

Sustainability Checks: the UNICEF Experience in Eastern and Southern Africa

CASE STUDY

EXECUTIVE SUMMARY

It is well known in the WASH sector that the sustainability of water and sanitation facilities is a cause for concern. UNICEF, one of the largest external agencies working in the sector, is cognizant of this and has taken a series of steps to improve the sustainability within its programmes of support. The sustainability check initiative in the Eastern and Southern Africa region (ESAR) represents an important step in this direction.

The purpose of the sustainability checks (SCs) is to ensure that project outputs are sustainable beyond the end of the projects by systematically auditing key sustainability criteria and using the results to make course corrections and as a core indicator for assessing project success. The SCs are carried out for WASH projects funded by the Government of Netherlands in six countries in the region. By the end of 2012, a total of 14 SCs had been carried out, or were being carried out, in these countries.

The SCs are conducted annually by third party consulting firms in sample project communities selected randomly. They feature a multivariate monitoring approach: the SCs monitor both sustainability outputs (such as water and sanitation breakdown rates and the incidence of open defecation) as well as key variables that are known to affect sustainability (such as the existence of community water management committees and the participation of women). The SCs are carried out both during the implementation period and for a set number of years after the project is completed.

The SC experience in ESAR is ongoing, but the SCs have already made an impact. In most countries the SC results prompted project design changes to improve sustainability while in some countries they have led to changes national WASH sector practices, including the use of SCs by government partners. UNICEF plans to expand the approach to other regions drawing on lessons learned from this experience. These lessons include the value of using multiple indicators to monitor sustainability, the need for special tools to monitor open defecation rates, the importance of using predictive indicators to assess the chances of future breakdowns, and the need to share accountability for sustainability among key stakeholders.

Contents

Background	1
Introduction to Sustainability Checks in ESAR ...	3
Methodologies	4
Impact to Date	5
Learning Points	7
Looking Ahead	8
References	10
<i>Box: Monitoring ODF Sustainability</i>	<i>7</i>
<i>Box: Results from the Sustainability Checks</i>	<i>9</i>

BACKGROUND

The UNICEF WASH Programme

UNICEF is one of the largest external support agencies in the water, sanitation and hygiene (WASH) sector. It has programmes of support in over 100 countries in all regions of the world, and WASH expenditures exceeding \$370 million annually. From 2007 to 2011, UNICEF direct support helped an

estimated 100 million people gain access to improved water and 60 million to sanitation in their homes and communities, and an additional 18 million children to water and sanitation in their schools (UNICEF, 2012). Working with a range of government and non-government partners, UNICEF also makes significant contributions in the areas of sectoral policy development and capacity building.

Eastern and Southern Africa (ESAR) is a key region of support for UNICEF. Most of the 22 countries in the region have UNICEF-supported WASH programmes, several of which are among UNICEF's largest, including Ethiopia, Kenya, Mozambique and Somalia. In 2011 UNICEF expenditure for WASH was higher in ESAR than in any other region, with 4.5 million people gaining access to water, 2.5 million to sanitation and many more benefiting from hygiene promotion, school WASH, water safety, policy development, capacity building and related efforts with partners.

The Need to Improve Sustainability

It is well-recognized in the sector that the sustainability of water and sanitation systems is a cause for concern, as is the sustainability of efforts to promote positive hygiene and sanitation behaviour change.

In many developing countries it is common to find rural water points that have failed long before the end of their planned lifetime. In Sub-Saharan Africa an estimated 36% of handpumps are non-operational at any given time, and breakdown rates of over 60% have been recorded in some countries (RWSN, 2008). Piped water systems also have serious sustainability problems: breakdowns are common and many systems deliver water for only a few hours a day (JMP, 2011). Sustainability problems are further exacerbated by climate change, emergency situations and poverty.



