



Summary Findings from Sustainability Checks for Rural WASH in Ethiopia

SUMMARY

- Water, sanitation and hygiene focused sustainability checks were conducted to assess whether investments into rural WASH have led to continuously functioning systems and to what degree conditions for sustainable water and sanitation service provision are in place. Two survey rounds were conducted across 15 woredas, one in the wet season in 2018 the second in the dry season in 2019. The results are expected to support UNICEF to achieve more sustainable programming in Ethiopia across climatic zones (highlands/lowlands¹) and different seasons (wet/dry season).
- The sustainability checks reveal four key topics that are recommended to be addressed:
 - The level of rural WASH services in Ethiopia shows significant geographical variations with generally lower water and sanitation service levels in the lowland areas of Afar and Somali regions. Emphasis is needed on eliminating regional inequalities in WASH service delivery.
 - Multi-village water schemes are providing similar levels of service to other scheme types. They are currently being managed by WASHCOs, and a gradual shift is being made towards more accountable rural utilities. It is recognised that long term support is needed to improve water scheme management as well as service authority performance. Investing in the professionalization of service providers is recommended.
 - The main seasonal variation of WASH service levels lies in the quality of supplied water which is generally better during the dry season. It is recommended to explore wider promotion of water safety planning which, through a better management of contamination risks, would be expected to improved water quality during both the wet and the dry seasons.
 - Open defecation is still a challenge in many communities, particularly in the Lowlands. The capacity of local authorities needs strengthening to accelerate the construction and use of improved latrines. The implementation of the open defecation free verification system needs to be further improved to more accurately reflect the actual situation.
- Emotional distress was introduced to the checks as an attempt to measure this dimension for the first time. Overall distress was found to be low, but slightly higher for the sanitation situation in the Lowlands.
- The data collected as part of this assessment provide a valuable overview of the sustainability of WASH services in the selected woredas. It is recommended to continue the sustainability checks and to further develop the methodology and tools, in particular aspects related to sampling.

¹ Lowlands in this context refers only to the Regions of Somali and Afar

Introduction

The UNICEF Country Programme in Ethiopia (2016-2020) aims to provide access to water from safely-managed, adequate, sustainable and climate-resilient water supply systems to over 500,000 people residing in rural areas and to ensure at least 90 percent functionality of WASH facilities in all UNICEF supported woredas (districts). The programme also supports Community-Led Total Sanitation and Hygiene approaches to reduce open defecation and the promotion of quality improvements for sanitation facilities. To inform the country programme, UNICEF contracted IRC (IRC International Water and Sanitation Centre, The Hague) in 2018 to conduct sustainability checks on rural WASH services in UNICEF-supported woredas. The sustainability check framework applied includes separate modules for assessing rural water services, rural sanitation services and institutional WASH. Each module consists of a submodule for assessing the quality of service that is being provided, and a submodule which focusses on whether the conditions for sustainable WASH service provision are in place at the “service provider” and at the “service authority” level.

This Technical Paper provides a summary of the results of the sustainability checks and includes recommendations for future actions to strengthen UNICEF’s WASH interventions in rural Ethiopia. Special focus is given to seasonality and geographical variation, the performance of rural multi-village water schemes, levels of open defecation and the quality of sanitation facilities. Furthermore, insights into the sustainability check framework are also provided including recommendations for future improvements. The full survey reports (see References) provide additional information about the methodology and include more detailed analysis. Copies of the survey instruments can be made available by UNICEF Ethiopia WASH team and the authors of this Technical Paper.

ACRONYMS & GLOSSARY

BSG:	Benishangul Gumuz Region
JMP:	Joint Monitoring Programme
MVWS:	Multi-Village Water Scheme
ODF:	Open Defecation Free
QIS:	Qualitative Information System
SNNPR:	Southern Region
WASH:	Water, Sanitation and Hygiene
WASHCO:	Water and Sanitation Committee
WUA:	Water User Association

Dry Season:	October to January in most parts of Ethiopia, followed by short rains in February to May
Highlands:	Refers to the selected woredas in Amhara, BSG, Oromia, SNNPR and Tigray
Lowlands:	Refers to the selected woredas in Afar and Somali
MVWS:	Piped water supply scheme serving multiple villages
Service Authority:	District offices that regulate and support WASH services
Service Level:	Quality of WASH services provided to end users
Service Provision:	Day-to-day operation and delivery of WASH services
Shallow Well:	Communal mechanically drilled well with handpump
Utility:	Professional public or private entity in charge of managing water service provision
WASHCO/ WUA:	Management body of community-managed water supply facilities
Wet Season:	June to September in most parts of Ethiopia (long rains)

