WASH Discussion Paper DP/07/2021

Monitoring of WASH in Small Towns: A Catalyst for Enhancing Capacity of Water Utilities in Ethiopia

SUMMARY

There are various initiatives involved in monitoring small town WASH projects in Ethiopia. These include amongst others the national benchmarks and performance indicators developed by the Water Development Commission, WaterAid Ethiopia's monitoring approach for the 20 Towns Capacity Development Project, and sustainability checks implemented under UNICEF's ONEWASH Plus programme. However, lack of harmonized performance indicators and capacity gap in implementing a data management system at utility level hamper progress. Harmonizing institutionalized monitoring, national benchmarks, improving the data culture and acting upon monitoring results will be essential in order to move forward.

Introduction

UNICEF, IRC WASH and the Water Development Commission of the Ministry of Water, Irrigation and Energy held a face-to-face / online symposium on **Climate-resilient systems approaches for small town WASH services in Ethiopia** on 3 December 2020**.** The objective of this symposium was for sector stakeholders 1) to learn and share on small town WASH, with a focus on systems strengthening and climate resilient approaches, and 2) to identify innovations for scaling up and agree on specific areas that need more lobby and advocacy.

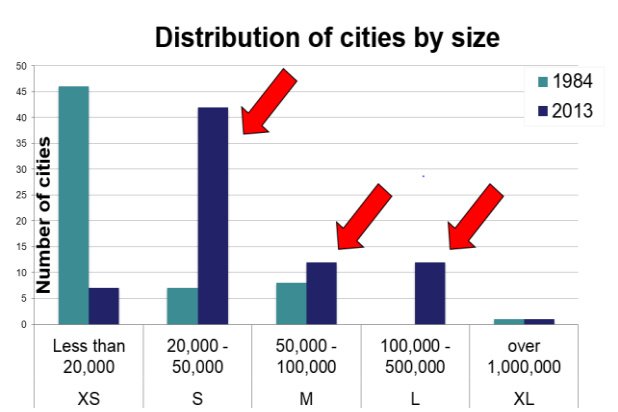
Ethiopia is a mostly rural country undergoing rapid urbanisation. While Central Statistical Agency (CSA)[1] projected that in 2020 almost 80% of the population would still be living in settlements with fewer than 2000 people, there has been considerable urban growth. Other reports indicated that Ethiopian cities with fewer than 300 000 inhabitants will account for more than 60% of urban population growth between 2015 and 2035[2].

[1] Central Statistical Agency. 2013. Population Projections for Ethiopia 2007-2037

[2] Organisation for Economic Co-operation and Development (OECD) 2020. *Rural Development Strategy Review of Ethiopia. Reaping the benefits of Urbanisation*. [Accessed January 2021 https://doi.org/10.1787/a325a658-en]

The number of small and medium towns[3] has increased considerably over the last decades, as illustrated in Figure 1. These small and medium towns are considered strategic due to rapid population growth and their importance as centres of local business and growth within their rural hinterlands. However, ensuring the provision of sustainable WASH services in these towns has been a challenge. This is mainly due to low institutional capacities, low economies of scale, cost recovery challenges, high population growth and increasing demand for WASH services. For a long time, limited attention has been given to WASH in smaller towns compared to bigger urban areas.[4]

Figure 1: Small-medium towns in Ethiopia



Monitoring of WASH Services in Small Towns

The Symposium sessions focused on monitoring approaches of small-town WASH programmes and projects in Ethiopia and brought together learnings from various approaches adopted in the country including, i) development of national benchmarks and performance indicators by the Water Development Commission (Box 1), ii) WaterAid Ethiopia's monitoring approach for the 20 Towns Capacity Development Project (Box 2), and iii) sustainability checks implemented by IRC WASH as part of UNICEF's ONEWASH Plus programme (Box 3).

Recordings of the three presentations are available on: www.ircwash.org/news/symposium-small-town-wash-services-ethiopia or https://www.unicef.org/ethiopia/stories/symposium-climate-resilient-systems-approaches

[3] The Ethiopian Growth and Transformation Plan II defines five town categories: Category 1 to 5 with respectively populations of more than 1 million people; 100,000 to 1 million; 50,000 to 100,000; 20,000 to 50,000; and less than 50,000 people. In this paper we consider medium and small towns in category 3-5.

[4] Journal of Water, Sanitation and Hygiene for Development (2016) 6 (3): 435–446. [Accessed January 2021, https://doi.org/10.2166/washdev.2016.034]

BOX 1.

