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Looking back to move forward in strength: monitoring of water system sustainability

Kate Fogelberg*

Water for People, Lima, Peru

The emphasis in the water and sanitation sector is on new boreholes, taps, and toilets, but what about those implemented last year, five years ago, and ten years ago? If the sector is to come close to meeting the Millennium Development Goals (MDGs), not only do all of the new water points have to functioning and sanitation facilities being used, but so do all of the previously installed ones. In order to know if these facilities not only still function, but if people are managing them in hygienic ways, Water For People and its local partners have developed an annual monitoring protocol to systematically collect sustainability information and make programmatic adjustments where needed. Water For People defines monitoring as 'the continuous and systematic annual assessment of program/project progress against set targets designed to improve project performance'. Although frequently recommended for the success of sustainable development efforts, monitoring activities have not been prioritized by international development organizations. Constraints to monitoring after an intervention has been completed include finance, time, human resources, cumbersome methodologies that are not replicable, an organization's unwillingness to admit weaknesses or challenges, and prioritization of new projects. This paper will describe the methodology, results across several regions of the world, and highlight programmatic changes that have been made as a result of the systematic collection of sustainability information.

Introduction

The global water and sanitation crisis and Water for People

The most recent statistics from the Joint Monitoring Programme (WHO/UNICEF) state that 884 million people are without access to safe water and that 2.5 billion do not have a private place to take care of their sanitary needs (WHO 2008). Two million people per year, most of them children who do not live to see their fifth birthday, succumb to one of the more than 25 diseases caused by inadequate access to water and sanitation (WHO 2008). Economic and environmental impacts of poor access to water and sanitation thwart the fight against poverty and worsen many already fragile environments.

But not all of the statistics are bad news. Countries benefit from investments in water and sanitation interventions – from $3 to $34 per dollar invested depending on the place and type of intervention (Stockholm International Water Institute (SIWI) 2005). Health outcomes, especially diarrhea, can be improved from 15–36% depending on the type of intervention (Esrey *et al.* 1991). Women no longer have to spend hours each day collecting

*Email: kfogelberg@waterforpeople.org

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Figure 1. Map of Water For People country offices.

water and children are more likely to stay in school when they no longer have to participate in such activities.

Water For People is an international non-governmental development organization based in Denver, Colorado, USA and currently active in 11 countries in Latin America, Africa, and Asia (see Figure 1), working to decrease these negative statistics and increase the positive ones. The organization supports the establishment of community water and sanitation facilities and hygiene promotion activities through local government, civil society, and private sector partners to fulfill its mission of 'helping people in developing countries improve their quality of life by supporting the development of locally sustainable drinking water resources, sanitation facilities, and hygiene education programs'.

The organization accomplishes this critical work through the following:

- Strengthening the capacity of local government, private sector, civil society, and communities so that they can sustain water and sanitation investments over time
- Providing thought leadership in the water and sanitation development sector and fostering innovative approaches worldwide

- Supporting locally-driven, sustainable solutions, rigorously monitored over time and continuously improved
- Leveraging funding to exponentially multiply its impact

Water For People has grown considerably over the past few years as the organization has moved from working in scattered locations throughout countries, to a focused, strategic, 'up-scalable' and 'impactful' regional program. Water For People's unit of work is a municipality or a district, which is similar in size to a county in the USA and encompasses anywhere from ten to hundreds of communities. Working in partnerships is a cornerstone of Water For People's work overseas. The philosophy behind partnering to bring communities water, sanitation, and hygiene services is two-fold: (i) by working in partnership, resources can be pooled and collectively more people are reached with these basic services; (ii) long-term sustainability of services depends on the skills and resources of a variety of local actors – communities, local governments, local civil society, and the local private sector.

Included in the organization's current strategic plan was a sub-goal to develop an effective monitoring and evaluation protocol. Water For People identified the need for more effective measurement and analysis of its work as well as the goal of carving out a space in the international water sector as an organization that placed a high value on learning. Throughout the years, lots of anecdotal, qualitative information had been collected about the impact of its work through programmatic supervision visits from headquarters staff and irregular donor tours to the work sites. The organization, like many in the sector, could not speak to the sustainability of its work with quantitative confidence, nor could it draw from lessons learned long after the photographs have been taken and the inauguration of boreholes completed. In sum, the organization had no formal, systematic monitoring, evaluation, or learning processes built into its programming cycle. Project-specific 'monitoring' (really just supervision) during execution did occur, but all this showed was that a proposed program of work was completed and that modifications were made as needed. No long-term sustainability data was collected, nor was a formal learning mechanism in place to capture lessons and incorporate them into future programming. What the organization sought to develop was an annual, simple, programmatic, monitoring protocol that would allow the organization to document longer-term successes and challenges, and perhaps more importantly, learn from its failures and successes, re-orient programming where needed, and convince others in the sector to value monitoring as well.