Methodology

Sustainability Check Framework

An overview of the sustainability check framework is shown in Figure 1. The WASH services and the conditions for sustainable service provision are assessed at three levels:

- **Service level** measures the quality of services provided and can be considered the “sustainability outputs”. Most service level indicators are assessed through observations of WASH facilities, water quality testing and structured interviews with service users.
- **Service provider level** focusses on the systems, structures and procedures for ensuring day-to-day management. It describes the performance of WASH Committees known as WASHCOs (rural water), Health Extension Workers and latrine artisans (rural sanitation), and the management bodies of schools and health facilities (institutional WASH). Most service provider indicators are assessed through structured key informant interviews with WASHCO members, woreda office representatives, school and health facility managers, as well as interviews with users.
- **Service authority level** focusses on the systems, structures and procedures for overseeing and supporting service providers and describes the capacity and support at district level. Most service authority indicators are assessed through structured key informant interviews with representatives from the relevant woreda offices (water office, health office and education office).

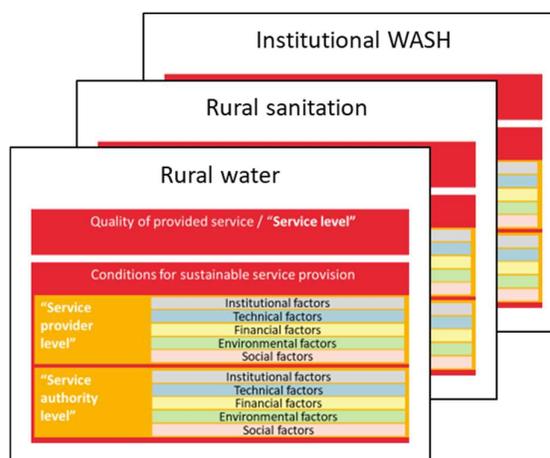
The conditions for sustainability at the service provider and service authority levels were analysed under the following sustainability factors: institutional/managerial, technical, financial, environmental and social sustainability. Qualitative Information System (QIS) tables were used to score findings according to micro-scenarios by agreed criteria (see Box 1).

Sampling & Data Collection

UNICEF pre-selected 16 out of 86 project woredas in Ethiopia to be assessed as part of the sustainability checks (Figure 2). Woredas have been selected to cover several regions, to include different climatic zones, to include UNICEF WASH projects with different priorities, and to minimize travel time between the selected woredas. Field data was collected in two phases (wet and dry season) by three teams from IRC/ HYWAS Engineering Consulting, each composed of a team leader and three data collectors.

The first phase of data collection was conducted from July to September 2018 (wet season) and the second phase from February to March 2019 (dry season). No emergency situations, such as droughts or severe flooding, were reported in the selected woredas at the time of field work. However, due to security concerns, Raaso and Gode woredas in Somali region could not be visited during the wet season, and Maikom woreda in Benishangul Gumuz region (BSG) could not be visited in either of the two phases. Therefore, 13 woredas were assessed in the wet season and 15 in the dry season. Data was collected using mobile phones with the open access mWater application.

Figure 1: Sustainability Check Framework



In each woreda, five rural kebeles (sub-districts) were selected. Priority was given to kebeles that had received support from UNICEF for the implementation of sanitation interventions, were located nearby selected water schemes and were reported by local government to be Open Defecation Free (ODF). Kebeles not accessible during the wet season were excluded. When several kebeles fulfilled the criteria at the same level, random selection was applied. With the support of local community members, the selected kebeles were divided into clusters (“communities”) of approximately 100 households and two clusters were randomly selected for the survey. In each cluster, 10 households were randomly selected in each phase (i.e. different households might have been visited during the wet and the dry season).