KPIs AT NATIONAL-LEVEL

In 2011, the Ministry of Water, Irrigation and Energy (MoWIE) took the initiative to develop national-level performance indicators and benchmarks for town water utilities ('Adama Declaration'). The objective was to set national standards to improve the efficiency and effectiveness of town water supply, and to allow peer-to-peer benchmarking to inform management decisions. In 2012, the IBNET tools (International Benchmarking Network for Water and Sanitation Utilities) were adopted and tested with 150 selected utilities. The World Bank's Water and Sanitation Program provided technical assistance and supported the preparation of a training manual and localized data collection formats.

The data collection formats are expected to be completed by the town water utilities and to be submitted to a focal person at the regional water bureau. Reports compiled by the region are then submitted to the IBNET team at national level for verification, analysis and reporting. A set of 17 key performance indicators (KPIs) are tracked (see Table 1) for the performance assessment of the town water utilities: including technical indicators, personnel indicators, operational indicators, financial indicators and customer management indicators. Training was provided and upon request additional support can be given to the utilities by the IBNET team from the regional and national level.

The initial plan was to establish a national management information system including regular updates from all town water utilities. However, currently only data from 70 town water utilities could be obtained, analyzed and used for benchmarking, mainly due to a lack of data at many town water utilities.

BOX 2.

RATE, RANK, REWARD

Monitoring started in the initial phase of the 20 towns capacity development project (in 2013/14), to periodically check on project progress but also to facilitate knowledge and skills transfer through a joint monitoring and coaching process. Regular, well-designed joint monitoring, combined with targeted coaching based on the monitoring results, were found to be essential factors of success.

At least once a year, every project town is visited for joint monitoring by representatives from WaterAid and the Regional Water Bureau to obtain primary and secondary data using a pre-structured checklist, and to collect qualitative feedback from key stakeholders in the towns. A set of 31 KPIs are scored using a "traffic light" rating to provide an easy-to-understand overview of the water utilities' performance (see Table 2 and 3). The KPIs were drawn from national indicators used by relevant ministries. While focus is on a town's water utility performance, other indicators are included (e.g. solid and liquid waste collection and institutional WASH).

Annually, an aggregated RAG (red, amber or green) rating is given for each town, which is shared with relevant stakeholders and includes a ranking of the 20 project towns. Best performers are rewarded through public recognition during annual project review meetings and by supporting them to share experiences at sector events. This incentive mechanism was found to trigger a healthy competition among the project towns.

Best practices are documented and shared through various national and regional platforms such as the national water utility forum to achieve impact beyond the project towns. For instance, Tigray region institutionalized the monitoring approach which is now used to assess and strengthen all town water utilities in the region

BOX 3.

SUSTAINABILITY CHECKS

The sustainability checks were implemented as part of the monitoring and knowledge management component of UNICEF's ONEWASH Plus programme, implemented in eight towns. The framework was developed by IRC WASH in 2015, based on sector norms, standards and guidelines. In four rounds (2015, 2016, 2018 and 2019) primary and secondary data were collected in seven towns by dedicated field teams led by IRC WASH, to systematically assess whether the conditions are in place to sustain WASH facilities and services. The objective of the sustainability checks is to help stakeholders identify challenges, inform planning, spark action, and to promote sustainability.

The monitoring framework is comprehensive and covers water, sanitation and institutional WASH. Beyond WASH service levels (i.e. 'improved' water supply and sanitation facilities), the framework also includes an assessment of conditions for sustainable WASH service provision at service provider level (e.g. town water utility, health extension programme) and service authority level (water board, woreda and municipal health offices). The framework makes use of qualitative information system (QIS) ladders to make qualitative information comparable (Figure 2).

The sustainability checks were found to be a useful framework for monitoring sustainable WASH service provision. The framework provides data for informing programmatic decisions and reporting on progress; it also supports strategic decisions towards improving conditions for sustainable WASH service provision and inform regulation and policy making. Some of the service provider and service authority indicators, and the introduction of QIS tables could be a useful addition to standard performance indicators.

Key performance indicators examples

Table 1: IBNET KPIs applied by MoWIE

	Key Indicators
Technical	1.1 Water supply coverage (%)
	1.2 Per capita consumption (l/c/d)
	1.3 Unaccounted for water NRW (% or l/d/km)
	1.4 Continuity piped water supply (hr/day)
Personnel	2.1 Number of staff per 1000 connections (#/1000 connection)
	2.2 Labor cost as a proportion of operational costs (%)
	2.3 Staff costs as a % of utility expenditures (%)
Operational	3.1. Length of distribution piped water system (km)
	3.2 Number of pipe breaks (#)
	3.3. Maintenance cost against total operating costs (%)
Financial	4.1. Water production cost per cubic meter (Birr/m^3)
	4.2 Tariff collected and cost recovery (Birr/m^3 and %)
	4.3 Operating ratio (annual O&M cost / annual revenue, in %)
	4.4. Revenue collection efficiency (annual collections / annual billings, in %)
	4.5 Account receivable (%)
Customer Management	5.1 Annual number of complaints (#)
	5.2 Response time to complaints (#)

