

CHAPTER 3

Messy, varied, and growing: country-led monitoring of rural water supplies

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Country monitoring, led by governments, together with civil society and the private sector, is essential for decision making and action to realize and improve water supply services. However, in low- and middle-income countries, the lack of a voice for rural dwellers coupled with weak incentives for accountability, government resource constraints, fragmented funding, and donor dominance pose great challenges to country-led monitoring. Project- and donor-led reporting that overshadow country priorities exacerbate these difficulties. The result is a partial, messy, and fragmented monitoring landscape. Nevertheless, some governments are starting to undertake performance measurement and water services monitoring. There appears to be a resurgence of inventories, fuelled by technical innovations around water point mapping. Reflections on twelve country case studies show the diverse journeys taken by each, and provide an insight into the realities of developing comprehensive and systematic country-led monitoring processes. This takes years, has no blueprint, and has no guarantees to deliver expected results in the short term.

Keywords: Joint sector reviews, country-led monitoring, monitoring culture, government leadership, water user perspectives

Introduction

The Paris Declaration on Aid Effectiveness (OECD, 2005; 2008), the Busan Partnership for Effective Co-operation (OECD, 2011), the New Deal (IDPS, 2011) and the Dili Consensus of the g7+ (2013) all emphasize ownership of development priorities by developing countries themselves. By extension, the mechanisms to monitor, evaluate, and learn about development should also be led by the countries themselves.

The term ‘country-led’ is in the title of this chapter. Some have argued that the term ‘government-led’ should have been used instead. However, ‘country-led’ has been chosen as it is considered to better reflect shared civil society, private sector, and government leadership roles in the process.

Ideally, country-led monitoring of water supplies in rural areas and small towns should systematically consolidate and analyse both quantitative and qualitative data about all water services in the country (or state or region). Monitoring should continue and evolve over decades, with the information generated used to support planning, decision making, and actions that improve service delivery over the long term. The information should inform the public. Conceptually, country-led monitoring is very different from funder-led and project-driven monitoring. These tend to be temporally and spatially piecemeal and are undertaken mainly for the foreign constituencies that provide aid rather than for the developing country's citizens and institutions.

In practice, systematic country-led monitoring of rural water supplies in low- and middle-income countries is difficult. Firstly, the rural dwellers (who are usually poor) have little voice in the political landscape. Thus their demands are unheard and their needs are often overlooked by country elites. Accountability of service providers to rural citizens is generally very weak, particularly for water supplies that are essentially gifts to the community and end up being managed by volunteers. Despite the proliferation of mobile phone technology, the mechanisms for information flows relating to drinking water services as well as the priorities and plans of government or other service providers are lacking. There are relatively few incentives. On the whole, there is very little regulation of those who fund, construct, operate, or manage water supply services in rural areas.

Rural water supply supplies in many low- and middle-income countries benefit and suffer from a proliferation of non-governmental organizations (NGOs) that tend to report only to their funders. Local governments have inadequate regular resources to visit and follow up communities. Unlike the health and agricultural sectors, rural water supply rarely has extension staff operating at community level. Even technicians and officers for water supply at district level may be few in number. Government staff may also face challenges with data analysis, or even simple tasks such as printing and photocopying materials. Rural water supply services in a given area tend to be provided by multiple projects, with the implementers all incentivized to report to their funders. Multiple reports with different information are rarely synthesized.

Nevertheless, there are examples where efforts are being made to develop systematic, country-led monitoring systems. In particular, there are encouraging examples of performance measurement, water services monitoring, and compliance monitoring. Several countries have recently undertaken baseline surveys and are using data from household surveys and activity reporting. This chapter summarizes these case studies and draws lessons from them.

The messiness of monitoring

Some countries (such as Liberia) have relatively little monitoring in place for rural and small town water supplies (Koroma, 2013). Ethiopia, for example,

has just completed its first national baseline. Others (including South Africa) have multiple initiatives, not all of which are well integrated (De La Harpe et al., 2013). In some countries (notably Kenya), fairly robust monitoring mechanisms are in place for piped water supplies in some small towns, but rural populations with point sources are not monitored (WASREB, 2012). In the case of Thailand, data on drinking water sources and water quality is available and improving, while information on infrastructure costs or who is doing what is scattered.

Figure 3.1 illustrates the messiness of the monitoring landscape in most countries and shows the following problems:

- *Missing stages.*¹ A particular initiative may not include all of the stages of the monitoring process. Communication may be lacking or there may be little action taken on the findings. The donor baseline (Figure 3.1, right), which comprises only three stages (planning, data collection, and information), is illustrative of this.