The sustainability of sanitation and hygiene promotion programmes is also a serious issue, although the nature of the problem is shifting. In the past, household sanitation programmes offering subsidized facilities were often plagued by demand-related issues that resulted in abandoned or under-used toilets. Newer community-led total sanitation (CLTS) approaches, in which households build their own toilets as part of community-wide campaigns to eliminate open defecation, are successfully overcoming these issues. However, there are sustainability issues even within successful CLTS programmes, such as concerns about the 'depth' of behaviour change, the longevity of home-built latrines and the capacity of local markets to meet demand for new or upgraded facilities (Kar and Milward, 2011).

The sustainability of water and sanitation systems and hygiene education programmes in schools is also a concern. As the WASH in Schools sub-sector develops and more information becomes available, it is becoming clear that many schools do not provide adequate WASH facilities and services for students, and poor sustainability is one of the reasons why.

Sustainability is a multi-faceted issue, and solutions must be holistic in nature, encompassing not just one or two criteria such as technology choice or community management arrangements, but the entire

range of factors that affect sustainability. These include the policy context, management and institutional arrangements, financial issues, community and social aspects, technologies and supply chains (UNICEF, 2011). Most important of all, issues of sustainability must be mainstreamed into the design and execution of WASH programmes. The sustainability checks described in this case study represent an important step in that direction.

INTRODUCTION TO SUSTAINABILITY CHECKS IN ESAR

In 2006, the Government of the Netherlands Directorate-General for International Cooperation (DGIS) and UNICEF launched a new WASH partnership in ESAR that would eventually include five countries: Comoros, Malawi, Mozambique, Rwanda and Zambia. Programme funding exceeds \$100 million with the bulk of the funds coming from DGIS. UNICEF WASH programmes in other countries in the region (including Kenya) are also funded by DGIS through separate mechanisms. The partnership stressed the sustainability of programme outputs from the outset, and the concept of a sustainability auditing mechanism was incorporated into the country project designs. The sustainability checks (SCs) were designed jointly by UNICEF, DGIS and counterpart government partners in each country.

The purpose of the SCs is to ensure that project outputs are sustainable beyond the end of the projects by systematically monitoring key sustainability criteria and using the results to make course corrections. The results of the sustainability checks are also used by DGIS as a core indicator for assessing project implementation. By the end of 2012, a total of 14 SCs had been carried out, or were being carried out, in six countries (Table 1).

Table 1: Completed and Ongoing Sustainability Checks

Country	Sustainability Check				
	First	Second	Third	Fourth	Fifth
Malawi	2008	2009	2011 ¹	2012	
Mozambique	2008	2009	2010	2011	2012
Comoros	2011 ²				
Rwanda	2011	2012			
Zambia	2012				
Kenya	2012				

The SCs differ somewhat from country to country, but all incorporate the following key features:

- **multivariate monitoring:** the SCs monitor both sustainability outputs (water and sanitation facility functionality, open defecation incidence, etc.) as well as key variables that contribute to sustainability (e.g., the existence and structure of community water management committees: see Table 2)
- **periodic monitoring during and after the project:** the SCs are conducted annually or semi-annually during the project period and for a set number of years after the project is finished
- **representative random sampling:** each SC is conducted in a set of communities chosen randomly within the project area
- **conducted by third parties:** the SCs are carried out by a consulting or auditing firm not connected to the projects.

¹ The 2011 Malawi SC took the form of an-depth quality assessment study focusing on water supply.

² Comoros is a smaller, much less comprehensive project, with only a single SC carried out towards the end of the implementation period.

In all cases, the SCs are part of a broader monitoring framework that includes routine progress monitoring, mid-term and final evaluations, and impact assessments. Project outputs are also monitored through national WASH monitoring systems.

The UNICEF-DGIS sustainability check initiative in ESAR has not yet run its course, but it is already the largest and most comprehensive sustainability exercise in the WASH sector. It is now set to be expanded into other countries and regions.