The focus of this paper is on this broader, systematic post-project annual monitoring program and not on the on-going programmatic monitoring that occurs during project implementation. The reason is simple – while considerable lessons are learned during implementation and programmatic 'tweaks' occur and inform future programming, the key is to see what happens after work has been completed and the NGO has retreated from the scene. Does the private sector respond to community challenges? Does local government help address land rights' issues without the NGO prodding them to action? Do communities manage their facilities and collect finance as designed, or do these systems collapse with the NGO's withdrawal? These questions are critical and neglected in the sector, and the cornerstone of Water For People's monitoring program.

This paper will describe the methodology, results across several regions of the world, and highlight programmatic changes that have been made as a result of the systematic collection of sustainability information.

Background

Keeping it simple in the sector

Since 2000, Water For People and every other actor in the sector has been working towards meeting the United Nations Millennium Development Goals (MDGs) of halving the proportion of people without access to safe water and basic sanitation by 2015. The emphasis in the water and sanitation sector is on new boreholes, taps, and toilets, but what about those implemented last year, five years ago, and ten years ago? If the sector is to come remotely close to meeting the MDGs by 2015, not only do all of the new water points have to be functioning and sanitation facilities be used, but so do all of the previously installed ones. In order to know if these facilities not only still function, but if people are managing them in hygienic ways, Water For People and its local partners have developed an annual monitoring protocol to systematically collect sustainability information and make programmatic adjustments where needed.

Water For People defines monitoring as 'the continuous and systematic annual assessment of program/project progress against set targets designed to improve project performance'. Monitoring is often conflated with either project supervision, which occurs during a project's implementation, or evaluation, which is a more in-depth look at the impact of a particular intervention several years after its completion. Frequent constraints to monitoring cited by governmental and non-governmental institutions alike after an intervention has been completed include the following:

- *Finance*: Who will pay for this? Most water and sanitation interventions follow a short-term project cycle with external finance provided for a specific time period. There is typically not much consideration for learning past a 'final evaluation', which may take place anywhere between 1 and 24 months after a project. However, often the most interesting learning happens once external agencies have fully withdrawn.
- *Time*: What is the opportunity cost of spending time looking at 'old' projects versus implementing new ones or searching for finance for new interventions?
- *Human resources*: Organizations have to allocate scarce resources; do they invest in people just to monitor and evaluate work? Or does this finance get allocated to programs?
- *Cumbersome methodologies that are not replicable*: The danger of monitoring and evaluation is to create methodologies that are essentially 'overdone' for the fieldworkers' needs. The point is not to spend months analyzing statistical significance, but to make rapid decisions on how to change programming or replicate successes.
- *An organization's unwillingness to admit weaknesses or challenges*: In a competitive world for scarce finance, most organizations' would rather highlight their successes than address the challenges.
- *Prioritization of new projects*: Infrastructure projects are always going to be more 'sexy' than training or learning agendas to typical donors and implementing institutions – governmental and non-governmental alike.

The result of *not* monitoring is that new systems are consistently being implemented with little understanding of what has worked and not worked in the past. The danger is past mistakes are simply being multiplied. A successful monitoring program allows Water For People to accomplish the following key activities:

(1) Strengthen in-country programs
(2) Hone advocacy messages
(3) Build relationships with donors and supporters

Although frequently recommended for the success of sustainable development efforts, monitoring activities have not been prioritized by international development organizations (WHO/UNICEF Joint Monitoring Program for Water Supply and Sanitation 2000, UNESCO 2006, Hunter *et al*. 2009, Winpenny 2009). The water sector is full of debates on what constitutes access, functionality, and sustainability (UNESCO 2006). Carter *et al*. (1999) argue that the ultimate test of sustainability is simply whether facilities are functioning and being used over time. This is precisely what Water For People monitors and has been experimenting with how to measure in the most effective, efficient, and user-friendly way.

Program managers and fieldworkers do not need more debates on what sustainability is, but rather a pragmatic concept of sustainability (Carter *et al*. 1999). The authors propose using a simple definition of sustainability – 'whether or not something continues to work over time' (Carter *et al.* 1999, p. 7) and that is exactly what Water For People is looking at as well. Over the past years, the monitoring team at Water For People debated and tested various ways of defining and measuring functionality, but now follows a similar logic and defines functioning as water is flowing from the system, latrines are being used hygienically, and key hygiene behaviors are practiced.

Methodology

Monitoring at Water For People is designed to be an annual exercise during which a snapshot of past project performance is collected. Monitoring is *not* evaluation, which looks at fewer projects more in-depth, thus monitoring does not include collecting impact data, such as reductions in diseases, economic spin-offs, or changes in women's lives, for example

Because Water For People works in a range of countries around the world that use a variety of water and sanitation systems, a methodology has been developed that encompasses commonalities amongst all of them that will provide relevant information so that Water For People can compare successes and challenges across communities, districts/municipalities, and countries.