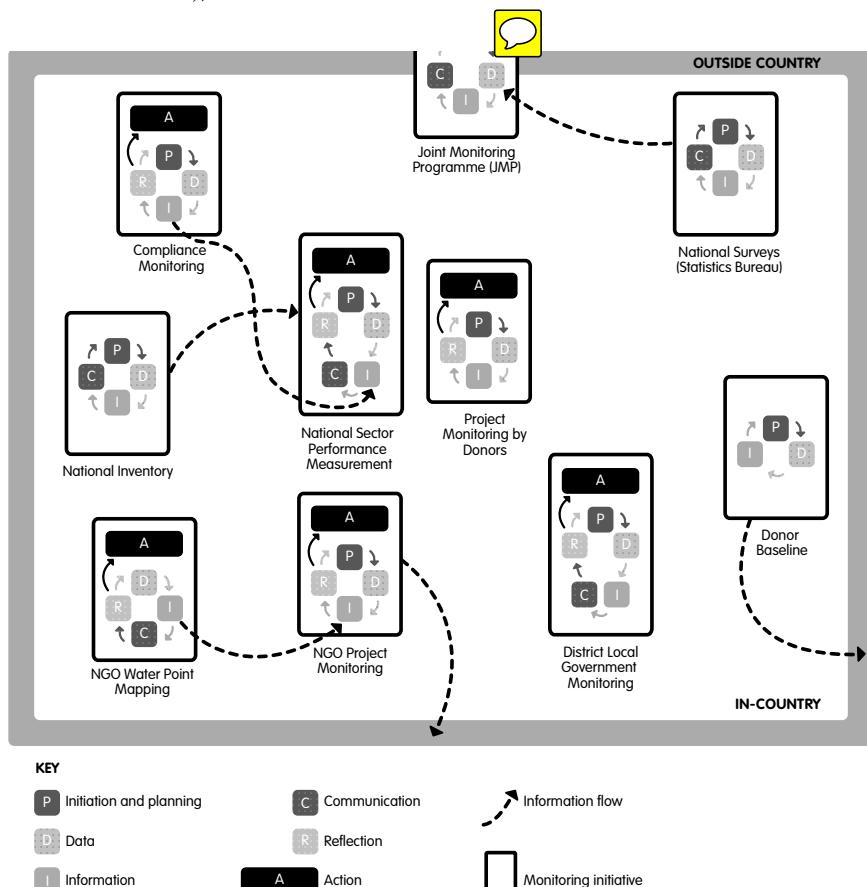


Figure 3.1 Typical messiness of monitoring

- *Processes overlooked.* There may be good monitoring processes in place but they may be completely overlooked by the national ministry responsible for rural water supplies. These can include local government monitoring (Figure 3.1, bottom right). Similarly, data generated from national surveys (Figure 3.1, top right) might feed into the Joint Monitoring Programme (JMP) but not into national reporting, despite the fact that they provide valuable information on drinking water used, collection times, and distances.
- *Findings leave the country.* Sometimes the information generated is communicated outside the country, particularly to generate external funding, but does not find its way into country processes. The donor baseline (Figure 3.1, right) and NGO project monitoring (Figure 3.1, bottom centre) are cases in point.

Key issues for country-led monitoring

Leadership

Who should **take the lead** for monitoring and thus determine the questions to be asked, the methods to be used, the analytical approach, and how the findings will be communicated and used?

Segone (2010) uses the term 'country-led monitoring', stressing that this does not imply exclusive central government responsibility. Local authorities and civil society are also involved and contribute, and may take on a particular leadership role, as may the private sector. However, not everybody is comfortable with the term 'country-led', arguing that the process needs to be explicitly 'government-led' – 'this is a matter of national sovereignty' (Ssozi, 2013).

Given that ensuring access to safe drinking water for all citizens is enshrined in many constitutions, national government has a leading role in making sure that progress is monitored. Ideally, it should monitor the effectiveness of policies, strategies, and implementation. Government-led monitoring thus seems to be a more appropriate title. However, the term 'country-led' may be more palatable to development partners working in developing countries. The capacity constraints of government, the fact that resources and power often remain in the hands of development partners and political elites, concerns about government accountability, and lack of trust in governments make the term 'government-led' hard to swallow for some. The joint sector review (Box 3.1) seems to be a response to the question of government versus country leadership.

Information flow

How can the **information flow** from NGOs and projects to government be ensured in order to provide an overview of what is happening in the country, and ultimately to support national and local processes of planning and resource allocation?

Box 3.1 Joint sector reviews

There appears to be a growing consensus around the need for recurring joint sector reviews that are led by national government and involve all major stakeholders. These events can enable project managers, technicians, and political leaders from national and local government as well as donors, civil society, and academia to come together. They can reflect on what has been achieved, and examine problems in an open and inclusive manner. At least 40 countries now hold annual or biennial reviews of rural drinking water performance (often combined with urban water and sanitation), and 13 countries are in the process of establishing such mechanisms (Figure 3.2).

However, reliable information, in structured and understandable formats, is essential for such events. In 2013, national performance reports, containing information on rural water supplies, were available for many countries.

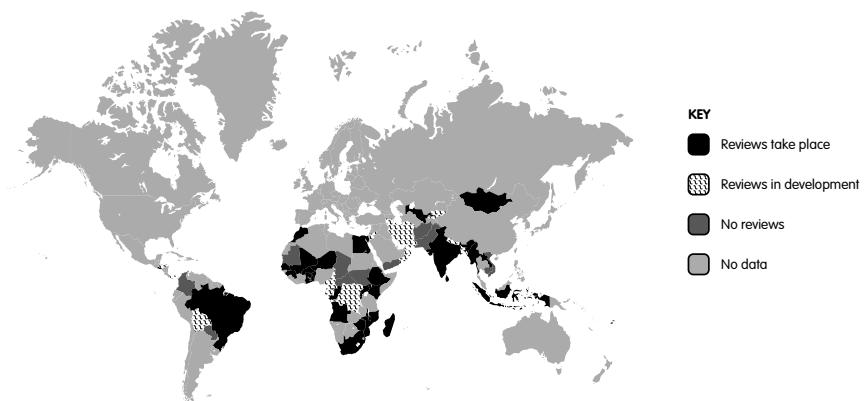


Figure 3.2 Countries with annual or biennial reviews of rural drinking water

Source: WHO, 2012: 19.