Where available up to five Multi-Village Water Schemes (MVWS) were selected per woreda based on inputs from UNICEF. In addition, where possible, up to 10 shallow wells or alternative improved water supply facilities (e.g. deep wells with motorised pumps and protected springs, either on-spot or with limited reticulated schemes) were selected in each woreda. Priority was given to water schemes that received support from UNICEF and that were nearby the communities selected for the household survey. At the selected water

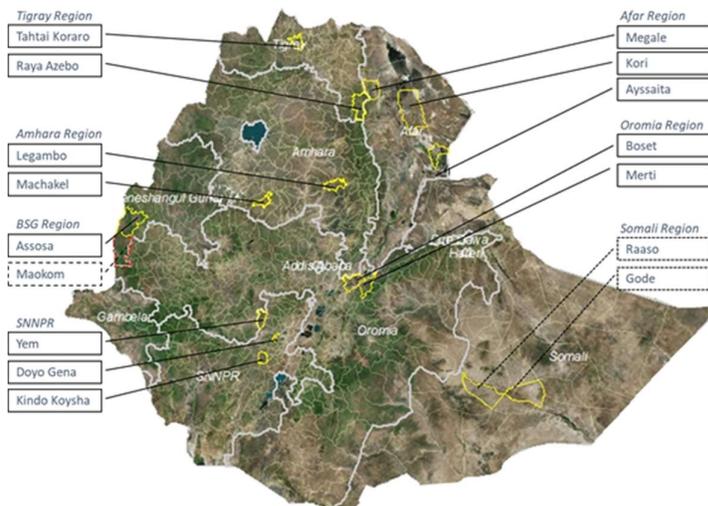
schemes, a water scheme survey, a water quality check (*E. coli* test at point-of-collection, using Aquagenx’ compartment bag tests) and at least 10 user surveys were undertaken.

Furthermore, two schools and two health facilities were selected per woreda to be surveyed and water quality tested. Key informant interviews were conducted in each woreda at the water office, health office and education office.

Data Analysis

Some results presented in this paper are disaggregated by season, geographical location, and water scheme type. Wet and dry season provide very different conditions in which WASH services need to be delivered: during the wet season water is plentiful in most locations but many rural kebeles are hard to reach. On the other hand, towards the end of the dry season water scarcity and decreasing groundwater tables are common. Likewise, highland and lowland areas are different: the highlands generally have more rain and are inhabited by settled communities, while the semi-arid lowlands are inhabited by pastoralists. Disaggregation by water scheme type was made to further assess the hypothesis that MVWS are able to provide more reliable and climate-resilient water supply to rural Ethiopia.

Figure 2: Woredas selected for the Sustainability Checks



Highland Woredas:

- Assosa / BSG
- Boset / Oromia
- Doyo Gena / SNNPR
- Kindo Koysha / SNNPR
- Legambo / Amhara
- Machakel / Amhara
- Merti / Oromia
- Raya Azebo / Tigray
- Tahtai Koraro / Tigray
- Yem / SNNPR

Lowland Woredas:

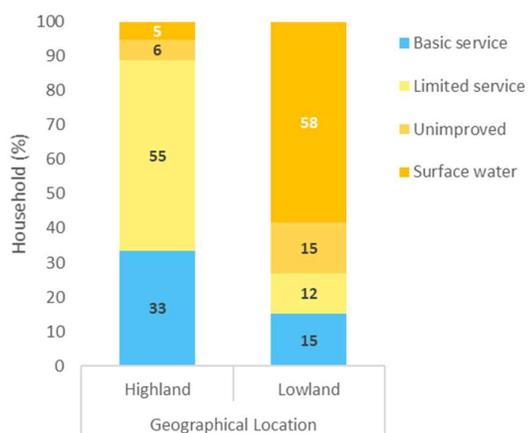
- Ayssaita / Afar
- Gode / Somali
- Kori / Afar
- Megale / Afar
- Raaso / Somali

Results

Rural Water Services

The water service ladder as per the UNICEF/ WHO Joint Monitoring Programme (JMP) was established for the selected woredas based on data obtained during the dry season (Figure 3). The estimate is based on responses from a total of 1,497 randomly selected households (highland: n=1,000, lowland: n=497) which were asked about their main drinking water source. Almost 90% of households in the highland areas reported mainly using improved water sources although many of them spend more than 30 minutes for one roundtrip to collect drinking water (i.e. limited service). In the lowlands, most households use surface water and unimproved water sources, and only 27% use improved water sources.

Figure 3: JMP Water Service Ladder



As part of this assessment a total of 100 improved water facilities were visited during both the dry and the wet season (MVWS: n=19, shallow wells: n=55, deep wells: n=12, protected springs n=14). Table 1 on page 5 illustrates the key results of service level indicators disaggregated by scheme types (MVWS versus shallow wells), by geographical location (highland: n=91, lowland: n=9) and by season (for all water schemes). Most of the assessed water schemes (80%) received support from UNICEF in the past and no major differences between

UNICEF-supported and non-supported schemes could be found.

