

## triple-s

### Service delivery indicators and monitoring to improve sustainability of rural water supplies

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#### POINTS FOR ACTION

##### → For Governments

- Invest in developing monitoring systems that not only track functionality of systems but also the sustainability of services
- Build capacity of local government to use monitoring information to better plan and support more sustainable services

##### → For NGOs implementing rural water supply interventions

- Comply with nationally agreed indicators and targets; where possible, feed into existing government sanctioned monitoring processes

##### → For Donors & Development Partners

- Incorporate conditions into grant agreements with national governments to strengthen monitoring systems and capacity
- Demand that grantees and contractors align monitoring with national systems
- Provide technical cooperation to assist countries in the creation or strengthening of a regulatory framework for drinking-water quality that includes service delivery indicators for monitoring

##### → For International Financial Institutions

- Make infrastructure loans and investments contingent on an element of support for monitoring systems

Current approaches to monitoring rural water supply often focus on coverage – measured in terms of numbers of systems built and people served. But the reality is that many systems break down within a few years of installation due to lack of proper support for operations and maintenance, and people who were counted as served are left without a reliable service.

How to prevent this widespread problem? One of the first steps is a monitoring system that is able to track the level of service over time and the performance of key technical, financial, and management functions so that problems can be anticipated and addressed.



Photo: Peter McIntyre

Good monitoring systems feed into local level planning and decision-making. They are realistically designed with existing resource constraints in mind and do not rely on short-term project funding.

The MDG target is to “reduce by half the proportion of people without *sustainable* access to safe drinking water and basic sanitation.” But many countries have little or no information on the sustainability or the status of rural water services. A baseline study conducted by IRC<sup>1</sup> found that only eight of the 13 countries studied made any attempt to monitor sustainability (Lockwood and Smits, 2011).

The study also found that where countries do monitor, it has enabled them to focus their efforts to improve sustainability, measure progress towards it, and take corrective action. Clearly elaborated sustainability indicators, with corresponding sector targets, are a key component in moving from a focus on expanding coverage to delivering a reliable, sustained and resilient service.

### LIMITATIONS – EXISTING MONITORING SYSTEMS AND FUNCTIONALITY

The most commonly used indicator for measuring sustainability is system functionality, which is usually measured during a one-off check on a water facility to determine whether the system is working at that time. While this indicator is arguably of some use with simpler point sources (e.g., hand pumps) where the system tends to either be working or not working, functionality as a proxy measure of sustainability is not as useful for more complex piped water systems, which generally do not fail completely, but rather show a gradual deterioration in performance (i.e., with decreases in volumes, quality, and/ or reliability of water supplied).

But even for simpler point sources, functionality must be tracked over time to give a picture of sustainability. Functionality on the day of a survey visit may be ‘zero’ or ‘sub-optimal,’ but if the pump is repaired the next day, after only a short downtime, this may still represent an acceptable overall level of service. For example in Ghana, national guidelines suggest that water supply infrastructure should function 95% of the time. Alternatively, a system may be functional at the time of the survey but break down the next day with little or no possibility for repair because of lack of funds, parts or technical capacity.

Another more fundamental limitation to this indicator is that it says nothing about the underlying factors that



make a service sustainable such as adequate management capacity, tariff recovery, technical backstopping or if contractual obligations are being fulfilled.

### MOVING TOWARD A SERVICE DELIVERY APPROACH TO MONITORING

Adapting indicators to focus on the service provided and defining sector targets is an important step in creating more sustainable rural water services at scale. This does not necessarily mean setting up a comprehensive monitoring system overnight, but the ultimate aim should be to create a system that provides government, service providers and users with the information necessary to set targets, monitor progress, take corrective action and ensure accountability.

To create more sustainable services at scale, three key aspects to monitor are:

- the services received by users – usually in terms of quantity, quality, accessibility and reliability over time;
- the performance of service providers or operators – fulfilment of basic technical, financial, management and organisation functions necessary to deliver a sustainable service; and
- the performance of the service authority (often the local or district government) – fulfilment of planning, coordination, regulatory and support functions necessary to ensure the establishment and performance of service providers.

#### Monitoring services

The service provided to consumers is the most obvious aspect of rural water provision and is often described in sector norms in terms of a number of criteria.

<sup>1</sup> Triple-S (Sustainable Services at Scale) is a global learning initiative to improve sustainability of rural water services. For details see: [www.waterservicesthatlast.org](http://www.waterservicesthatlast.org).