Underlying the concern about information flow is a question of accountability. Most donors and external implementation organizations report on the specifics of their project or programme to their board or their funders (Lockwood, 2013). Although projects may incorporate some monitoring (and evaluation), this rarely strengthens monitoring or governance in the country as a whole.

Uganda seems to have overcome the challenge of information flow (Ssozi and Danert, 2012). Figure 3.3 illustrates the flow of data from local governments and NGOs to central government. The Uganda case is an example of relative order compared with the messy 'spaghetti' diagram in Figure 3.2: 

- Local government reports provide data to national government (the Ministry of Water and Environment) as an integral part of activity reporting. Local governments risk budget cuts if they do not report accordingly.
- Most of the NGOs in Uganda report to the Uganda Water and Sanitation NGO network (UWASNET), which provides a synthesis report to national

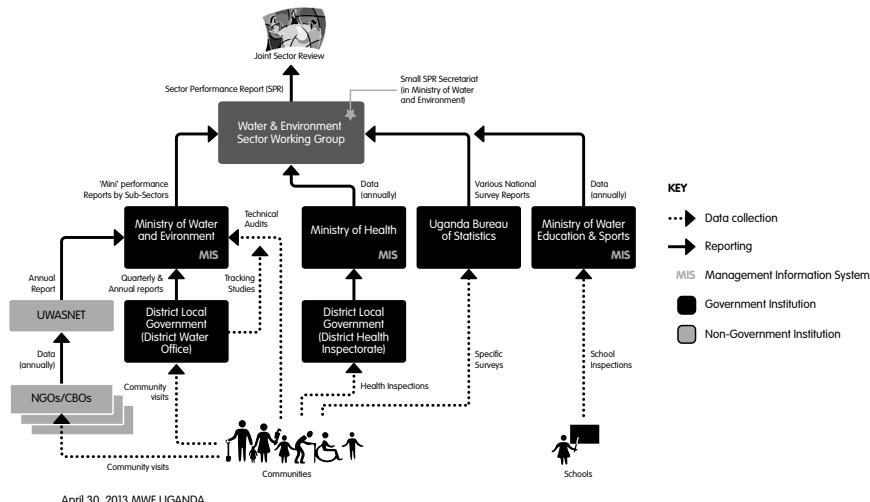


Figure 3.3 Data sources, information flows, and analysis: sector performance monitoring in Uganda

government. UWASNET is under pressure to provide this input for the joint sector review. It is part of the sector culture and is non-negotiable.

- Data from the Bureau of Statistics is drawn into an annual sector performance report and provides complementary information to that generated directly by the Ministry of Water and Environment.
- Information that is generated through processes under the auspices of the Ministry of Education is drawn into the national report.

Monitoring activities for water services that are undertaken in the West African countries of Benin, Burkina Faso, Chad, Mali, and Mauritania provide another perspective on information flow. An NGO, a local consulting firm, and/or a national agency collect and analyse technical and financial data on selective piped water supplies. They report the results back to all water service stakeholders on site, and prepare a written report for the water service authority and the minister in charge of water. This monitoring mechanism, which has been in place for as long as 15 years in some countries, is reported to have improved service management and reduced operation and maintenance costs of these systems (Désille et al., 2013). However, as in the case of Kenya, rural dwellers with small piped systems and point sources are not part of this monitoring mechanism (WASREB, 2012).

Perspectives of water users and community-led monitoring

As the framework for sustainable development (i.e. beyond the millennium development goals or MDGs) is debated, the international community currently stands at a crossroads. Will the new generation of indicators at

international level properly take account of the **perspectives of water users** (Guzha, 2013)?

The concept of community-led monitoring has not featured in the post-MDG debate so far, which is more concerned about the links between national and international indicators and systems. However, there are some examples of community roles in monitoring:

- One of the encouraging aspects of water services monitoring in the West African countries of **Benin, Burkina Faso, Chad, Mali, and Mauritania** is that the reporting is also available to the water users (Désille et al., 2013). The NGO, local consulting firm, and/or national agency that collect and analyse technical and financial data on selective piped water supplies report the results back to all water service stakeholders on site.
- In **Thailand**, a national project is under way to ensure that water quality is monitored by over 1 million volunteers throughout the country. Local stakeholders have been trained and linked together into networks. Not only can they test key water quality parameters, but they also know about the importance of safe water for health. Thailand's model is highly participative, with the volunteers responsible for actively checking on water quality and feeding the information back within their village (Wongpiyachon, 2013).
- It is also worth noting that the water point mapping work in **Malawi** was triggered by community members asking WaterAid why they did not have improved supplies while their neighbours had many water sources.
- In **Uganda**, the Ministry of Water and Environment produces a popular version of the annual sector performance report, which is published in a national newspaper.
- Maluti GM in **South Africa** found out that it was much more effective to call water users to find out about services than to expect them to send an SMS.

Indicators

As the international community debates the next steps in terms of post-MDG indicators, will there be a proliferation of new indicators at global level that cannot be properly handled by the countries involved, thus undermining growing national monitoring efforts?

At national (and in some cases more local) level, numerical indicators, such as those in Table 3.1, are being used by governments to measure and report on performance. Malawi and Timor-Leste include data from national household surveys as headline indicators. In Uganda, the survey data augments the 'golden' indicator on access.