Table 2: Utility KPIs in "20 town project"

	Key Indicators
Water Utility Indicators	1. Water supply coverage (%)
	2. Non-Revenue Water (%)
	3. Per capita consumption (domestic) (l/p/d)
	4. Increase of domestic connections in a year (%)
	5. Continuity of piped water supply (hours/day)
	6. Treatment capacity utilized (%)
	7. Water quality (%)
	8. Staff per 1000 connections (#/1000 connections)
	9. Maintenance costs as % of operating costs (%)
	10. Number of burst pipes (#/km/year)
	11. Cost of water production (birr/m^3)
	12. Average tariff (in to supply) (birr/m^3)
	13. Working ratio (%)
	14. Revenue collection efficiency (%)
	15. Operating cost coverage ratio (OCCR) (%)
	16. Total energy costs against total O&M costs (%)
	17. Debt service ratio (%)
	18. Daily water production average (m^3/day)
	19. Total capital (Birr)
	20. NRW per year calculated in Birr (Birr)

Table 3: Other KPIs in "20 town project"

	Key Indicators
Solid and Liquid Waste	21. Solid waste generation rate (kg/c/day)
	22. Solid waste collection service coverage (%)
	23. Number of SMEs engaged in waste collection (#)
	24. Number of SMEs members engaged in waste collection (%)
	25. Liquid waste generation rate (%)
	26. Liquid waste collection service coverage (%)
Other WASH Indicators	27. Latrine coverage (%)
	28. Handwashing practice coverage (%)
	29. Percentage of school established WASH clubs (%)
	30. Percentage of schools providing MHM services (%)
	31. Schools with standard WASH facilities (%)

Qualitative information system (QIS) tables allow scoring of findings by agreed criteria in order to facilitate data aggregation. This provides a useful way of converting qualitative assessments into quantitative information. Service provider and service authority responses can be scored using micro-scenarios describing incremental steps related to the capacity and performance, to which scores are allocated from 0 (worst case) to 100 (best case). A benchmark for the minimum acceptable level for each indicator is determined and is typically set at the 50 score. For instance, the indicator for non-revenue water (NRW) in the QIS table below (see Figure 2) defines the minimum acceptable level for NRW to be less than 20% (score of 50). However, it also differentiates if the NRW is not known (score of 0) or if it is known but higher than 20% (score 25). To exceed the minimum acceptable level, the water utility needs to have an action plan developed to reduce the NRW (score 75). If an action plan is in place and the NRW reduced to below 10% the maximal score of 100 is awarded.

Best practices and innovations with potential for scaling up

Following the presentations, two discussants shared their reflections. These reflections, inputs and discussion points from the audience and recommendations made by the presenters have been summarized into the following best practices and innovations with potential for scaling up:

- **Institutionalize a monitoring information system** at regional and national level for all water utilities in Ethiopia, based on a harmonized set of key performance indicators. Data would ideally be updated on an annual basis, and regularly verified by an independent regulatory body.

- **Harmonize national benchmarks** based on the different water utility levels. QIS tables or RAG sheets might offer appropriate formats to incentivize