**TABLE 1 WATER SERVICE LADDER INDICATORS**

Service level	Quantity (lpcd)	Quality	Accessibility (mpcd)	Reliability	Status (JMP)
High	>=60	Good	<=10	Very reliable	Improved
Intermediate	>=40	Acceptable	<=30	Reliable/ secure	
Basic (normative)	>=20				
Sub-standard	>=5	Problematic	<=60	Problematic	Unimproved
No Service	<5	Unacceptable	>60	Unreliable/ insecure	

**N.B.:** lpcd (litres per capita per day) and mpcd (minutes per capita per day spent fetching water, taking into consideration distance and crowding)

Source: Moriarty, et al., 2011, p.3.

The human right to water (de Albuquerque, 2010) states that indicators “must reflect the criteria of availability, safety, acceptability, accessibility (including reliability) and affordability,” as well as monitoring to ensure increased access for those most in need and without discrimination.

To monitor service, there first needs to be agreement on the service level. So, for example, a basic level of rural service could be defined as 20 litres per capita per day of safe drinking water, requiring no more than 30 minutes per day to collect, and provided with a reliability of 95%. Deciding on service levels is a political process that should be negotiated between government authorities, service providers and users. The different parameters (e.g., quantity, quality, etc.) that define the service levels must then be measured at regular intervals to provide a picture of sustainability.

A service ladder provides a way to conceptualise different and increasingly higher levels of service. The service ladder developed by WASHCost<sup>2</sup> is summarised in Table 1. This service ladder differs from the one used by the Joint Monitoring Programme (JMP) and others, which includes only three levels, namely piped, improved and unimproved linked to the type of technology rather than the actual service provided.

### Monitoring service providers

Service providers may be community water committees, or public or private sector operators. Regardless of the type of service provider, they are expected to perform a range of functions, either themselves or by contracting specialised providers. These include:

- technical functions – preventative and corrective maintenance and repairs;
- financial functions – calculation and collection of tariffs, auditing of accounts; and

- management and organisational functions – keeping records and reporting, organising community meetings and resolving disputes.

They may also have other responsibilities, such as hygiene promotion and water source protection.

Well-performing service providers are critical for the long-term functioning of systems and therefore for the sustainability of water services in rural areas. But monitoring small-scale, widely dispersed rural operators – and what’s more putting into place systems that use the information collected to identify problems and enable corrective action – takes financial and human resources, which countries still struggling to increase their coverage may find difficult to justify. These countries may want to start by identifying a small number of indicators to monitor problem areas and enable corrective action. For example, in Mozambique, UNICEF with funding from the Government of The Netherlands has applied a ‘sustainability check,’ which looks at five key areas, one of which is financial health and tariff collection. This is being piloted together with the national ministry and a number of NGOs.

### Monitoring service authorities

Service authority functions, often carried out by local government, include establishing and enforcing by-laws where appropriate, planning at the local level for new infrastructure or rehabilitation programmes, letting of contracts for construction and providing oversight and back-up support to service providers. Monitoring service providers, in the form of regulation, is also an important service authority function, although it is commonly lacking in many rural water sectors.

Monitoring of service authority functions is valuable as it provides insight into whether or not these critical functions are being undertaken and introduces an

<sup>2</sup> WASHCost’s ‘Ladders for assessing and costing water service delivery’ is available for viewing and download at: [www.ircwash.org/resources/ladders-assessing-and-costing-water-service-delivery](http://www.ircwash.org/resources/ladders-assessing-and-costing-water-service-delivery). The working paper ‘Assessing sanitation service levels’ is available here: [www.ircwash.org/resources/assessing-sanitation-service-levels](http://www.ircwash.org/resources/assessing-sanitation-service-levels).

element of performance assessment of service authorities. In cases of decentralisation of service authority functions, monitoring can help to identify gaps and measure progress in strengthening local governments.

## EMERGING SOLUTIONS AND GOOD PRACTICE

Making the shift from measuring coverage to a more comprehensive monitoring system that tracks services delivered over time and the performance of service providers and authorities is a challenge. In the following section lessons from countries where the shift in monitoring has been made are presented, along with cases where monitoring data has been used in a systematic way to improve performance.

### Composite indicators

Combinations of multiple or composite indicators, particularly for more complex piped systems, yield a clearer picture of sustainability than a single indicator like functionality. Composite indicators normally assess the status of the service (functionality and in some cases, performance) and a number of key characteristics of the service provider, such as the status of its financial records and the relationship between water committee

and consumers, that can help anticipate sustainability problems.