The numerical nature of an indicator gives the impression that it is completely objective. However, this is not always the case. Welle (2013) compares figures for water coverage for a lower-level local government (or

Table 3.1 Indicators relevant for rural water supplies in Uganda, Malawi, and Timor-Leste

Uganda golden indicators (Ssozi and Danel 2012)	Malawi headline indicators (Meek and Young, 2013)	Timor-Leste indicators (Willets, 2013)
Access	Percentage of people within 1 km (rural) of an improved water source	Percentage of households within 500 m (rural) of an improved water source Percentage of people whose average total time to collect drinking water (from the main source) is less than 30 minutes
Functionality	Percentage of improved water sources that are functional at time of spot check	Percentage of improved water point sources that are functional at time of checks
Value for money	Average cost per beneficiary of new water and sanitation schemes	Water system functioning status Adequate water supply (periods of the year with low flow rate/low level)
Quality	Percentage of water samples taken at the point of water collection and waste discharge point that comply with national standards	Water quality and level of water source protection
Equity	Mean parish deviation from the district average of the number of people per improved water point (for national purposes, mean sub-county difference from the national average in the number of people per water point is reported)	Standard deviation of districts' access to safe water
Management	Percentage of water points with actively functioning water and sanitation committees (rural)	System management, including water user groups – funds collected, repairs undertaken, etc.
Gender	Percentage of water user committees/water boards with women holding a key position	Number of women in roles of responsibility (leader, technician, treasurer)

Note that Malawi also has headline indicators for water, sanitation, and hygiene (WASH) in schools, and both Malawi and Uganda also have sanitation and hygiene indicators, but these are beyond the scope of this chapter.

sub-district, known as the *kebele*) in Ethiopia and found that the ‘percentage served’ was 70 per cent or 94 per cent depending on the inputs into the calculation; for instance, different assumptions about the population made a huge difference to the figures.

It may seem obvious, but, for comparability, every aspect of an indicator needs to be fully defined, and for a proper analysis every aspect needs to be well understood. Take the indicator of the ‘percentage of the population within a certain distance from an improved water supply’ (e.g. 0.5 km or 1.5 km): this distance may never actually be measured but rather another proxy used (Box 3.2).

When it comes to indicators, nothing can be taken for granted. Different definitions mean that data can be misunderstood and misquoted, and can even cause friction. Ministries typically present provider-based data on outputs (defined as ‘coverage’ in Box 3.2), whereas national statistics agencies usually present user-based data on outcomes ('use' in Box 3.2).

Indicators can also create perverse incentives for organizations. As an example, an indicator for the percentage of enterprises with permits that comply with regulations contributed to enterprises not being encouraged to obtain such permits. This was because, without a permit, the poorly performing enterprises were not included in the statistics. In another case, the water access figures quoted by the local and regional water offices (for the same area) in Ethiopia differed by 20 to 30 percentage points. The *woreda* (district or local authority) water office used population data and calculation methods to arrive at a lower figure in order to justify more funding. Meanwhile, the regional bureau of water resources used a calculation method in line with federal guidelines, which represented a good level of performance in water access (Welle, 2013). Thus, politics and subjectivity, as well as the rationale of individuals, play a significant role when reporting on indicators.

Box 3.2 Proxy indicators and definitions of coverage, access, and use

The terms ‘water supply access’, ‘coverage’, and ‘use’ are quite distinct concepts, but are often used imprecisely in water supplies and WASH documentation:

- The term **coverage** refers to whether there is an improved water supply near a dwelling. In the case of rural areas, typically, countries have set standards for a maximum distance, such as 1 km or 1.5 km. However, there may be cases when a person or household has coverage but does not use the supply because they are excluded due to non-payment or for some other reason.
- Water supply **use** usually refers to whether a person or household actually utilizes a particular water supply. In general, household surveys ask questions about water use.
- Water supply **access** is a term often used in the phrasing of national targets. In some publications, the term ‘access’ is used interchangeably with the term ‘coverage’, while in others it is used interchangeably with the term ‘use’. Within the human rights discourse, the term ‘access’ has also been defined, alongside several other aspects of water supplies (De Albuquerque, 2012).
- ‘**Access coverage**’ is referred to in Ethiopia’s universal action plan.

Within country-led monitoring there is a **proliferation of indicators**. The international debate appears to be moving on from the binary ‘improved/unimproved’² sources currently set out in the JMP towards something that is more nuanced and reflects levels of service. Examples of a more granular definition of indicators are as follows:

- From the human rights framework, there is a drive to consider the ‘normative criteria’ of availability, quality, acceptability, accessibility, and affordability, as well as other aspects such as non-discrimination (De Albuquerque, 2012).
- Adank et al. (2013) recommend that quantity, quality, distance, and crowding indicators are combined into a water services ladder, thus providing a composite indicator. This idea is being tested (in Burkina Faso, Colombia, Ghana, and Uganda) and implemented at scale in Ghana.
- Flores Bacquero et al. (2013) define indicators that consider the human rights criteria. Their research in Nicaragua revealed new insights into the availability and quality of water for self-providers compared with those served by community committees.
- South Africa’s Blue Drop Certification Programme to monitor and encourage improvements in municipal drinking water quality incorporates water safety plans, process controls, water quality compliance, and asset management, among other factors, into a composite score (De La Harpe et al., 2013).

Before advocating for more nuanced and more complicated indicators, it is worth pausing to take stock of how the indicators currently used in various countries are actually supporting the monitoring process. Experiences from Uganda show that indicators considered good at the start can prove to be too complicated to measure or understand and thus need modification later (Ssozi and Danert, 2012).

Box 3.3 Clarifying and aligning indicator definitions in Madagascar

In 2001, Madagascar witnessed conflicting results from the household monitoring survey and sector monitoring. This triggered a series of round-table discussions between the statistics bureau, the line ministries (health and water), and key development partners (including WaterAid, UNICEF, and Diarano-WASH). It became clear that there was a need to clarify definitions of (un)improved water and sanitation facilities. Definitions were changed to reflect government policy and fulfil the needs of all parties. The household questionnaires used the new definitions in the 2004 and 2005 surveys. Subsequently, there was another round of changes.