Figure 2: Example of service provider scores presented in a QIS table

Table 3 Service provider level indicators	0	25	50	75	100	2015	2016	2018	2019
SP-I-1: Utility organisation	No Utility.	Utility in place	... with three core department (operation/ technical; finance; commercial/ customer)	.. and signed performance agreement	... which is implemented.	50	50	50	50
SP-I-2: Staff Productivity (SP)	>20 staff per 1000 connections.	15<20 staff per 1000 connections.	10<15 staff per 1000 connections.	7<10 staff per 1000 connections.	<7 staff per 1000 connections.	0 (SP: 23)	0 (SP: 24)	25 (SP:16)	25 (SP: 18)
SP-I-4: Town Water Utility staffing (US)	< 75% of required staff.	>= 75% of required staff	.... and at least half of the O&M, financial and admin staff have received training.	.... and all O&M, financial and admin staff have received training	.....and equipped with required guidelines.	0 (US: 67%)	25 (US:79%)	0 (US:60 %)	0 (US:71%)
SP-T-2: Non-revenue water (NRW)	NRW is not known.	>20%	<20%	<20%, action developed for reducing on NRW	<10%, and action developed for reducing on NRW	25 (NRW: 24%)	50 (NRW:9%)	75 (NRW: 16%)	25 (NRW:23 %)
SP-T-3: Adequate supply of spare parts for minor maintenance (pipes, fittings etc.)	No spare parts available.	Spare parts available, but takes more than 3 days.	Spare parts available within 3 days.	Spare parts available within day.	Store available with adequate pipes and fittings available for a month requirement or there is PS which delivers within 24 hours.	25	25	100	100
SP-T-4: Effective maintenance system in place	Utility has no capacity to execute simple repairs.	Utility has capacity to execute simple repairs, but does not do so within 3 days.	Utility can execute all repairs (except major electronic mechanical maintenance) within 3 days	... and executes periodic (preventive) maintenance	... on monthly basis.	50	50	75	100
SP-T-5: Water quality management and disinfestation	No disinfection of reservoir(s).	Disinfection of reservoir(s) but less often than daily, or not done by qualified operator.	Daily disinfection of reservoir(s) by qualified operator	... and intermittent quality check (chemical, bacteriological, physical) on network.	... and periodic (at least monthly) quality check (chemical, bacteriological, physical) on network.	25	50	25	100
SP-F-1: Cost Recovery (CR)	Operational cost recovery not met.	Operation cost recovery	.... and 20% reserve	..... and fulfilling on-lending agreement.	Full cost recovery.	50 (CR:1.85)	50 (CR:1.54)	50 (CR:1.5 9)	25 (CR:1.17)
SP-F-2: Effective financial management	Single entry accounting but incomplete records.	Single entry with complete financial records.	Double entry accounting system with annual income statement	.... and balance sheet	... and audited.	50	50	50	75
SP-F-3: Effective asset management	No (or incomplete/ outdated) asset registry.	All utility assets registered	.... and accumulated depreciation calculated	...and condition identified	..... and replacement plan developed.	25	25	25	50
SP-F-4: Effective billing and collection	No consumption based billing.	Manual billing with 60 days or more backlog.	Manual billing with less than 60 days backlog.	Computerized billing with no backlog and >80 collection rate.	Computerized billing with no backlog and >90 collection rate and < 10% zero reading.	50	25	50	50
SP-S-1: Urban poor get affordable water	No public taps and no shared yard connections.	Insufficient public taps and shared yard connections in the town.	Sufficient public taps in the town and shared yard taps for urban poor	.... and provision of credit facility for urban poor for private connections	...., which are all repaid within 1 year.	25	25	25	25
Average service provider score						31	35	46	52
% of service provider BMs met						42%	50%	58%	58%

progressive improvements in achievable steps (e.g. recognition that certain KPIs are reliably measured even if the national benchmark has not yet been achieved).

- **Forster healthy competition** among town water utilities. Based on an annual rating, the best performing utilities can be invited to share their experience with other peer utilities.

- **Improve data culture.** To date, many utilities simply do not collect and analyze relevant data. If data is available, it is often with persons rather than the institution. Institutional capacity building on data management, for example through regular joint monitoring activities and standardized data collection formats and processes, should be scaled up.

- **Act upon monitoring results** to facilitate knowledge and skill transfer through e.g. annual review meetings, peer-to-peer learning, and joint monitoring and coaching processes and improvement of utility processes. For many utilities, monitoring might reveal the absence of good data management at utility level and thus highlight the need to professionalize the management of the water utility as well as the management of utility data. Once reliable data is available, action to reduce non-revenue water should be given priority due to its direct impact on costs.

- **Facilitate coordination among stakeholders** which includes strong water utility associations actively promoting best monitoring and data management practices and peer-to-peer learning. – Determine clear roles and responsibilities among government bodies to monitor solid and liquid waste management, sanitation and hygiene activities. The results should be shared with all relevant stakeholders and used to coordinate sector investments.

- **Include climate-resilience in monitoring framework**. Availability of and usage of data for water resources planning, development, usage and quality is essential for sustained water provision and should be monitored.

- **Include service authority indicators** into monitoring frameworks. For instance, the presence of a functional water board with a clear performance agreement with the water utility management should be put in place. This should be in line with regional proclamations and is essential to ensure improve and sustain services. The application of effective monitoring systems at catchment level is another example.

- **Strengthen customer service** to ensure the WASH services are in line with user needs. For example, presence of active customer forums should be part of the standard key performance indicators allowing for immediate appraisal of services by users.

Conclusion

The Symposium session on monitoring of WASH services in small towns clearly showed lack of harmonized and fully institutionalized performance indicators and benchmarks for water utilities, capacity gap to implement adequate data management systems, and absence of a regulatory body, for water utilities in Ethiopia. However, the Symposium also highlighted relevant first steps that could be adopted from the Water Development Commission to develop national and standardized performance indicators and benchmarks that could provide the basis for a more comprehensive monitoring information system. Monitoring experiences from the 20 Towns Capacity Development Project, the

ONEWASH Plus programme provide and national monitoring provide valuable learnings that should be considered for further development of a national monitoring information system and for triggering healthy competition among town water utilities. Learnings from proven methods of using monitoring data can provide useful inputs for relevant stakeholders to improve operation and management of town water utilities.

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