Honduras, Nicaragua and Uganda have used composite indicators to improve rural water services. Table 2 provides an example of a composite indicator tool developed by the Association of Municipalities of Cochabamba (Amdeco) in Bolivia.

To effectively use this kind of more complex indicator, governments must be prepared to allocate more resources to data collection and analysis. Local and higher levels of government must also have the capacity to take short-term and longer-term management decisions and follow-up actions based on the data collected.

Another example of measuring service provider performance using composite indicators comes from the piloting of monitoring indicators by Ghana's Community Water and Sanitation Agency (CWSA) and IRC. This exercise has produced a first cut of about 20 sustainability indicators in five main categories.

Figure 1 shows an overview of results by category for the small town of Lito (population 3,200).

TABLE 2 COMPOSITE INDICATOR TOOL FOR ASSESSING SERVICE PROVISION

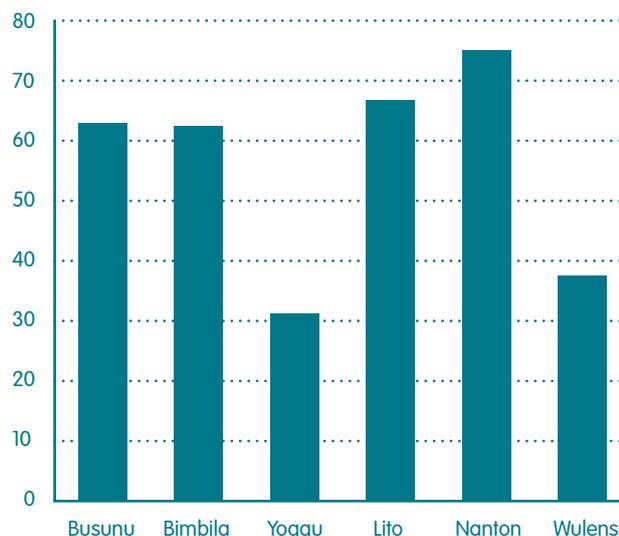
Criteria/Dimension	Indicator	Result	Reference value
Institutional development	Other activities that benefit the community beyond O&M and administration (carried out by the Watsan committee or cooperative)	Watsan committee carries out other activities that benefit the community? Yes [ ] No [ ]	8
Service provided:	Quality: detection by families of at least 2 of the 3 quality criteria (negative responses):	Smell [ ] Color [ ] Taste [ ]	15
	Quantity: average volume of water regularly used by a family per day	_____ liters / family / day	15
	Coverage: number of beneficiaries divided by the total population of the community	Number of benef. = _____ = _____ % Total population	15
	Continuity: number of hours of service per day divided by 24 hours	Number of hours = _____ = _____ % 24 hours 24	15
Current condition of the system	Is the system functioning appropriately?  Number of inspections in the last year % of connections that have water	How many inspections of the system were made in the last 12 months? Number of connections with water = Total number of connections _____ = _____ %	20
Technical assistance	No technical assistance required Is technical assistance required?	Not required Required	6
User satisfaction	Question level of user satisfaction	Yes _____ No _____	6
		<b>Maximum possible total:</b>	<b>100</b>
		<b>Total reached:</b>	

Source: Amdeco/SNV.

**FIGURE 1** INDICATORS FOR LITO, CENTRAL GONJA DISTRICT, GHANA



**FIGURE 2** ENABLING ENVIRONMENT INDICATOR SCORES IN GHANA'S NORTHERN REGION



### Service authority indicators

The Ghana example also demonstrates how service authorities can be monitored at an aggregated level. Under the 'enabling environment' category, service authorities (the District Water and Sanitation Teams [DWST]), whose job it is to monitor the service providers, are themselves monitored by regional CWSA offices. Table 3 shows the composite indicator and Figure 2 an overview of results by small town (populations 2,500 – 29,000).

Similar scoring can also be done at a higher level (e.g., district) by aggregating across a number of systems or communities to show how effectively the enabling environment is being addressed.

New technologies can make collection and mapping of data faster and more accurate. For example: the mapping tool launched by WaterAid,<sup>3</sup> or the monitoring and reporting tool of Field Level Operations Watch (FLOW)<sup>4</sup>.