A team of Water For People staff and partners have designed an innovatively transparent, independent, replicable, annual monitoring process of past water, sanitation, and hygiene work that successfully addresses the aforementioned constraints:

- *Innovative web-based transparency*: Results, positive and negative, are posted on the Water For People website. Photographs, site-specific results, summary data of strengths and weaknesses, and a geographical information system (GIS) map (forthcoming) are displayed.
- *Independent*: The process is designed to be run by World Water Corps' volunteers from North America and in-country. This allows for independent verification of the work, keeps costs down as volunteers pay their own ways, allows Water For People to keep its staff small, and allows technical experts to assist Water For People and its partners to improve their work in the field.
- *Replicable*: The purpose of this exercise is not months of analysis, but to make programmatic decisions that affect fieldwork. The simple nature of the system allows for a variety of volunteers from North America and other countries to participate in

the exercise on an annual basis. The methodology has been used to look at arsenic filters on hand pumps in India to gravity-fed systems in Honduras and is designed to be applicable in any country, allowing Water For People to compare across countries.

The monitoring exercise is scheduled during the dry season in all countries, as we are most interested in seeing if water systems are able to meet year rounds, needs and thus, visit when they are under the most stress. A typical two-week exercise is structured as follows:

- *First Sunday*: all team members arrive
- *Monday*: half-day training in the office and half-day training in the field
- *Tuesday*: teams split into groups
- *Tuesday night*: teams re-group to identify issues encountered during first day along
- *Wednesday–Saturday*: fieldwork
- *Sunday*: rest day
- *Monday–Wednesday*: fieldwork
- *Thursday–Friday*: data entry, drafting of report, and presentation of initial results

A manual has been developed that provides the team leader with all of the necessary materials needed to train volunteers, partners and staff. All materials have been translated into local languages where necessary. Volunteers are expected to at least speak the main language of the country, which is French, Spanish, or English. Where needed, local translators are used in Bolivia (Quechua), Malawi (Chichewa) and India (Bengali). Several challenges have emerged with the development of a tool that can be used across countries and in multiple languages:

- *Objectivity of the translator*: In some cases, the local government or non-governmental partner has served as the translator when no other options were available. Concerns about the validity of the data emerge, as partners were not initially comfortable discussing the challenges encountered. One helpful solution has been the involvement of local university students or local volunteers who are proficient in the local language but do not have the perceived interest to not translate potentially controversial or negative information.
- *Size of groups*: In order to be effective and efficient in the field, a team usually contains one World Water Corps' volunteer, a local partner, and a local Water For People staff member. In the event that none of these people can speak the local language, another team member must be added to the group, increasing logistical issues and decreasing the amount of work that must be done by other team members.
- *Appropriate translation*: In Spanish-speaking countries, many different translations exist. It has taken trial and error to arrive at appropriate translations for each country and region.
- *Delays in returning information*: When final reports have to be prepared in multiple languages, this has delayed the return of materials to staff and partners. Water For People is currently investigating software programs that will be able to produce some reports essentially in real time, which would help manage the time issue.

The methodology continues to be refined each year with lessons learned from past experience, but the general components have not changed:

- Interviews with users and managers of the system
- Observations of water and sanitation facilities
- Photographs
- Global Positioning System (GPS) coordinates
- Web viewing of results.

In the early phases of the development of the tools and processes, a team of World Water Corps volunteers, Water For People staff, an advisory board, and an evaluation consulting firm were heavily involved in the revision of the instruments and processes. The technical team participated in the development of the tools, field-tested them in a variety of countries, and met regularly to refine instruments. Moreover, feedback is solicited from each group that participates in an exercise. Part of the format for the final report is a request for recommendations from the field team: these recommendations refer both to the actual programming in the field and the monitoring protocol and process. This has been an invaluable component to the revision process.

The first exercise took place in late 2006 and until 2009, was managed by staff within Water For People's international programs group. In March of 2009, however, a full-time staff person devoted to the World Water Corps exercises was hired and has been able to devote a considerable amount of time to the exercise. Whenever major changes to the process are envisioned, conference calls with all country program staff are held to ensure that in-country staff is having their needs met and ideas heard.

All of this work is done by World Water Corps volunteers, in collaboration with Water For People in-country staff and local government and non-governmental partners. In some countries, local university students are also key members of the monitoring teams. While the external volunteers provide an objective perspective, share the costs of the exercise, and bring technical expertise to Water For People's staff and partners, the involvement of all local stakeholders is key to the success of the exercise. As mentioned earlier, Water For People is an indirect implementer, and spends a considerable amount of time training local governmental and non-governmental partners. The monitoring exercise is designed to create a culture of learning, whereby all participants begin to value a systematic learning process and are not afraid of possible challenges uncovered by monitoring. The inclusion of university students is a growing trend at Water For People. While to date, many have come from the engineering field, the organization is expanding its alliances with other faculties that are linked towards the provision of water and sanitation, such as sociology, economics, planning, and agronomy. Many country programs have formal or informal alliances with universities and this relationship is only getting stronger as the organization grows. For many university students, participating in an exercise like this is their first foray into the rural development challenges their countries face and provides them with material for theses or other coursework. They are considered full team members and participate in all aspects of the program, from the training, to data collection in the field, to the production of the final report.