METHODOLOGIES

All of the SCs conducted in ESAR include the four core features of multivariate monitoring, periodic checks during and after the project period, representative random sampling and third-party implementation. However, there are methodological differences from country to country due to different project designs, programming contexts and other factors.

SCs in every country include water and sanitation facility audits combined with user surveys. The facility audits examine functionality and quality of hardware outputs while the surveys assess the use and management of the facilities along with information on WASH-related behaviour and practices. All of the SCs thus utilize at least two distinct study cohorts: the WASH infrastructure itself as one cohort and the catchment communities as a separate cohort. In some cases SCs also use schools as a third cohort for assessing WASH in Schools project components. Some SCs also use complementary tools, such as focus group discussions with district authorities and with community WASH committees, to gather additional information.

The more recent SCs also include an assessment of the sustainability of efforts to eliminate open defecation in communities. This wasn't included in the original project designs and in the earliest projects because the CLTS approach was launched after these projects were initiated. For the open defecation assessment, SCs use another separate cohort consisting of communities that have been certified as open defecation free (ODF) (see box on *Monitoring ODF Sustainability*).

All of the SCs go beyond the technical aspects of sustainability to address key institutional, social, financial and behavioural variables that influence overall sustainability. The choice of these variables is based on evidence identifying key factors that affect sustainability (Godfrey et al, 2009). Table 2 lists the indicator categories used in the Mozambique SCs, for example. In other countries SC indicators vary according to needs. In Malawi, for example, SCs include indicators to assess the performance of drilling contractors while in Rwanda and other countries water quality testing is carried out.

Table 2: Indicator Groups used in Sustainability Checks, Mozambique Example

Indicator Group	Indicators (selected)
Technical	Water point functionality and use; breakdown frequency and repair time; knowledge of spare parts location and cost; distance to spare parts
Social	Water committee meeting regularity; clarity of committee roles and responsibilities; proportion of women; routine maintenance capacity; availability of local artisans for repairs
Financial	Household contributions; tariff and financial management; financial records
Institutional	Water point database existence and functionality; frequency of database updating
ODF Status	Evidence of open defecation; latrine infrastructure assessment; existence of handwashing station with water and soap or ash

SCs in Comoros, Mozambique, Malawi and Rwanda calculate composite multivariate sustainability 'scores' by combining indicators based on a weighting system. This is used as a way of assessing relative progress in different geographic areas and, in the case of Mozambique, which has used the system continuously each year, allows multi-year comparisons. Technical factors are outweighed by institutional, social and financial factors within these weighting systems, reflecting evidence on the relative impact of these factors on sustainability. For example, in the Rwanda SC, the degree to which women are represented in community WASH committees is weighted higher than technical indicators such as breakdown frequency or repair times. The annual composite scores in Mozambique have been useful as a way of illustrating progress over the years; however, there have been some challenges in maintaining year-to-year comparability when changes are made to indicators (which are sometimes necessary given that the SCs may run for as long as 8 years). The design and use of composite indicator scoring systems continues to be topic of discussion within UNICEF.

Some SCs (notably in Malawi and Zambia, but also in other countries) go beyond a snapshot approach by assessing not just the current functionality of the infrastructure but the vulnerabilities that could lead to premature failure. This is done using a set of predictive quality indicators such as the verticality of the handpump installation (a non-vertical handpump will fail prematurely) or whether or not pit latrines are showing signs of collapse. The use of predictive indicators is especially important in the earlier stages of the SC multi-year process when most of the facilities audited are quite new, and thus functionality in-and-of-itself is not a good measure of sustainability.

The Mozambique SCs now incorporate a weighting system in the random sampling methodology that favours communities covered in earlier years of the project. This ensures that the SCs are assessing an adequate number of older water and sanitation facilities and thus provide a complete picture of the overall sustainability of the project.