Functionality was assessed based on observations of all 100 water schemes while reliability of the schemes was assessed based on interviews with the management body and based on responses of water scheme users (wet season: n=1,046, dry season: n=1,169). Microbiological quality of the supplied water was tested during both phases for all water schemes where water was available (wet season: n=87, dry season: n=83). Results shown for the perceived water quality, accessibility and emotional distress are based on the responses of water scheme users, however, the indicator on women who feel safe from harassment by men when going to collect drinking water was only assessed during the dry season.

The results in Table 1 show, for instance, that for 60% of the shallow wells more than 90% of the users consistently reported (during both the dry and wet season) that there is always or almost always water available when they go there. In comparison, only 26% of the MVWS users reported the same performance. The water schemes in the highlands were more likely to be reported as always or almost always having water available when visited (54%) compared to the lowland water schemes with 22%. A comparison of the results for all 100 water schemes during the wet and dry seasons shows that water was more likely to be always or almost always available during the dry season (79%) than during the wet season (61%).

Table 3 shows the service provider scores for the WASHCOs/WUAs managing the assessed water schemes. The results are disaggregated for MVWS (n=19) and all other improved water schemes (n=81). The scores are exclusively based on self-reported information provided by the WASHCOs and WUAs. The benchmark is only considered to be met if the responses fulfil the criteria during both the dry and wet season. In the dry season service provider scores were also assessed for rural water utility indicators even though all water schemes are currently under community management (Table 4).

The results in Table 3 show that for 17 out of the 19 MVWS (89%) the WASHCO representatives consistently reported (in both phases) that annual fees, monthly fees or volumetric tariffs apply and that thus the benchmark was met. For all the other improved schemes, 78% reported that a clear fee collection system is in place. The score for the performance related to rural utility criteria (Table 4) is only 47% because 10 out of 19 MVWS do not currently have any household connections. For the ones with household connections (n=9) volumetric block tariff applies for eight while monthly contributions are collected in the remaining one. The QIS table (refer to Box 1) provides more detailed information about user contributions, as illustrated in Table 2 which shows differences between MVWS and shallow wells (note that in the wet season no regular contributions were reported for two MVWS in Afar region but in the dry season the benchmark was met for all MVWS).

BOX 1.

QUALITATIVE INFORMATION SYSTEM

The applied sustainability check framework uses QIS tables to score 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 (100 in case of binomial indicators). Presenting all QIS tables is beyond the scope of this Technical Paper, however some example results are shown to illustrate the principle (refer to Table 2, Table 5 and Table 8).

Table 1: Water Service Levels of Improved Water Sources

Indicator	Sub-indicator	Scheme Type*		Location*		Season	
		MVWS	Wells	Highland	Lowland	Dry	Wet
Functionality	% of water points functional (providing water at the source when operated) at the time of visit(s)	74%	73%	79%	22%	88%	82%
Reliability	% of water sources which were functioning at least 85% of the time over the last year (reported by WASHCO)	32%	42%	46%	22%	61%	58%
	% of water sources which were functioning at least 85% of the time over the last month (reported by WASHCO)	32%	69%	66%	44%	79%	74%
	% of water schemes reported by 90% of users to be usable "always or almost always when I come here"	26%	60%	54%	22%	79%	61%
	% of water schemes reported by 90% of users to be usable "always when I come here"	0%	38%	29%	0%	56%	35%
Quality	% of water schemes providing microbiologically safe water at the point of delivery (at the time of visit)	16%	29%	21%	11%	70%	34%
	% of water schemes providing water of acceptable taste, colour and smell as per users' perception	68%	44%	47%	44%	79%	67%
Accessibility	% of users reported to live within a distance of one kilometre from water collection point (GTP2 norm)	92%	94%	90%	92%	91%	89%
	% of users reported to spend less than 30 minutes per roundtrip to collect water (JMP norm)	55%	41%	40%	48%	34%	49%
	% of users reporting an acceptable waiting time of less than 10 minutes for collecting water	50%	36%	35%	51%	27%	46%
Emotional Distress	% of users expressing no emotional distress related to the specific water scheme	82%	74%	77%	76%	79%	76%
	% of women who feel safe from harassment by men when going to collect drinking water	100%	100%	99%	97%	99%	no data

* Combined results for dry and wet season indicating that indicator criteria was consistently fulfilled during both phases of data collection. For instance, 70% of the water schemes provided microbiologically safe water during the dry season and 34% during the wet season, however, only 16% of the MVWS and 29% of the shallow wells were found to consistently provide safe water during both survey rounds.