The methodology includes visiting a sample of past work supported by Water For People. In communities with household taps, skip patterns are developed to attempt to visit a more representative sample within the community. The entire team meets with someone from the water committee or local leadership to explain the purpose of the visit, and then the group splits into two groups. One group interviews the committee, views financial records, conducts a sanitary survey at the source, and takes a GPS reading. The other group concurrently talks to users and takes photographs of individual taps and sanitation facilities, if applicable. Table 1 lists the specific topics monitored by project type: ten categories are monitored for water interventions; two categories for sanitation interventions; and three categories for hygiene

Table 1. List of factors monitored annually by type of intervention.

Water	Sanitation	Hygiene
1. Availability of water	1. Use	1. Hand washing knowledge
2. Use	2. Hygienic maintenance	2. Presence of water and soap
3. Management		3. Environmental hygiene
4. Financial management		
5. Operations and maintenance		
6. User satisfaction		
7. Standards of distance and numbers		
8. Sanitary site survey		
9. Water quantity		
10. Water quality		

interventions. Each category is measured by at least one question or observation, and several categories include multiple questions and/or observations.

Data is entered and analyzed by the World Water Corps volunteers. Composite indicators for each area (water, sanitation, and hygiene) include all of the aforementioned factors to give a general idea of whether the system, or behavior, in the case of hand washing, is at an optimal, intermediate, or poor level. The data entered on the instruments were processed into a numeric score ranging from 0.0 to 2.0. This score was then transformed into one of three scores: optimal (1.50 to 2.0), intermediate (0.51 to 1.49), and poor (0.0 to 0.50).

Individual factors (availability of water, management, source hygiene, etc.) are similarly ranked, so that trends can be identified. A review board external to Water For People reviews the findings and provides quality control before the results are posted on the website.

A standardized reporting format provides summary level and detailed data findings for each indicator, a GIS map of site visits (see Figure 2), and photographs that exemplify both positive and negative aspects encountered.

A similar exercise is conducted at schools, whereby users and managers are both interviewed, observations of facilities occur, and photographs and GPS readings are taken.

Data is typically entered into Excel spreadsheets during the two-week exercise, which allows team members to participate in an initial discussion of results and brainstorming activity on how to use the results to replicate successes or improve challenging aspects. As the scale of information has increased over the years, the organization is currently investigating other data management options, such as Statistical Package for the Social Sciences (SPSS), that will be easier to manage as the amount of information grows, but that is also readily available to staff and partners in a variety of countries and donors and other constituents. While harder to quantify, quite a lot of informal exchanges occur between all participants. The structure of the groups – an external volunteer, local partner, Water For People staff, and university students (when available) is created precisely to encourage this sharing of information, technical expertise, and creative thinking. The last day of the exercise is typically a presentation of results and recommendations to all stakeholders.

Results and discussion

This paper covers data up to 2008, during which 11 separate trips have taken place in 5 countries. A wealth of information has been generated during the 11 exercises and it is beyond the scope of this paper to present all of the results in detail (see Table 2). Rather, this

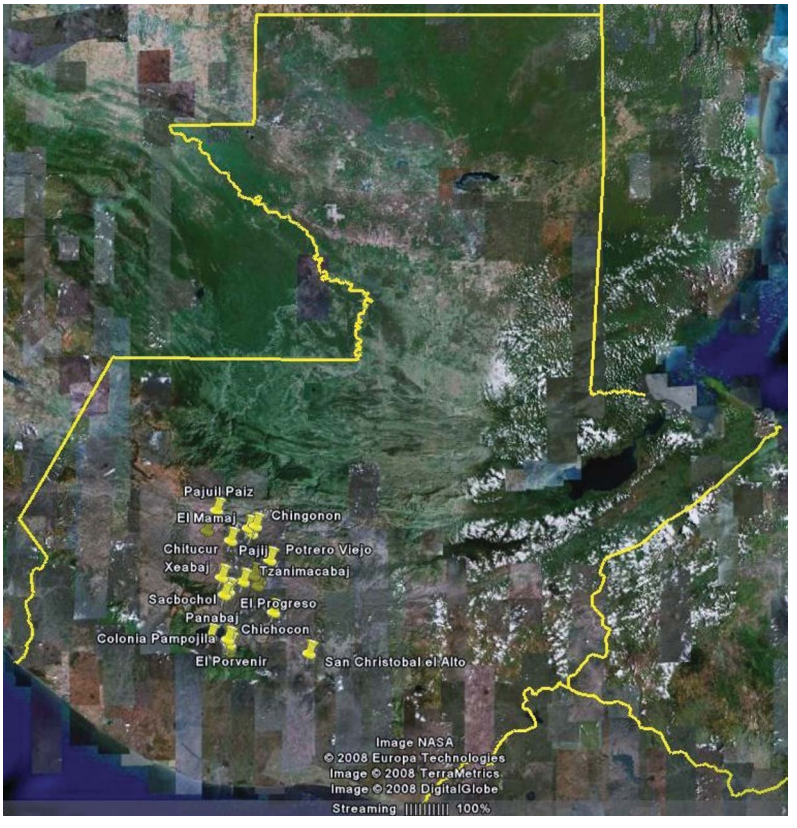

Figure 2. Geo-referenced locations from Guatemala monitoring trip.