UNICEF experience with the SCs has also highlighted some limitations with the tool. One issue is cost: comprehensive annual studies like these are expensive, and not all funding agencies (or governments) will be willing or able to support these costs. A second, related, issue is the ability of SCs – which are necessarily broad in scope – to address specific problem areas at the level of detail required. In Malawi, for example, it was found that special studies were needed to address drilling quality problems and to investigate water quality issues.

IMPACT TO DATE

The SC experience in ESAR is ongoing, but the SCs have already had impacts in two areas: they have led to course corrections to individual projects, and they are prompting changes in national sectoral practices. Such impacts are expected to continue as SCs become more refined and additional SCs are carried out.

Project Course Corrections

The SCs have proven effective in identifying problems with project strategy and implementation at a relatively early stage in the project cycle, allowing UNICEF, government and partners to make timely course corrections. This is a significant contribution: because SCs are carried out annually in most cases, problems are caught earlier than in a typical project monitoring framework with one mid-term and one final evaluation.

There have been several examples of this in the region, including the following from Rwanda, Mozambique and Malawi.³

Rwanda:

- The first SC found problems with the quality and management of water facilities and related issues, prompting significant changes in project implementation methodologies, including in the areas of capacity building, coordination and the sequencing of project inputs.
- The first SC also demonstrated the need for a greater focus on hygiene and sanitation, and this was reflected in the project design.

Mozambique:

- Poor water sustainability scores in the first SC linked to weak spare parts supply chains and inadequate maintenance capacity prompted a comprehensive review of the project and resulted in new strategies including the facilitation of signed agreements between communities and private mechanics (for maintenance) and traders (for stocking spares), a greater focus on preventative maintenance, and support for improved monitoring at the district level . Subsequent SCs showed significant sustainability improvements as a result of these steps.

Malawi:

- The 2011 study documented a number of deficiencies in drilling practices by contractors, resulting in high community dissatisfaction rates and concerns about the sustainability of the water points. This led to new contracting procedures (including standardized contracts) and improvements in well siting practices.

Influencing National Sectoral Strategies and Practices

Mozambique and Malawi have the longest experience with the SCs and thus have had more time to influence national sectoral practices.

In Mozambique, sustainability monitoring and follow-up have been partially institutionalized within government systems. The results of the SCs are now distributed to the District Administrators in the project area through the government mechanism of Management Memos, and to provincial and central government bodies through formal Audit Statements. This reporting of SC results to government helps to ensure that the SCs trigger concrete follow-up actions.

Based on the success of the UNICEF-sponsored SCs, the Government of Mozambique is now planning to finance and implement its own SCs. A national SC will be carried out by the National Rural Water Supply and Sanitation Programme (PRONASAR) in 2013, and there are plans to develop and conduct an SC by the parastatal agency responsible for WASH in small towns (AIAS) by 2014.

In Malawi the 2011 study that found a number of problems related to drilling practices (including depth and siting issues) are being used as a tool to highlight key issues and promote reforms in drilling contracting procedures at forums with government and other sector partners at annual Joint Sector

³ At the time of writing, results from the 2012 Kenya and Zambia SCs had not yet been fully analyzed and thus it is too soon for any impact to be reported. The small Comoros SC was carried out towards the end of the project cycle, and thus results did not impact on project design.

reviews. Similarly, findings related to the management of water points are being used to highlight the importance of developing robust community management structures to ensure sustainability.

Monitoring ODF Sustainability: Experiences and Challenges

The CLTS approach for eliminating open defecation has expanded rapidly in ESAR in recent years, and is now widely practiced in many countries in the region. The DGIS-UNICEF projects have been modified to include CLTS and, by 2011, five of the six countries had incorporated open defecation (OD) monitoring into the sustainability checks.

In an ideal scenario, monitoring the sustainability of efforts to eliminate OD in communities would use the same comprehensive toolset used for the certification of ODF status. These include techniques such as visiting all previous known OD sites, conducting transect walks with community members, rigorously checking footpaths and other signs to determine if latrines are actually being used, and extensive community consultation. However, due to time and resource constraints, the annual SCs use more limited monitoring protocols.