In addition to information about the type of tariff systems, the sustainability checks also obtained information about the typical range of water tariffs: at MVWS and motorized deep boreholes users pay on average about 0.50 Ethiopian Birr or 0.02 US Dollar per 20 litres (ranging between 0.15 - 2.00 Birr), while shallow well users most often pay monthly contributions at an average of 5.50 Birr or 0.18 US Dollar (ranging between 1 - 20 Birr). These results show that there are big differences in the amount rural communities have to pay to collect water from an improved water source. It also shows that the current user tariffs are generally lower for shallow wells than for MVWS.

Table 2: User Contributions (Dry Season)

Micro-Scenario (see Box 1)	MVWS	Wells
Score 0: No user payments	0%	11%
Score 25: Payments on ad-hoc basis (when the system breaks down)	0%	0%
Score 50/Benchmark: Yearly or half-yearly fee	11%	9%
Score 75: Monthly or weekly fee	5%	69%
Score 100: Tariff by unit of used water	84%	11%

Many WASHCOs/WUAs are not gender-balanced (less than 50% women); particularly for WASHCOs and WUAs managing MVWS (Table 3).

Table 3: Water Service Provider Scores (for Community Management)

Sustainability Factor	Indicator/Benchmark for Water Schemes	MVWS	Others
Institutional	WASHCO/WUA exist with positions of chair, secretary and cashier filled and meeting at least monthly	58%	47%
	WASHCO/WUA is formally recognized and legalized by the woreda and/or the regional government	74%	49%
Financial	Clear user contribution system established through annual fees, monthly fees or volumetric tariff	89%	78%
	Last year's revenue exceeds last year's expenditures	58%	30%
	WASHCO/WUA has up-to-date financial records and a dedicated account in a financial institution	37%	36%
Technical	At least one capable caretaker, tap or pump attendant with sufficient skills to undertake preventive and minor maintenance	32%	19%
	Minor maintenance spare part supply is available within 3 days (major spare part supply might take longer)	74%	28%
	Routine (preventive) maintenance is done at least on monthly basis	37%	0%
Social	A WASHCO/WUA is in place and it is gender-balanced	11%	22%
Environmental	A Water Safety Plan is in place and in use	5%	1%

Table 4: Water Service Provider Scores (for Rural Utilities)

Sustainability Factor	Indicator/Benchmark for Water Schemes	MVWS	Deep Well (Borehole)	Protected Spring
Institutional	There is a well-composed and trained management body with at least 75% of the required positions occupied	0%	0%	0%
	Utility established by regional proclamation	0%	0%	0%
Financial	There are household connections for which volumetric block tariff is applied	47%	8%	0%
	At least 60% of connections metered (household connections and standpipes)	84%	75%	22%
Technical	Non-revenue water is known and not more than 40%	0%	0%	0%
	Complete asset registry exists	26%	8%	22%

Table 6 shows the service authority scores obtained (mainly) from key informant interviews with representatives from the Woreda Water Office. The results are disaggregated for woredas in the highlands (n=10) and lowlands (n=4). Kori woreda (Afar) is not included in the assessment because no improved water schemes exist within the woreda. In most woredas data was collected in the dry and the wet season. As substantial changes are unlikely to happen at the service authority level within a couple of months, it was assumed that the score should be the same in both seasons. In case different scores were achieved (for example because different key informants answered differently to the same question), the lower score was used for the analysis because inconsistent knowledge about certain topics is expected to undermine sustainability.

The results in Table 6 show that most woredas have multi-annual strategic plans as well as annual WASH plans in place and therefore meet the defined benchmark (all woredas in the highlands and 3 of 4 woredas in the lowlands). On the other

hand, the benchmark on monitoring of water services was only met by three woredas because it was not reported to be conducted on an annual basis (see Table 5). Irregular monitoring might limit the usefulness of the obtained data to inform sector planning and corrective actions.

Lack of technical support to WASHCOs, absence of spare parts and private maintenance service providers, and the inexistence of water catchment management plans were found to threaten sustainability in almost all selected woredas.

