitoring is carried out, the project staff or end users may feel that it is a form of policing or judgement on their capacities.

Therefore, monitoring needs to be positively integrated into a project as a tool to review processes and strengthen capacity. If it is implemented to support a positive culture, then those involved will be more open and responsive.

There are a number of key roles and responsibilities in monitoring. Depending on the size of the project, there may be individuals that have multiple roles and responsibilities. Figure 3.5.2 illustrates the possible roles and communication links between them.

Figure 3.5.1: Monitoring Roles and Communication Flow

It is important to train everyone on the purpose and function of monitoring regardless if they are directly involved or not. Including individuals from all aspects and levels of a project will help build understanding and appreciation of the importance of monitoring. Most individuals in a small project will in one way or another be involved in monitoring. In a larger project, not everyone may be directly involved, but it will likely still impact their work. Using a participatory and inclusive approach will help to ensure everyone's support, particularly if they have the opportunity to input into the process.

It is a responsibility of the organization to build the capacity of individuals in each monitoring role through training and mentorship. In order to do this, part of the planning must include time and money to support this capacity building process.

Ideally, once a project is finished the monitoring activities are handed over to the community of end users or to local government authorities. The community needs to be mobilized and capable of monitoring to have a sense of ownership of the process, and be able to maintain and support the technology and health practices. To achieve this, the implementing organization must also include training and capacity building of end users during project implementation.

Table 3.5.1 on the following page lists the possible responsibilities associated with each role.

Table 3.5.1: Definition of Monitoring Roles and Responsibilities

Monitoring Roles	Monitoring Responsibilities
Project Manager	<ul style="list-style-type: none"> • Support a positive culture for monitoring • Check in with, encourage and mentor staff regularly • Review the monitoring plan regularly • Allocate resources appropriately • Support supervisors and review reports regularly
Supervisors	<ul style="list-style-type: none"> • Check in with, encourage and mentor staff regularly • Review the monitoring plan regularly • Look for large scale problems in long term trends • Present problems, resolutions and improvements to management • Participate in review and decision making processes
Trainers	<ul style="list-style-type: none"> • Train how to fill in the forms • Train how to ask questions in a way that doesn't influence the answer • Conduct analysis, resolve problems and make improvements • Submit completed forms to data management team • Participate in review and decision making processes • Train end users in monitoring activities to be able to hand over the activities at project end
Technicians	<ul style="list-style-type: none"> • Record relevant information during production, installation, end user training, and post-installation follow up visits • Conduct analysis, resolve problems and make improvements • Communicate larger problems with team and supervisor • Submit completed forms to data management team, including actions made • Participate in review and decision making processes
Community Health Promoters (CHP)	<ul style="list-style-type: none"> • Interview and observe end users • Record relevant information during household visits • Conduct analysis, resolve problems and make improvements • Reeducate end users as required • Submit completed forms to data management team, including actions made • Participate in review and decision making processes
Data Management Team	<ul style="list-style-type: none"> • Organize and input completed forms • Analyze group and long term trends • Report on trends needing resolution • Track improvements made • Document process changes • Prepare reports for management • Participate in review and decision making processes
End Users	<ul style="list-style-type: none"> • Provide feedback to technicians and CHPs on technology and effectiveness of training sessions • Help and participate with monitoring activities to have capacity to take over at project end

3.6 How to Monitor?

Key Message:

- *The following considerations are required for each monitoring activity: method (how it will be carried out), communication flow (who, how and with what) and resources (human, material and financial)*

Logistical considerations are necessary during the planning stage to determine how all of the activities will be carried out. It takes careful discussion to map out the methods of how information will be collected, analyzed, improvements made, and reporting completed. A project may have the best forms and analysis tools, but if they can't be used efficiently or effectively, they are useless.