Table 2. Years and locations of monitoring exercises.

	Year		
Country	2006	2007	2008
Honduras	×	×	×
Guatemala		××	×
Bolivia		×	*
India		×	×
Malawi		×	×

*Bolivia's 2008 exercise was cancelled due to political unrest.
×× = Two separate monitoring activites were conducted.

paper will show what can be done with the results: comparing global summary data, global specific data, and country specific data. Data is collected on the three components of water, sanitation, and hygiene, but this paper will focus on the results gathered only in the water sphere and the learning that has taken place as a result of the monitoring exercises.

Global summary data

As stated earlier, several people who have worked in the sector for years argue that if water is flowing from the system on the day of an unplanned visit, this is a key indicator of sustainability. Using three years of data, Water For People can compare across countries and see how its past work is faring over time.

This is one way in which the data is useful as it allows Water For People to verify the sustainability, in a very general sense, and talk about its past work at a global level. In general, Water For People-supported interventions continue to provide water once an intervention has ended (see Figure 3). These 464 water projects use a variety of water sources, technologies, and are located in Asia, Africa, and Latin America.

Global composite data

While the fact that 95% of systems over three years of surprise visits were producing water is something to be celebrated in a sector where broken pipes, stolen hand pumps, and abandoned toilets is something far too common but not talked about enough, it does not mean that there are not challenges. A recent article in the *Financial Times* highlighted a study of failed water investments in Africa, estimating that between $215–$360 million has been wasted as over 50,000 hand pumps lie in disarray (Harvey 2009). If organizations involved in the water and sanitation sector invested in their own monitoring, perhaps we would see these numbers go down over time. Sadly, most monitoring tends to be

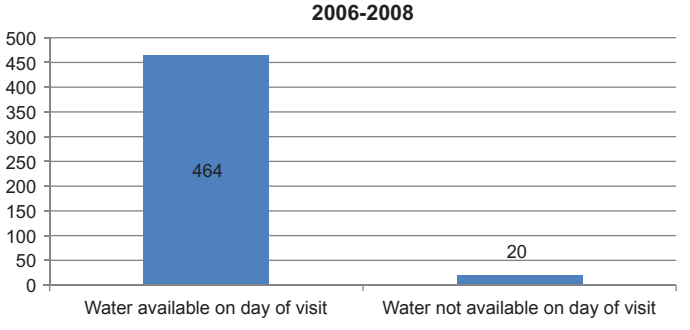

Figure 3. Water availability on day of visit.

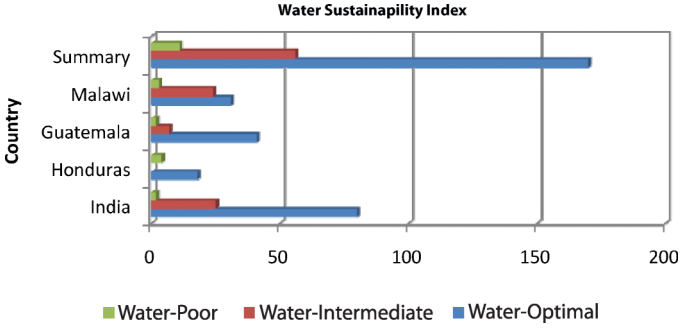

Figure 4. Water sustainability index of 2008 sites visited.

linked to a specific grant period and not to organizational learning or contributing to the generation of knowledge to improve the sector's performance as a whole. Water For People experimented with a sustainability index that would make it possible to see whether systems were operating optimally, intermediately, or poorly, to allow the organization to understand which areas needed greater focus and where to target future support. This was only conducted with the data from 2008, so the sample size is small, but still provides interesting data (see Figure 4).

This data allows us to see that 72% of sites visited were functioning at an optimal level; 24% at an intermediate level, and consistent with the global data above, 5% at a poor level, essentially meaning the sites were either broken, parts had been stolen, or were otherwise not in use. For a community to receive an optimal score, in general, the following conditions are met: water is available, being used for drinking, cooking, and hygiene, a management system is in place, a repair system is in place and any repairs have been completed within three days, a tariff system is in place and records are verified, the money available is the value of the most expensive spare, a sanitary site survey reveals no threats to the water quality at the source, users are satisfied with the service, government standards of distance and users are met, and water quantity and quality is sufficient. Intermediate communities tend to have lower scores with more than two of the indicators, thus while their systems may be functioning, follow-up assistance in one or more areas in required.