Table 5: Monitoring of Water Services

Micro-Scenario (see Box 1)	Highland	Lowland
Score 0: The Woreda Water Office staff do not monitor rural water services.	0%	0%
Score 25: The Woreda Water Office staff monitor water services	70%	100%
Score 50/Benchmark: ...on at least annual basis and data is used to inform planning and corrective action	10%	0%
Score 75: ...and monitors performance of WASHCOs/rural utilities	0%	0%
Score 100: ...and used data for providing targeted support to WASHCOs/utilities.	20%	0%

Table 6: Water Service Authority Scores

Sustainability Factor	Indicator/Benchmark for Woredas	Highland	Lowland
Institutional	Woreda Water Office reports to have at least 75% of required staff	20%	50%
	There is a woreda (multi-annual) WASH strategic plan and a WASH annual plan in place	100%	75%
	Coordination structure for rural water is in place at woreda level (e.g. Woreda WASH Team) and meeting on at least quarterly basis	30%	0%
Financial	Operational budget related to rural water is at least 30 Ethiopian Birr/ person/year (1 USD/person/year)	10%	50%
	At least two functional motorbikes are available at Woreda Water Office to monitor and follow-up on rural water supply	30%	0%
	The Woreda Water Office provides guidelines for tariff setting to the WASHCOs and regulates set tariffs	90%	50%
Technical	The Woreda Water Office monitors water services on at least annual basis and uses data to inform planning and corrective action	30%	0%
	At least half of WASHCOs/WUAs report to get technical support from Woreda Water Office within 3 days when needed	0%	0%
	Construction quality of all new water schemes is checked by Woreda Water Office	80%	25%
	Woreda Water Office reports that asset ownership and responsibilities related to major maintenance are clearly defined	40%	25%
	There are spare part supply chain arrangements in the woreda and spare parts for minor maintenance are readily available	10%	0%
There are a good number of private maintenance service providers present in the woreda (at least half of the number of the kebeles)	0%	0%	
Environmental	Catchment management plan is in place and at least partially implemented	0%	0%

Rural Sanitation Services

The sanitation service ladder as per the UNICEF/WHO JMP (Figure 4) and key indicators on sanitation service levels (Table 7) were established for the selected woredas. The results of the sustainability checks are based on responses from a total of 2,781 randomly selected households in 150 communities visited during the dry and the wet season (highland: n=2,005, lowland: n=776). In Table 7, the results for the emotional distress indicators, disposal of children’s faeces and handwashing after defecation are based only on results obtained during the dry season (total: n=1,497, highland: n=1,000, lowland n=497) due to revisions made to the survey tools after the first survey round.

The 15 assessed woredas include more than 350 kebeles from which 75 were visited. Most of the visited kebeles (69%) were officially declared as ODF by the respective Woreda Health Offices (highland: 72%, lowland: 64%) and about half of the visited kebeles (53%) were reported to have received support from UNICEF for sanitation and hygiene interventions (highland: 60%, lowland: 40%). The results in Figure 4 are disaggregated by geographical location, official ODF status and UNICEF support. The results show that open defecation is widely practiced in kebeles that have officially been declared as ODF by the Woreda

Health Office. The results also show that there are only slight differences between kebeles that have received UNICEF-support on sanitation and hygiene and those that did not receive support. However, the sustainability check framework does not allow conclusions about the effectiveness of the UNICEF support as it does not compare the results with the baseline situation. Nevertheless, the results show that despite UNICEF’s support open defecation could not be eradicated in a sustainable way (possibly due to slippage back to open defecation) and that the percentage of improved sanitation facilities remained low (11%).

The results on service level indicators in Table 7 show, for instance, that in 79% of the households in the highlands a latrine could be observed which is owned by the selected household, while in the lowlands a latrine could be observed in only 25% of households. The results also show that in the highlands 70% of the households safely dispose their children’s faeces (i.e. disposed in a latrine or in a pit that is not accessible for humans or animals) while in the lowlands only 20% of households safely dispose children’s faeces (this information was only assessed for households that actually have children below age of five, highland: n=454, lowland: n=353). In both the highland and lowland areas, handwashing facilities with water and soap are only in place in few households (3%).