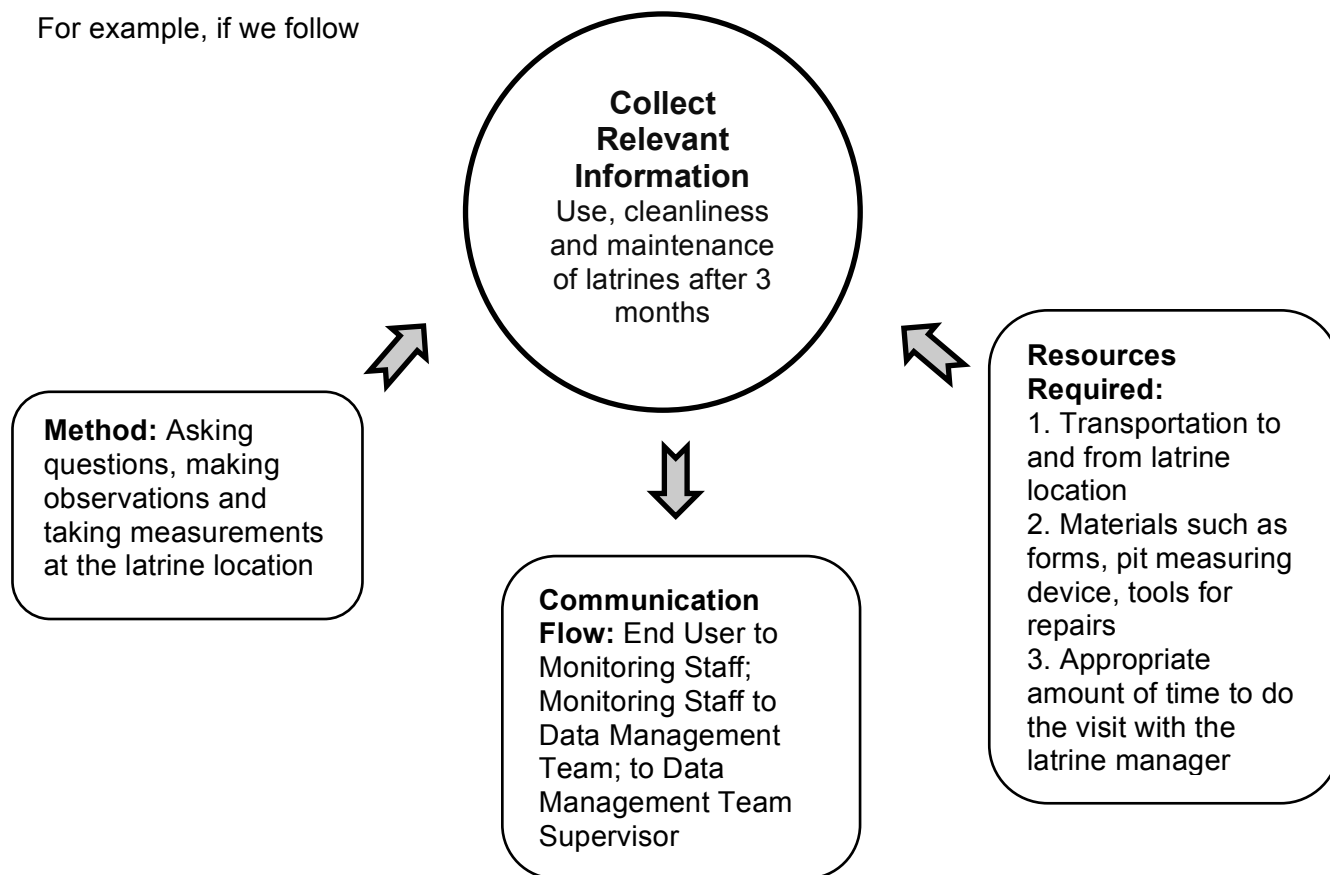
Often the challenge is not in collecting information, but rather in analyzing it in a timely fashion. Setting up a schedule will be important to keep all the

information flowing efficiently.

For each monitoring activity and each step of monitoring (e.g. collection, analysis, improvements and communication) consider the following:

- Method (i.e. how the activity will be carried out)
- Communication flow (i.e. who needs to be communicated to, how and with what)
- Resources required (i.e. transportation, materials, time)

For example, if we follow



3.7 When to Start Monitoring?

Key Messages:

- *Monitoring should start once production starts*
- *Adjustments can be made along the way, but at least the systems will be in place*
- *It is easier to integrate monitoring when they are part of day to day work*

Monitoring is most effective if it is started once the production sites are operational, HWTS or sanitation technologies are being installed, and household or latrine follow up visits are ready to be started. Monitoring will then continue throughout the life of the project and even after it is completed.

Starting monitoring early on will build the capacity and accountability of the staff from the start thus preventing the need for retraining and going back to resolve problems after the fact. Also, this allows monitoring to be well established as the project

gains momentum, increases in activities, and becomes more complex. Monitoring will be able to scale up as the project itself scales up.

Although not ideal, monitoring is often started after a project is already in progress or after a project evaluation identifies problems. Integrating monitoring into an existing project can be complicated and frustrating, but over time it will still prove its value. It will require planning and integrating new processes, restructuring of activities, training and organizing staff, and redirecting resources.