But the point of monitoring is not only to highlight the successes. While useful for reporting, advocacy, and building credibility, the successes are in some senses the least interesting lessons learned from the exercises. The weaknesses encountered provide a space for reflection on how Water For People and partners can improve their programming, so that in the end, water continues to flow, toilets continue to be used, and hands are washed long after the last pipe has been laid, the roof placed on the toilet, or the last hygiene workshop. The data collected through monitoring always allows to study a specific issue, determine whether the current solution is working or not, and develop revised solutions based upon the knowledge gathered during the monitoring process.

As mentioned earlier in the methodology section, this process begins with the composition of team members. The goal of including local implementers, local authorities, and Water For People staff is to ensure that they are active participants. While the World Water Corps volunteers provide an invaluable service as external and objective participants, the decision-making process is on the Water For People country program level. Feedback from all participants is captured – both formally and informally – in the two-week process and used to inform the recommendations. Sometimes the desired changes require resources or expertise beyond the capacity of the individual Water For People country program. In this case, in consultation with Water For People headquarters staff, appropriate training plans or other support is agreed upon.

Global specific indicator data

Financial management is measured by whether or not a tariff system exists, the availability of financial records, whether or not income and expenditure can be reconciled and if the balance is sufficient to cover repairs. This is one of the weakest areas of sustainability that the monitoring has uncovered.

As the chart in Figure 5 suggests, financial management performance varies across country, with the majority (71%) of India's sites at the optimal level, compared with Guatemala where the majority are at the poor and intermediate level.

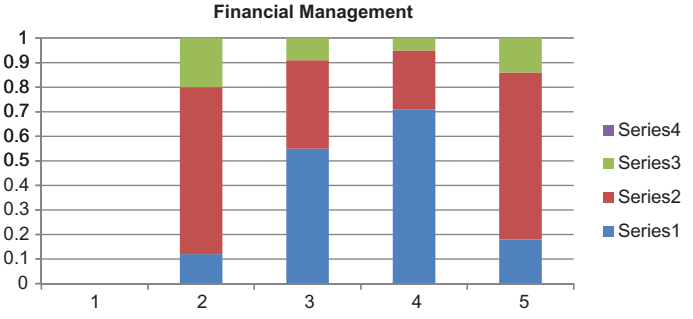

Figure 5. Financial management rating per country.

Different strategies are emerging in each country to tackle these problems. One of the modifications to the Malawi program is asking communities to contribute up-front to their system as evidence from around the world shows that while community contribution in-kind is an important component of community water and sanitation development, 'ownership' garnered through participation does not translate into the ability to produce cash when a spare part is needed. India, which has demonstrated a relatively high level of performance of financial management is in the midst of re-building much of their financial records and training as Cyclone Aila tore through many of the regions where Water For People works and much of this information was destroyed. Financial management is definitely an area that needs to be improved upon and Water For People hypothesizes that with more appropriate payment schedules (perhaps annually, after a harvest), improved training, and on-going support, these graphs will change over time to show more communities operating at a high level of financial management.

Country-specific data

Prior to the first monitoring exercise in Honduras in 2006, Water For People–Honduras supported water systems included a standardized drip hypo-chlorinator built on storage tanks. Moreover, there was an assumption that this particular type of technology was well suited to the rural communities where it was being implemented, that people were using and maintaining the systems. Our data (Figure 6) showed quite the opposite.

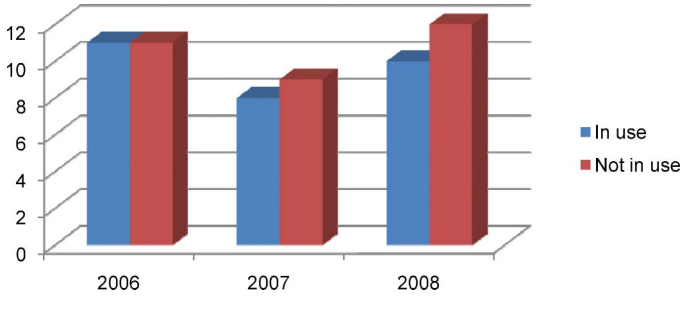

Figure 6. Status of treatment system.

This data also allows us to start to look at trends over time, and what we see here is that the units are actually being used proportionally less over time. Moreover, chlorine tests in those units that were being used only showed presence of residual chlorine in approximately half of the systems in use, leading Water For People to conclude that continuing to promote this option to water quality is resulting in only a 25% success rate.

Digging deeper, it was learned that people are not using the systems for a variety of reasons: no easy access to chlorine, chlorine is too expensive, lack of trained personnel, dislike of the taste, lack of back-up support for new plumbers to learn the process, 'illegal' use of the water on coffee plants, thus non-chlorination during coffee growing season.