In 2008, the government was embarrassed by huge differences in the coverage figures used by donors (from the JMP) and by national WASH professionals. While definitions had been harmonized within the country, there were still differences with the JMP. This was particularly problematic for planning and resource allocation at the highest levels. The process of ‘data reconciliation’ between the JMP and the Madagascar government has further sharpened definitions, and has influenced the design of the census questionnaire. A booklet that defines water and sanitation facilities for enumerators and interviewers has also been developed.

Source: Rasolofomanana, unpublished.

The process of aligning indicators within a country, as well as with international indicators, is a considerable undertaking. The data reconciliation process in Madagascar (Box 3.3) illustrates the detailed work and time needed.

In addition, not everything can be represented by indicators and numbers, which are merely an interpretation of reality. They provide a starting point for further questions and enquiry. This comes out particularly strongly in the Liberia case, where water point mapping triggered substantial discussion about the causes of the poor functionality rates, and what could be done about them (Koroma, 2013). Monitoring, after all, is a means to an end and not an end in itself.

Monitoring journeys and monitoring cultures

Monitoring is a process rather than a one-off event, and it takes time to mature (O'Brien, 2013). It takes time to learn what works and what does not. It also takes time for information generated to be used for planning and decision making, and there are no guarantees that information will be used at all! In Uganda, for example, there was a three-year lag between acknowledging that there were major inequities between districts to actually changing the allocation of funds to address the problem.

Some countries are undertaking journeys to establish and make use of country-led monitoring for drinking water supplies in rural areas (including small towns). There are examples where a 'monitoring culture' is taking root. The term 'culture' reflects a shared set of values and behaviours that enable a monitoring system (or set of systems) to function. A monitoring culture thus means that there is a genuine desire by most stakeholders to share, reflect, and learn from ongoing development efforts.

Many countries have taken steps to improve their monitoring systems: Ethiopia, Liberia, Malawi, South Africa, Thailand, Timor-Leste, and Uganda, as well as Benin, Burkina Faso, Chad, Mali, and Mauritania. Each country has started out on its own course and is adjusting and amending its systems over time. There does not seem to be a blueprint. The monitoring journey of each country depends on the country's history and policies, as well as the way in which the government, major development partners, NGOs, and private sector organizations work together.

There are different starting points for country-led monitoring; the process can kick off with a national inventory (e.g. Liberia and Ethiopia), grow out of a sector-wide approach (Uganda), initially be driven by NGOs (Malawi), be fostered by a major development partner (Timor-Leste), or evolve from the regulatory framework (Thailand, South Africa, Benin, Burkina Faso, Chad, Mali, and Mauritania). The sheer size of a country and the number of local governments make a difference too – compare the 13 districts of Timor-Leste (population 1.2 million) with the over 1,000 *woredas* of Ethiopia (population 85 million).

Uganda

In the case of Uganda, institutional reform together with a shift to a sector-wide approach to planning provided the foundation for the performance monitoring in place today (Ssozi and Danert, 2012). But this is not the whole story. In 2002, the UK Department for International Development (DFID) funded the development of a performance measurement framework for water and sanitation (MWLE, 2004). This was DFID's exit strategy from the sector (Swann, 2012). The funds paid for part-time consultancy over two years. A set of eight 'golden' indicators was initially defined (Table 3.1), chosen jointly by government, civil society, and development partners to enable the country to examine select outputs and outcomes. The indicators, coupled with a change from individual projects to a sector-wide approach, helped both to introduce and to consolidate a culture of country-led monitoring. Champions in the Ministry of Water and Environment ensured that the framework became the process that is now part of the sector's culture. The sector performance report is used for decision making, policy formulation, and planning. For example, it was used to change the resource allocation to district local governments and to introduce additional efforts to improve water point functionality. Uganda's journey was one in which capacity grew at individual and institutional levels over a period of about seven years, and continues today. It required very detailed work with individuals to gradually change the culture within the Ministry of Water and Environment from one in which only positive stories were told into one where problems and challenges could be shared, to look for solutions.

At an individual level, it meant building skills and confidence in data analysis, and presenting information in both graphical form and text. Two or three champions in particular played a tremendous role in motivating others to analyse and write, and quality assured their work. Shifting the culture so that it became the norm for individuals and departments to set out progress and challenges in an analytical manner took years.

At an institutional level, within the lead ministry it took several years for the sector performance report to be embedded in the annual joint sector review process and for the findings to be reflected upon. From one year to the next, the interest of senior management increased until the findings started to influence the planning and budget allocation processes. However, a tremendous amount of work is still undertaken every year to quality assure the data and analysis. Opportunities such as changes to local government reporting formats have been seized so that the data required for the 'golden' indicators can flow to the lead ministry. The release of significant funds to local governments for water supplies is tied to reporting (Figure 3.3), providing a major incentive for the flow of information.

Malawi

Malawi has witnessed several initiatives to improve the monitoring of rural water supplies over the years. The Ministry of Irrigation and Water Development has a performance measurement framework in place and has selected national headline indicators (Table 3.1). An indicator handbook has been published (MoWDI, 2010). The indicators inform the annual sector review, part of the sector-wide approach that is being established. The ministry has been producing a sector performance report since 2010, with data drawn from the national statistics office and the ministry itself (MoWDI, 2010).