These protocols vary from country to country. Some OD monitoring includes a wide observation radius (including in nearby fields), some limit observation to the immediate area surrounding household latrines, and some use focus group discussions in addition to observations. In Mozambique, for example, a focus group of nine people selected at random in each survey community are asked whether or not they defecate in the open and whether or not they've seen anyone else do it. Since handwashing with soap or ash is a criterion for ODF certification in some countries, the SCs are also beginning to incorporate tools to assess this (using the proxy indicator of the existence of washing stations with the presence of soap/ash).

A key challenge for ODF sustainability monitoring through the SCs is finding tools nuanced and flexible enough to assess defecation and hygiene practices and behaviour change patterns within the quick in-and-out visits typical of SCs. This involves a careful mix of proxy observation indicators and community consultation tools, and the fielding of teams that can effectively use these tools. In addition, there is a need to move towards the kind of predictive indicators that are being used for water supply sustainability monitoring, such as the existence of local sanitation markets, supply chains and the reach of marketing campaigns (Downs, 2012).

In spite of these challenges, the SCs are already contributing to the body of knowledge on the elimination of OD in the region. In both Zambia and Mozambique the SCs have chronicled some relapse in ODF communities (although this is partially related to definitions, see examples box at the end of this case study), while the latest Malawi SC is documenting the impact of sanitation promotion in CLTS communities that have been triggered but not yet certified.

LEARNING POINTS

The sustainability check initiative will be ongoing for several more years, but a number of learning points can already be gleaned from the experience. These include:

1. *Multivariate monitoring*

Findings from the SCs underline the importance of moving beyond technical criteria to address the complex causes of poor sustainability by monitoring key indicators in the institutional, social, financial and behavioural spheres.

2. *Special tools for ODF sustainability assessment*

New methodologies may be needed for monitoring ODF sustainability that strike a balance between the comprehensive ODF assessment toolkits used during certification exercises and the more limited set of tools that is possible in the context of the SCs.

3. *Predictive vulnerability monitoring*

Predictive monitoring indicators that pinpoint vulnerabilities likely to have an impact on long-term sustainability are an essential component of the SC toolkit. The use of such indicators allows the SCs to predict future problems at the early stages of the project cycle, when infrastructure is still new.

4. *Balancing continuity with the need to modify monitoring toolkits*

Because the SCs cover a long period of time (e.g., 8 years in Mozambique), a balance must be achieved between the need to modify SC indicators and methodologies – reflecting improved monitoring practices, changes in project parameters or changes in the programming context – with the need to maintain multi-year comparability.

5. *Multiple tools for assessing sustainability*

SCs are the centrepiece of the sustainability monitoring effort, but they are not the only tools. Evaluations and other components of the project monitoring package also yield important information on sustainability, and the SCs are complemented by special studies on specific sustainability issues, such as the drilling practices study in Malawi.

6. *Sustainability accountability*

As the SC initiative grows there is a need to refine sustainability accountability frameworks. Since UNICEF implements all projects jointly with government partners within the formal Country Programme agreement, responsibility for the sustainability of outputs is shared and accountability mechanisms must take this into account. Sharing accountability with national counterparts in this way will also help to promote the institutionalization of sustainability within government policies and planning.

LOOKING AHEAD

In ESAR the SCs will continue to be conducted under the terms of the DGIS-UNICEF agreements in the countries where projects are ongoing. And they will continue to evolve. In Mozambique, for example, UNICEF has developed and used a new mobile phone application to help collect and relay SC data. Elsewhere the SCs will be refined to improve OD monitoring, and to confront new challenges such as sustainability monitoring in urban areas.

The SC initiative will also expand beyond ESAR. UNICEF and the Government of the Netherlands are in the process of expanding the WASH partnership into a new set of countries in West and Central Africa. Sustainability – and sustainability monitoring – will be a key feature of this new initiative. The lessons learned from the ongoing experience in ESAR will be a valuable resource for this new phase of the partnership.