**TABLE 3** ENABLING ENVIRONMENT ASSESSMENT FOR GHANA'S NORTHERN REGION

Enabling environment factor	Busunu	Bimbila	Yoggu	Lito	Nanton	Wulensi
There is a well-resourced District Water and Sanitation Team (DWST), consisting of three well qualified and experienced staff members, receiving the needed support by CWSA and District Assemblies	75	75	25	75	75	25
There are efficient monitoring and data flows	50	25	0	50	50	25
District Water and Sanitation Plan is incorporated into medium term development plans and budget of the assembly, which is used to guide implementation	100	100	0	50	100	25
DWST monitors O&M of water facilities in terms of financial, technical and administrative performance, including periodic audits, and provides support where needed	50	50	0	75	75	50
By-laws for the WATSAN committees and Water and Sanitation Development Boards exist and are enforced effectively	0	50	50	50	100	50
NGOs and CSOs providing water facilities do so in coordination with the District Assemblies	100	75	50	100	50	50
<b>TOTAL SCORE</b>	<b>63</b>	<b>63</b>	<b>31</b>	<b>67</b>	<b>75</b>	<b>38</b>

<sup>3</sup> Learn more about Water Point Mapper here: [www.waterpointmapper.org](http://www.waterpointmapper.org)

<sup>4</sup> Read about FLOW here: <http://wfp.akvoflow.org>

## MONITORING FOR PERFORMANCE MANAGEMENT

### Making use of the data

Data collection is only worthwhile when subsequent steps are taken to analyse the data and feed the resulting information into decision-making processes. Only then can it help to improve performance and sector practices, policies and resource allocation. Monitoring information is important not only at the aggregated national sector level, but also at lower decentralised levels, such as provinces, departments or districts – where it can alert authorities to trouble spots that need to be addressed, and to success stories that can potentially be replicated. Relatively few developing countries have so far incorporated such performance management into the fabric of their national WASH sectors.

One example of where data on performance is used for sustainability in an institutionalised way is from Honduras. Technicians visit rural water supply systems to review aspects of the service, including indicators of technical performance and condition of the infrastructure, management and organisational issues, and the state of financing and required investments. The results are collated in the field and fed into a programme called SIAR (Rural Water Supply Information Systems), which is managed and run by the National Autonomous Water and Sewerage Service (Rosensweig, et al., 2001)<sup>5</sup>. The programme uses four sustainability categories, described in Table 4. This classification allows the technicians to identify and anticipate risks to sustainability, even if the physical system is not showing major problems, and to evaluate the performance of the service provider. The classification



Photo: Lokaalmondiaal

then provides recommendations to address low-scoring areas.

Uganda offers one of the more comprehensive examples of linking monitoring to performance management at different levels. Starting in mid-2003 Uganda's water sector has been shifting away from monitoring and reporting on infrastructure and access towards a framework that looks at the services provided. This shift started with the identification of eleven 'golden indicators,' which are differentiated for urban and rural services as well as for sanitation and water. This national level system that reports on a limited number of key indicators has enabled the sector to produce league tables with performance targets in each area. The Directorate of Water Development carries out trend analysis over time to pinpoint key issues and

**TABLE 4** CATEGORISATION OF SUSTAINABILITY OF RURAL WATER SUPPLY SYSTEMS IN HONDURAS

Category	Status of the system	Recommended intervention
A	System functions well and there is potable water every day. Water is treated with chlorine. There is a water committee, which meets regularly and an operator carrying out O&M tasks.	Activities geared towards optimising community participation and continued strengthening of management tasks by the water committee.
B	The system may be working but there are management gaps that may put the sustainability at risk. There is no investment needed in infrastructure to move to category A, but should be geared towards strengthening the capacity of the water committee.	Supporting and strengthening management capacity. Supporting accountability and participation of the users.
C	The system may function only partially but there are management and physical deficiencies that put the sustainability at risk. Infrastructure investment is needed to move to category A, but that can be done with existing funds of the community.	Same as B, but support to the water committee in defining the works that need to be done, their budgeting and identifying of sources of funding.
D	The system is in such bad management and physical state that the costs of improving it and bringing it to category A, are beyond the possibilities of the community. Its life span may be over.	Define feasibility to be considered in future investment plans.

<sup>5</sup> More information on SIAR available in Spanish here: [www.siasar.org](http://www.siasar.org)

bottlenecks across different geographic areas. Ugandan sector authorities have therefore been able to share information, nationally, at district level and with development partners,<sup>6</sup> including the links between sector expenditure and performance, all of which can support corrective actions. This system has helped Uganda to achieve relatively better levels of functionality compared with other countries of a similar economic level.