If monitoring is starting late, it would be realistic to assume that regular activities would not be able to continue at the existing rate. It might be necessary to slow down or stop project activities to correct the problems identified, redesign implementation strategies, set up monitoring processes and build staff capacity to handle new responsibilities.

3.8 What is Needed to Monitor?

Key Message:

- *To see the benefits of monitoring, a project needs an appropriate amount of resources, capacity and processes*

There are three elements that are needed to be able to monitor efficiently and effectively:

1. Resources
2. Capacity
3. Processes

Monitoring will be a great success when all of these elements are present and available in their highest capacity. Monitoring will not be without challenges, but at least the challenges will be more manageable.

1. Resources:

- Human – To meet the demands of monitoring, each of the recommended roles (presented in Section 3.5) must be assigned to staff. For each person to meet their responsibilities, they will need the enough time allocated in their work day, particularly if they are fulfilling multiple roles.
- Financial – It is recommended that 1% to 5% of the total budget be allocated to monitoring, depending on the depth and breadth of the project, existing capacity and logistics, and materials required. For example, if the staff has to travel large distances to collect the information, then more money will be needed for transportation or if more staff are needed to perform the work, then more staff need to be hired and trained. Costs for each activity will need to be estimated to calculate the overall monitoring budget.
- Material – Each monitoring activity will require a certain amount of materials, for example paper forms, clip board, training materials, tools and materials for repairs, tools for analysis (paper or computer). Volunteers or staff who are visiting households (e.g. technicians, CHPs) often have more credibility with a T-shirt or badge to identify themselves.

2. Capacity:

Activities and forms are only as good as the people that use them. Individuals need to have the knowledge and skills necessary to fulfill the responsibilities of their role. Therefore, an analysis is necessary in the planning stage to determine what capacity exists and what is required to fill any existing gaps. Once the gaps are determined, the training needs can be identified and planned.

However, training is only the first step in capacity building. Having a mentorship program after training will help staff take what was learned in the training and put it into practice. Recognizing this, planning for people to work in mentorship partners or teams may seem inefficient and costly, but the results in the end will be more successful.

3. Processes:

Processes include the tools and steps to use them. These must be designed in a way to help smooth the way for collection, analysis, making improvements, and communicating on the monitoring results.

- **Monitoring** forms must be well thought out and organized. This makes it easier to collect and manage the information.
- **Analysis** is one of the greatest challenges of monitoring. There are individual situations where analysis is needed that can be done on the spot by the information collector (e.g. technician, CHP) or may require follow up at another time. This analysis will be referred to as *situational analysis* where conclusions are made on the present situation.

The other time analysis is required is when information is combined in to a collection. For example, looking at a group of filters to determine if there are overarching flow rate problems that the group of filters is experiencing would be a trend. This is referred to as *trend analysis*. For *trend analysis*, it is important that the data collected is organized in a way that is easy to input, draw conclusions and present the findings. This is to ensure that problems are easily identified and can then be reported quickly to start discussions on how to fix it.

- **Improvements** are done a various levels and include fixing problems or making systematic changes to processes. They can be done at the time of *situational analysis* or after a review of the *trend analysis*. It is important that improvements are carried out quickly to fix what is not working, and to prevent the problem from getting worse, further problems arising, or end users to stop using the technology.
- **Communication** is also a challenge for organizations to do in a timely manner. It is critical to follow through every stage of monitoring to ensure the overall success of the project. This includes documenting what was found and what was done about it, and then communicating it to the appropriate stakeholders (including end users, project teams, management and donors). This demonstrates to all stakeholders the high level of integrity and transparency of the implementers. Trust is built by openly reporting on what is working and what is not working as well. Communicating results regularly keeps everybody in the loop.

One effective form of communication that could help keep all the staff and visitors up to date is to present the monthly results of the project on the wall of the office or a central location. For example, there could be a large graph that presents the baseline information, the target and actual results of particular indicators that the project is working towards. Then every person that walks into the office, staff or visitor, can immediately see what is going on and where the project is in meeting targets. It can be a constant reminder of success as well as areas needing improvement.

3.9 Summary

- *Keep the monitoring plan and scope small and manageable to start*
- *Be flexible – a plan is not set in stone*
- *Contact CAWST if you have any questions or need support at cawst@cawst.org*
- *There are great resources out there – look for them to increase your comfort with the subject*
- *Finally, just GET STARTED, there will never be a better moment than right now!*

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