A variety of solutions to the problem are now being implemented that tackle the technological, social, environmental, supply-chain, and support aspects of this particular problem.

- *Technology*: The government of Honduras has promoted this particular option for years, assuming as Water For People–Honduras did, that it was the best option. Water For People's data, however, shows that is not necessarily the case. This year, Water For People–Honduras is sponsoring several workshops on alternatives to the drip-feed hypochlorinator for its staff and partners not only in Honduras, but in Guatemala and Nicaragua as well.
- *Social*: The lack of use of the system also reveals that it may not be socially appropriate. Building on the first point – technology – Water For People is promoting a greater variety of technological options to meet the diverse demands including household options – from slow-sand filters to chlorine packets.
- *Environmental*: The most basic lesson in treating water is to find the highest-quality source and protect that. Prior to the monitoring exercise, little emphasis was placed on source protection and management. Now, many communities are purchasing the land around their springs to prevent human and animal activity and reforestation to promote water recharge is happening.
- *Supply Chain*: Many communities are quite remote and to access chlorine means a several hour walk and some public transportation to purchase replacement chlorine. The management model being implemented by Water For People–Honduras includes strengthening the Association of Water Boards, which is a civil society organization at the municipal level composed of representatives from each community water board. The Association plays two roles in terms of water quality: one, it has a chlorine bank in the municipality which is much more convenient for users to access; and two, they have been regulating whether or not their member communities are chlorinating their water, serving as civil society monitors.
- *Support*: The example of the Association of Water Boards is given above, but communities do not exist on their own and there is a growing realization in the water sector that to really attain long-term sustainability, communities need access to outside support indefinitely. The solution Honduras is testing is supporting a Municipal Water and Sanitation Technician, one of whose duties is to meet with the Association monthly in a different community to provide trouble-shooting and re-training of key members, such as plumbers when turnover occurs.
- *Learning*: The knowledge generated through the monitoring exercise is being used to develop the alternative water quality treatment course which will, in turn, be used to advocate for government to adopt a greater breadth of water quality treatment options and provide a regional tool for other institutions facing similar challenges.

What is particularly interesting about the Honduras example is that the local Water For People staff are taking advantage of another learning opportunity that the organization promotes – the Ware Fellowship. The Ware Fellowship is a multi-year staff and training program that seeks to strengthen the knowledge and skills in a particular sub-field of water and sanitation promotion and is designed entirely by in-country staff to ensure that training topics meet their needs. This year (2009–2010), the Fellowship is being hosted in Central America and participants include Water For People's staff and partners. Based upon the results from three years of monitoring, local staff have designed a training program to investigate alternative water quality treatment options and a greater variety of sanitation options.

More than numbers and graphs: the impact of the exercise

While the statistical results are interesting and provide Water For People with insight into what is working and what is not working with its programs, two particular outcomes stand out in terms of knowledge. The first is that this data is actually used to make programmatic changes, of which a few examples have been given above. The dynamic and on-going nature of monitoring means that this process is not simply tied to one donor or one grant and will end once the funding runs out. On the contrary, Water For People will monitor a sample of its past work annually as a continuous learning and improvement process. What occurs at project/programmatic level after grant completion is actually more interesting than the process monitoring that *may* occur during the grant's implementation. Sadly, many implementing agencies will have moved on to other grants or activities while the real lessons related to sustainability are unfolding.

The second is that the methodology used of including volunteers from the World Water Corps, staff, partners, and often, local university students, means that an ever-increasing number of people are exposed to not only the work Water For People and its partners are doing around the world, but that these folks now have first-hand knowledge of the global water and sanitation crisis.

A recent United Nations Education, Scientific and Cultural Organization (UNESCO) publication called for all organizations involved in the water sector to be more active in both the production of knowledge of water-related themes (Winpenny 2009). The production of knowledge, while one key piece of building a learning culture within the water sector, only goes so far if that information is not easily and readily shared. Water For People's experience with the monitoring exercise has allowed the organization to generate knowledge on water and sanitation sustainability at a variety of levels and shares this knowledge through different venues.

- *Local level*: Before leaving the country, teams present initial findings to all local partners. Upon completion of final data analysis and reports, this information is also transferred back.
- *Country level*: Any Water For People country program, from Honduras to India, has access to data on a year-to-year basis that provides a platform for programmatic debates and improvements, serves as a basis for advocacy activities, and puts data in their hands to share in presentations and panels in local, regional, national, and international venues.
- *Water For People headquarters*: Water For People now has access to quantitative data on the successes and weaknesses of a range of indicators of water, sanitation, and hygiene interventions. Knowledge is power, and this data allows the organization to

speak with certainty about what is working and support programmatic changes to minimize weaknesses in future programs. Headquarter staff have also presented the process and specific case studies at a variety of national conferences. Data from the exercises informs proposals and reports to actual and potential donors, as well.