It is worth noting that it was a question from community members in Salima district that triggered water point mapping work in 2002. The community asked WaterAid why they did not have improved water points while their neighbours had several (Welle, 2007). This prompted a research project within the district that showed significant inequities. The work subsequently led other development agencies in the country to take water point mapping to other parts of Malawi until it became a national exercise. In 2003, the WaterAid mapping team worked within the planning unit of the (then) Ministry of Water. However, this arrangement did not work well and the team was moved to the Malawi branch of the Water Supply and Sanitation Collaborative Council (WSSCC). In 2005, the water point mapping work was moved back to the ministry with support from UNICEF before being withdrawn again and becoming part of the UNICEF country office. Quite some journey!

District local governments in Malawi receive funding for water supplies from different sources, each with different reporting requirements. As a result, there is no incentive for collecting standardized monitoring data and passing it upwards (unlike in the Uganda case above). Data collection for rural water supplies in Malawi was undertaken in some districts with encouragement and support from external agencies such as WaterAid and Engineers Without Borders Canada (initially working in partnership). However, there was no standard data collection across the country. From 2008, health surveillance assistants were encouraged to collect data on drinking water access. This information was collated and presented in district-level Excel-based systems.

While some districts made use of these systems, others failed to collect, update, or use the data. Meanwhile, in 2010, plans were made by the Ministry of Water Development and Irrigation to develop a comprehensive national monitoring system (funded by the African Water Facility). However, contracting the advisory support for this was delayed, and in the meantime other initiatives gained traction (Meek and Young, 2013). In mid-2011, the Ministry of Health started to develop a comprehensive monitoring and evaluation system for sanitation, which was linked to the ongoing initiatives of the Ministry of Water Development and Irrigation and Engineers Without Borders Canada/local government.

Within the framework, the Ministry of Health coordinates data collection on water and sanitation at village level by the health surveillance assistants. These assistants are employed by the Ministry of Health, are based in the field, and are responsible for health interventions and data collection in a catchment area of 1,000 to 1,500 people. The data should flow from health surveillance assistants to health centres to the district, where they are compiled in the district water office (Welle, 2007).

Alongside the work to improve national monitoring, efforts continue to strengthen definitions, provide easy-to-use templates for data analysis, and build the skills of those who collect, present, interpret, and use the data at district level (Meek and Young, 2013).

South Africa

Responsibility for water supply monitoring is set out in South Africa's constitution, and is detailed further in the country's *Strategic Framework for Water Services* (DWAF, 2003), the Water Services Act (Republic of South Africa, 1997), and the National Water Services Regulatory Strategy (DWAF, 2009). Numerous systems are used, some of which overlap (Table 3.2). National government monitors service provision through its National Treasury, the Department of Water Affairs (DWA), and the Department of Cooperative Governance and Traditional Affairs. The monitoring tries to reduce risks and incentivize improvements in the performance of water service authorities and water service providers. Some systems, such as the Blue Drop Certification Programme, seem to have taken off more than others. Water service providers have their own monitoring systems.

South Africa is an interesting case, as the country can be considered as both developed and developing. Arguably, the regulation of urban utilities is what has driven monitoring in South Africa. However, the information requirements may not be appropriate for rural settings, particularly in the case of small piped systems and point sources. De La Harpe et al. (2013) note that the district local governments that operate in predominantly rural areas have limited capacity and tend to be overwhelmed by the numerous reporting requirements.

Thailand

Thailand's history of concern for the supply of safe drinking water dates back to 1897, when King Rama V assigned Metropolitan (the government) to provide waterworks for Bangkok. Today, data on the water supply is available from the National Statistics Bureau, from which we see that rainwater has a significant role, providing almost 35 per cent of the Thai population with its drinking water. Water supply, sanitation, and hygiene in rural areas are considered to be fundamental for community health and Thailand has a history of community participation by volunteers (Wongpiyachon, 2013). The latter is particularly relevant when it comes to monitoring.

Table 3.2 Different water supply monitoring systems in South Africa

System	Purpose	Who monitors	Indicators	Intended result
Regulatory Performance Measurement System	To address regulatory compliance and performance of water service authorities (WSAs)	DWA	As per the regulations in the Water Services Act	Improve the performance of WSAs and water service providers (WSPs)
Water Services Audit	Compliance with the act	DWA – reports from WSAs	Quantity, quality, level of service, percentage of households, cost recovery	Reporting on compliance
Blue and Green Drop Certification Programme	National drinking water quality and effluent quality regulatory initiative	DWA – data provided by WSAs and WSPs	Water quality and related indicators	Improve drinking water quality and quality of discharged waste water and promote good operational practice
Auditor General	Ensure financial compliance	Auditor General based on WSA records	Financial data and procurement data	Financial accountability
Census	Determine service levels at household level	Statistics South Africa	Numbers of households serviced and interruptions to service	Independent information about water service coverage and functionality
Municipal Benchmarking Initiative	Develop performance benchmarks to inform the development of best practice, financial and support needs	South African Local Government Association and Water Research Commission	Wide range of metrics	Improve municipal performance in water and sanitation services
Rural Water Service Provider	Monitor provision of water services	WSPs	Water quality, quantity, and continuity	Improve service delivery and good operational and maintenance practices
National Integrated Water Information System (NIWIS)	Develop a strategic perspective on water services to inform macro-level planning	DWA	Wide range of metrics and key performance indicators (KPIs)	High-level strategic picture of water services performance nationally
Integrated Regulatory System (IRS)	Ensure integrated regulatory compliance nationally	DWA	Wide range of metrics and KPIs	High-level strategic picture of regulatory compliance of WSAs and WSPs

Source: De La Harpe et al., 2013.