The lessons learned will also help to improve the overall UNICEF WASH programme, and will contribute to ongoing dialogue within the sector on sustainability and on sustainability monitoring in particular.

Results from the Sustainability Checks: Selected Examples

Overall Multivariate Sustainability Scores

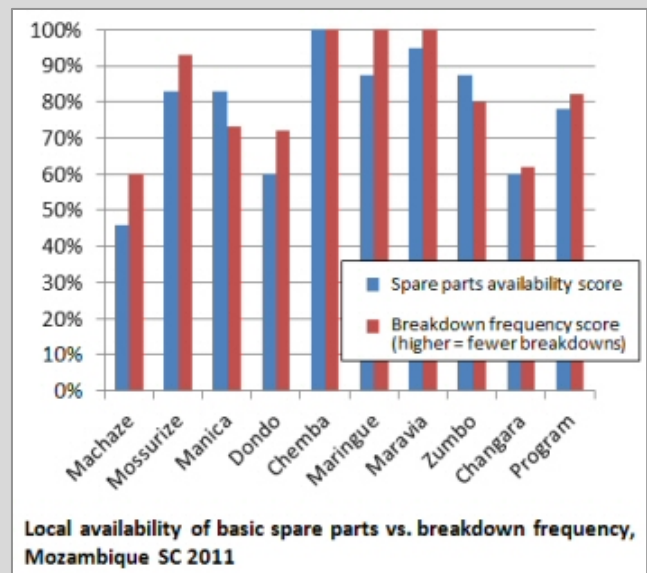
- A composite sustainability rating system has been used in four countries – Comoros (2011), Malawi (2009), Mozambique (2008 to 2011) and Rwanda (2011) – with each using its own weighting, definitions and scoring systems.
- The Comoros SC was the only country for which the composite score was deemed ‘unacceptable’ (below 50%) whereas the scores from Malawi (above 50%), Rwanda (above 70%) and Mozambique (from 61% in 2008 to 82% in 2011) were within the ‘acceptable’ to ‘good’ ranges.

Water Facility Functionality

- Most water systems are functional: in the latest round of SCs in five countries (Comoros, Malawi, Mozambique, Rwanda, Zambia) an average of 88% of water sources were functional and in use.
- The age of the facilities assessed range from 5 years to less than 1 year and, as expected, functionality scores begin to drop as the water points get older.

Water System Management and Maintenance

- Several SCs documented spare parts accessibility issues: most community management committees knew where to buy spares, but they were seldom available in or near the communities. The importance of this finding was highlighted in the 2011 Mozambique SC, which documented a strong correlation between the local availability of basic spares for maintenance with breakdown rates (see graph), and the 2009 SC, which documented a drop in functionality levels when the project moved to more isolated communities.
- The availability of repair and maintenance funds in communities varies from country to country, from lows in Zambia, where only 26% of communities with new water points had set up funds, to Malawi (87% of communities with funds) and Rwanda (100%). However, the Malawi and Rwanda SC analyses showed that the size of the funds were insufficient to meet expected maintenance costs, due to a fall-off in contributions to the fund.



Open Defecation

- The SCs that assessed open defecation in ODF-certified communities showed satisfactory to good results, depending on the level of rigour of the ODF definitions used. In Zambia, for example, only 54% of certified ODF villages visited were still free of OD under the most rigorous definition, rising to 80% using a slightly less rigorous definition. In Mozambique, virtually all ODF communities visited were free of signs of OD, but only 40% met the more stringent standard recently adopted by government (which includes new criteria on latrine quality, handwashing facilities and the presence of soap or ash).
- The Rwanda SC found signs of OD where it was not previously thought to be a problem, a result that may have an impact on the design of future surveys and on the UNICEF-DGIS project itself.

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