- *World Water Corps' volunteers*: The two-week in-country exercise is often just the first step for many of the North American volunteers who participate in the exercise. Many return to their homes and share what they have learned through their local newspapers, professional journals, conferences, and other outlets.
- *Public*: All of the results are posted on Water For People's website, for the $5 donor to the $1 million donor to see, as well as anybody interested in learning more about how the organization is committed to know what works and what does not.

There is another aspect that is much harder to quantify, but equally important. The process of bringing together a range of role players: local government staff, local civil society staff, volunteers from North America (and increasingly from the country's themselves), Water For People staff, and communities means that lots of informal knowledge-sharing and mentoring occurs. Local government staff have used this opportunity to conduct impromptu plumbing sessions, local NGOs have made follow-up opportunities to come back and re-train a new committee, World Water Corps' volunteers, whom are composed of a range of technical, social, and educational expertise, offer valuable independent praise and suggestions for improvement. Studies are emerging that offer scientific evidence that regular post-construction visits by external agencies can contribute to a 40% higher rate of sustainability (Davis *et al.* 2008). Less scientific, but still important, is the high respect given to guests in many cultures where Water For People works. The addition of North American volunteers to the monitoring teams provides not only external, independent eyes doing the monitoring work, but there exists a feeling that 'if somebody from so far away has come to look in my toilet, perhaps I should keep it clean'.

In addition, the institutionalization of annual monitoring – a learning and verification tool – allows Water For People to keep its promises to supporters and investors that (i) the organization has a solid track record; and (ii) is not afraid to look back, find challenges, and address them moving forwards.

Conclusion

At the global level, the achievement of the MDGs will drive investment in the community water supply sector until 2015. There is a cautious optimism that the sector will reach the water MDG, but in order to know that, the sector needs to monitor past work. Monitoring is a powerful tool that allows organizations, such as Water For People, to understand systematically what is working long after the last pipe is laid and what is not. It is better to know how the work is holding up over time than to not know at all.

The World Water Corps-driven monitoring process at Water For People overcomes many of the barriers that organizations cite as to why institutionalized monitoring is beyond their capacities.

- *Finance*: The majority of costs are borne by external participants, the World Water Corps volunteers
- *Time*: The organization has found that approximately 10 days is sufficient to visit a sample of approximately 30% of past work

- *Human resources*: Again, external volunteers and increasingly local university students allow Water For People to take advantage of leveraged human resources, rather than having to hire more people
- *Cumbersome methodologies that are not replicable*: Three years of testing the methodology in a variety of countries has produced an instrument that is efficient in the field and has been used in a range of countries and contexts
- *An organization's unwillingness to admit weaknesses or challenges*: Water For People's leadership has prioritized learning and without this level of support, it is unlikely that other organizations will be able to prioritize or implement a similar process
- *Prioritization of new projects*: As stated earlier, if the sector is to come close to meeting the MDGs, all of the existing systems need to be functional. This exercise is Water For People's contribution to understanding sustainability.

Moreover, the use of skilled volunteers provides Water For People with a base of expertise to help improve fieldwork and allows the organization to keep its staff small and costs down. Donors have a transparent look at the impact of their dollars in an innovative web-based format.

The system is not perfect, but the point is not to design a perfect system. Water For People could have spent years developing a lengthy, statistically rigorous, deep monitoring protocol. But what we are interested in is rapid results, easy to use methodologies that can be used by a range of skill sets, and something that gets debate going in the sector around the need for monitoring. Future improvements will include improved school monitoring processes, quicker turn-around time for data and reports, and a revised web-viewing platform to be more accessible and user-friendly.

This paper demonstrates how the data is used at a general, global level so that Water For People staff, supporters, and others have a sense of how the organization's work holds up over time. At the country level, the case of Honduras showed how real, programmatic improvements have been made based upon weaknesses uncovered by the annual monitoring exercise.

The methodology for monitoring developed by Water For People was designed with replicability in mind as it needs to be used to evaluate rainwater catchment tanks in Guatemala and piped systems at Indian high schools. Thus, practitioners in any country working in small-scale water and sanitation supply could use the simple, innovative, powerful tools to take a look back and move forward in strength.

Note on contributor

Kate Fogelberg currently manages Water For People's South American portfolio. In this position, she is responsible for providing technical and administrative support to existing country program offices and opening new country program offices, including strategic planning, staff recruitment, and conducting needs assessments. Prior to focusing on South America, Kate led the Water For People teams in all of Latin America for two years. Developing the innovative monitoring methodology used by Water For People staff and partners has allowed her to understand water and sanitation sustainability issues across countries and regions, including Africa and Asia. Her background in international development and health includes a Bachelor's Degree in International Relations and African Studies from Tufts University and a Master's Degree in International Development and Global Health from the University of Denver. Prior to joining Water For People, Kate worked in the non-profit health and education sectors in East Africa and Central America.

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