Thailand does not have a comprehensive sector performance measurement system, unlike Uganda or Malawi, but the country is particularly innovative when it comes to the participation of water users in measuring water quality. In 2003, the Bureau of Food and Water Sanitation in Thailand's Department of Health took over responsibility for drinking water quality surveillance. It started a campaign to raise water quality standards that comprises a voluntary certification process for piped water supply systems. The process includes testing, and, if successful, leads to a ceremony at which the tap water is declared safe to drink (Wongpiyachon, 2013).

Timor-Leste

Timor-Leste used to have a water supply monitoring system, but indicators were not consistent, not everyone provided data, and information was missing for some parts of the country. The system therefore was not a very useful management tool. In recent years a new system has been introduced (with support from the Department of Foreign Affairs and Trade and Australian Aid) to monitor water services and sanitation coverage in rural areas at national, district, and sub-district level. It should provide an understanding of progress towards national targets for water and sanitation. It allows key aspects of sustainable service delivery to be analysed.

Data are collected by government-employed WASH facilitators across the country through their regular visits to villages to support community management. Updated information, in the form of community profiles, is

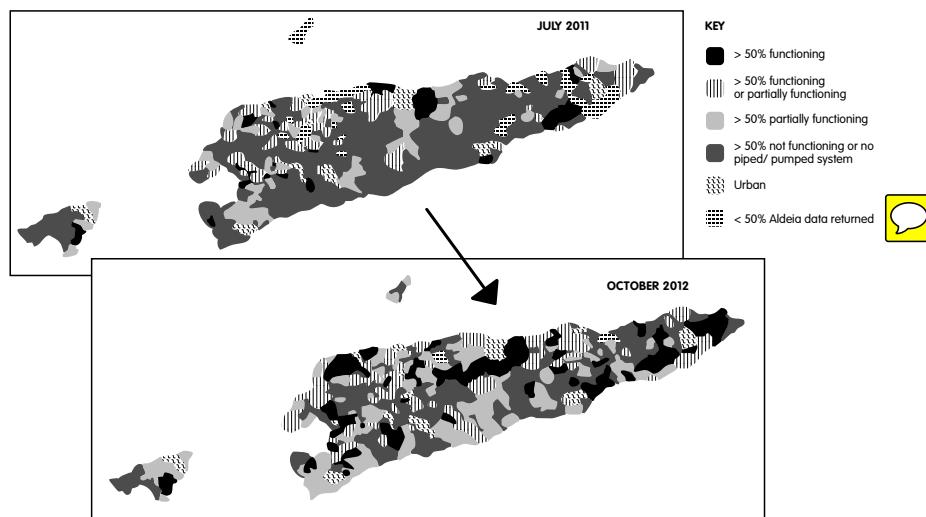


Figure 3.4 Comparison of water point functionality of water systems over time in Timor-Leste

Source: Willets, 2013.

sent from a mobile phone by SMS to a central database at national level. Mobile telephone services are available across approximately 85 per cent of Timor-Leste (Willets, 2013).

Every month, reports on the key indicators are produced and shared at district and national level. Excel spreadsheets and maps are used to report the data (Figure 3.4). Currently, district staff members are being trained to analyse data, which they are starting to use (for example, to inform budget debates). There is a desire by the government to share the data with the public, but first it wants to do more to ensure the data's validity (Willetts, 2013).

Liberia

Having emerged from conflict, and with reliable information lacking, there was a drive to collect data on water points in Liberia. An exercise to map over 10,000 water points in the country in 2011 was led by the Ministry of Public Works, supported by UNICEF and the Water and Sanitation Program of the World Bank. Data was collected using android mobile phones; information included the GPS location, source type, and functionality. The data has subsequently been analysed and maps produced, and this has opened people's eyes to the reality on the ground. Liberia also held its first joint sector review in 2012, where the findings were discussed (Koroma, 2013). NGOs have been drawn into the process and are now also reporting using the Akvo FLOW technology for android phones. Putting information about NGO progress onto a website (<http://wash-liberia.akvoapp.org/en/>) has been an incentive for NGO reporting.

One of Liberia's current challenges is how to update the inventory. As enumerators were paid for the first round of data collection, there is an expectation that this should continue to be the case. Unfortunately, the country does not have the resources available for this, but work is ongoing to develop and use a framework for data updates (Koroma, 2013).

Ethiopia

Ethiopia's first national WASH inventory was completed in 2013, with the intention that it will provide the basis for a reliable, sector-wide monitoring and evaluation system. The scale of the operation in a country as large as Ethiopia was considerable. With the exception of the Somali region, data has been collected for the entire country, covering over 90,000 rural water supply schemes, 30,000 schools, and 20,000 health institutions, and 12 million households have been surveyed (Hailu Debela, 2013).

The inventory measured both water supply access (i.e. whether the rural population is within 1.5 km of a water supply point and can access 15 litres per person per day) and water use (i.e. whether the population is actually using water from the water point). This allows comparison between access and use (49 per cent and 62 per cent of the rural population respectively). The findings show considerable variation between regions.

The Ministry of Water, Irrigation and Energy has undertaken a preliminary analysis of the data. It is in the process of having the data officially verified by the Central Statistics Agency, which was also involved in the inventory design and data collection. In the future, the country will be able to use the findings for decision making and planning, among other things. Annual joint sector reviews already take place in Ethiopia, providing a platform for reflection. It is planned that training in data analysis will be provided to local (*woreda*) governments at a later date.