In Uganda, due to budget constraints and the policy that over 70% of the total sector funding should go for investments in new water facilities to increase coverage, only 1% of the water supply and sanitation sub-sector budget is currently spent on monitoring (Okello, 2011).

South Africa has a national online monitoring system<sup>7</sup> with 11 key performance indicators, which each municipality is scored against. It is not only used by the Department of Water Affairs for monitoring performance, but can also help improve accountability with customers and provide political pressure to improve services since the scores can be relatively easily accessed online.

### Setting targets for sustainability of services

Setting explicit targets for sustainability or functionality, in addition to coverage, helps countries to focus their efforts to improve service delivery, measure progress and take corrective actions in an informed and targeted way at sector level.

Both the examples from Honduras and Uganda include targets for improving performance. When Honduras started its sustainability programme in 1986, a rapid survey showed that only 7% of the water systems could be classified as A from Table 4 above. Targets were then set annually to increase this by an agreed percentage (Rivera Garay & Godoy Ayestas, 2004).

This was last used in 2007 when the target for an A went from 38% to 41%, which was subsequently met. Unfortunately, the system was abandoned when the donor funding supporting it ended, demonstrating the need for resilient funding structures for ongoing support. In Uganda quantitative targets for functionality are also used to assess progress. The target for functionality for the financial year 2009/2010 was 86% and for 2014/2015 it is 90%.

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## Recommendations for monitoring

So where should countries focus efforts to improve monitoring for sustainable service delivery? In countries where there is tension between investing in increasing coverage and maintaining services, some of the first steps in the area of monitoring could include:

- Introducing functionality (measured at regular intervals) as a proxy indicator for sustainability.
- Introducing basic indicators to monitor service providers – fulfilment of basic financial, technical and management functions – to enable corrective action.
- Improve alignment around monitoring to ensure adherence to minimum requirements and to contribute to one common monitoring framework.

Where coverage is already relatively high, countries can shift their attention to establishing systems that track not only the services provided, but the performance of service providers, and service authorities. This information should feed into decision-making tools and processes at multiple levels: at national level to efficiently direct resources and at local levels to target poorly performing systems and to improve performance of service providers. Monitoring of expenditures in areas such as resources and financing for post-construction support are also critically important to maintaining services.

In addition to adopting composite indicators, countries should be encouraged and supported to establish performance management systems and benchmarking for service providers to help prevent the slipping back of service levels. As service providers are professionalised such monitoring frameworks can provide the basis for more formal regulation and improved accountability to consumers.

Monitoring strategies can naturally link with water safety plans, which go beyond traditional measuring of water quality and include the entire drinking-water supply chain, involving risk assessment and management. With the impact of climate change this will become increasingly more important.

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<sup>6</sup> For further information on the Uganda Joint Sector Review process and outputs see: [www.mwe.go.ug](http://www.mwe.go.ug)

<sup>7</sup> For further information on South Africa's Regulatory Performance Measurement System see: [www.dwaf.gov.za/dir\\_ws/rpm/](http://www.dwaf.gov.za/dir_ws/rpm/)

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Photo: Petra Brussee, IRC

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### About IRC

IRC is an international think-and-do tank that works with governments, NGOs, businesses and people around the world to find long-term solutions to the global crisis in water, sanitation and hygiene services. At the heart of its mission is the aim to move from short-term interventions to sustainable water, sanitation and hygiene services.

With over 40 years of experience, IRC runs programmes in more than 25 countries and large-scale projects in seven focus countries in Africa, Asia and Latin America. It is supported by a team of over 100 staff across the world.

### About the Building Blocks for Sustainability series

This briefing series was developed under IRC's Triple-S project. It is intended as a resource for people who make decisions about rural water supply — financing, policy and programme design and implementation. It outlines the basic building blocks for sustainable

delivery of water services — such as indicators and targets, aid harmonisation, and professionalisation of community management — and provides evidence and examples from actual practice.

**For more information about Triple-S and access to resources to support sustainable service delivery, go to [www.waterservicesthatlast.org](http://www.waterservicesthatlast.org)**

### About this Brief

This brief was authored by Harold Lockwood and Anna Le Gouais (Aguaconsult). Findings and recommendations are based on the results of a multi-country study carried out by Triple-S and a review of broader sector examples and research.

**For additional resources visit: [www.waterservicesthatlast.org/resources/building\\_blocks/monitoring](http://www.waterservicesthatlast.org/resources/building_blocks/monitoring) and [www.ircwash.org/topics/monitoring](http://www.ircwash.org/topics/monitoring)**

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