Emerging lessons

Inventories, more recently referred to as water point mapping, can provide a good baseline for a monitoring system. The findings often raise crucial questions. In Sierra Leone, the fact that 40 per cent of the 28,000 water points mapped are seasonal has triggered a discussion about why this is the case and what can be done (Danert and Adekile, 2013). However, an inventory is not the same as country-led monitoring. If data is not updated or reflected upon, it cannot reliably inform decision making or actions.

We draw this chapter to a close with some advice for establishing and developing a country-led performance measurement system:

1. *Monitoring is an incremental process not an event.* It should start simply but have the flexibility to expand and develop as local capacity develops and its usefulness is appreciated by all. A step-by-step approach should be followed to improve data collection, analysis, and reporting gradually to match the country's institutional framework and key concerns. Institutional and individual capacity needs to be developed gradually, depending on what is needed.
2. *Monitoring should be fit for purpose.* Systems should be designed with specific and defined objectives in mind, with a clear statement of how and why the data to be collected is to be used and for what purposes. Only the necessary data should be collected. Monitoring can be undertaken to inform national policies, strategies, and planning, and to support strategies, interventions, and regulation. These different purposes can be addressed in different ways (Norman and Franceys, 2013).
3. *Leadership.* National government should take the overall lead but involve a wide range of stakeholders. If there is resistance, or lack of interest, other champions can lead, innovate, and develop monitoring up to a certain point. There is plenty of scope for advisory support and mentoring of government provided that it does not undermine government leadership. Government capacity to lead can grow, provided that there are incentives for monitoring, other stakeholders remain supportive and constructively critical, and monitoring becomes an important political agenda.
4. *Try to build on what is already in place.* When piped systems are managed by public utilities or the private sector under regulation, contracts, or

licences, the accountability for service provision is clear. Normally, the service provider will be mandated to report to a regulator or the responsible asset holder, and there will be clear lines of accountability. Information from monitoring systems that are working well can be incorporated into wider sector monitoring.

5. *Roles, responsibilities, resources and incentives.* Institutional responsibilities need to be defined by those taking the lead for country-led monitoring. Responsibilities need to be mapped out, assigned, and agreed, and there should be a leader or group in place to undertake overall coordination. Individual responsibilities need to be assigned for who collects what data, who analyses and reports, by when, and to whom. The flow of data needs to be defined, as well as where and how data is stored and can be accessed. Trust needs to be built between different stakeholders and cooperation requirements need to be formalized. Reporting must be mandatory and incentives (and rewards) need to be in place for sharing information. These may be linked to resource allocation. These aspects need to be made operational from the start. Due attention also needs to be paid to the realities of human and financial resource availability, including issues such as the time needed for data entry, stationery and toner requirements, and transport. Ideally, monitoring activities should be integrated into the ongoing work of those responsible for water service delivery, in many cases local government.
6. *Indicators.* Effective monitoring is more than just a list of indicators. Keep indicators simple and do not have too many. It is better to monitor a few things well within an agreed sector framework than to cover too much. A monitoring culture can be developed from a starting point of one or two indicators with more added later. Agree on basic definitions for the indicators and note that different information is needed at different levels (e.g. by local government, by water providers, by the lead ministry, and by political leaders). Indicators may need to be modified, particularly if they are creating perverse incentives or if they are too complicated. Indicators provide a structure, but qualitative information and case studies can deepen understanding.
7. *Analysis and interpretation.* While systems should avoid duplication, it is useful to compare data sets from different sources. For example, user survey information from the national statistics office can be used to compare, triangulate, and validate information on outputs provided by the sector or line ministries and district local governments. Much can be learned from this process.
8. *Communicate widely for decision making and planning.* Various ways should be considered of providing feedback and communicating information from the monitoring process to government institutions, development partners, civil society, the public, and any other sector stakeholders, so that the findings can be taken into consideration in decision making and planning processes. Information that is useful locally should be disseminated and reflected upon locally.

Endnotes

1. The six monitoring stages are initiation and planning – where the purpose of the monitoring is developed, followed by agreement on what to monitor, how, by whom, and when; a collection – collecting, collating, verifying, and storing data and information, employing a diversity of tools and systems and involving local governments, NGOs, and the private sector, which all help share the logistical burden and bring about data ownership; Analysis and interpretation – whereby data is transformed into useful information (although it is possible to establish automated analytical processes, drawing meaning from this information through interpretation requires skilled professionals); Communication – an aspect of the monitoring cycle that is often taken for granted, with the information put into a report or other useful format, and shared through appropriate channels (in order to enable public action, there is a need to carefully consider who to communicate with and how; feedback to the respective stakeholders is key); Reflection and decision-making – a vital step that is often overlooked in the technocratic and political processes and that includes debate, discussion, and conflict resolution between different stakeholders as they consider findings and recommendations stemming from monitoring; Taking action – resulting in improved laws, rules, policies, practices, approaches, and methodologies leading to improved services, user satisfaction, and value for money.
2. The headline figure for rural water supplies in most countries tends to be the percentage access to a safe water supply. In most countries, this is measured through a proxy indicator such as ‘the proportion of people that are using “improved” drinking water sources, defined as those that, by the nature of their construction, are protected from outside contamination, particularly faecal matter’ (UNICEF and WHO, 2012). ‘Improved’ drinking water sources refer to protected springs, boreholes, dug wells, piped water, and rainwater harvesting facilities. Unprotected sources such as lakes, rivers, and streams are considered to be ‘unimproved’ (WHO and UNICEF, 2013).

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