Figure 4: JMP Sanitation Service Ladder

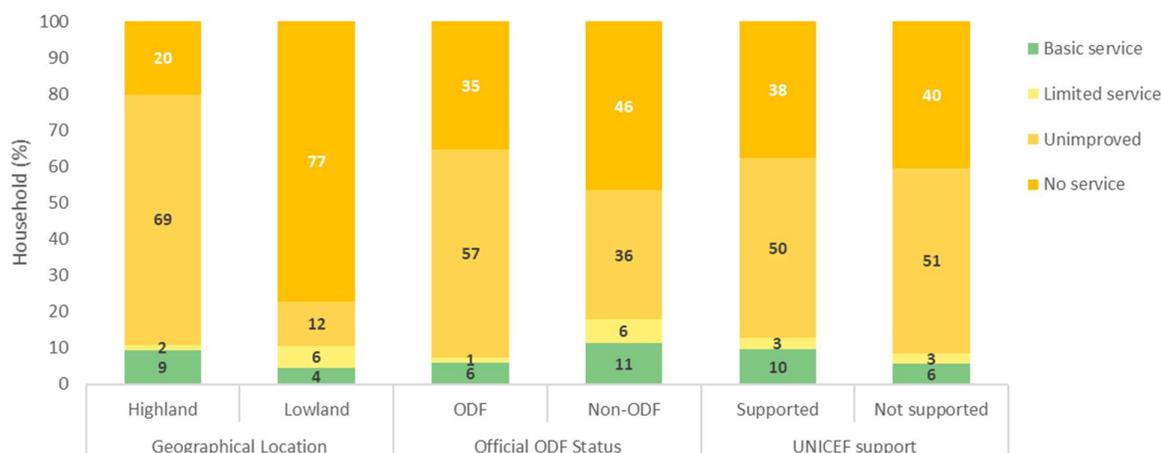


Table 7: Sanitation Service Levels

Indicator	Sub-indicator	Highland	Lowland
Open Defecation Status	% of households of which none of the members practice open defecation	82%	30%
	% of selected communities without traces of human faeces	79%	28%
	% of kebeles reported ODF in selected woredas	71%	28%
	% of kebeles with green or white flag status in selected woredas	46%	0%
	% of households which safely dispose of children's faeces	70%	20%
Quality of Latrine Facilities	% of households with latrines	79%	25%
	% of households with latrines which provide privacy	26%	7%
	% of households with latrines with washable slabs	14%	10%
	% of households with clean latrines	61%	22%
	% of households with latrine with drop-hole cover	12%	3%
Handwashing	% of households with handwashing facilities	14%	3%
	% of households with handwashing facilities with soap and water	4%	2%
	% of respondents reporting that they wash hands after defecation	77%	70%
Emotional Distress	% of HHs expressing no emotional distress related to community sanitation	91%	45%
	% of HHs expressing no emotional distress related to own sanitation situation	95%	59%
	% of women who feel safe from harassment by men when going for defecation	97%	99%

The sanitation service provider scores are presented in Table 9. The scores are mostly based on responses from the household survey. Only results from the dry season are shown as the survey tools were refined after the first phase and because no substantial changes are expected within a few months (total: n=1,497 respondents, highland: n=1,000, lowland n=497). Two indicators were established based on the responses of a key respondent at the Woreda Health Office (number of Health Extension Workers and profitability of latrine artisans).

The results in Table 9 show, for instance, that in 9 out of 10 highland woredas (90%) more than half of the respondents mentioned that a community action plan for water and sanitation is in place and implemented, while only in 1 out of 5 lowland woredas (20%) more than half of the respondents stated that there is an implemented community action plan in place. The micro-scenarios used for the QIS scoring system (see Table 8) show that in one lowland woreda less than half of the households indicated to have an implemented community action plan and that in five highland woredas more than 90% of the respondents indicated to have an implemented community action plan which has led to ODF status.

Table 8: Community Action Plan

Micro-Scenario (see Box 1)	Highland	Lowland
Score 0: Less than half of households indicate to have a community action plan.	0%	20%
Score 25: Less than half of HHs indicate to have an <u>implemented</u> action plan.	10%	60%
Score 50/Benchmark: At least half of households indicate to have an implemented community action plan.	10%	20%
Score 75: At least half of the HHs indicate to have an implemented community action plan which has led to ODF.	30%	0%
Score 100: At least 90% of all HHs indicate to have an implemented community action plan which has led to ODF.	50%	0%

The scoring of the sanitation service authority level presented in Table 10 is exclusively based on self-reported responses of a key respondent at the Woreda Health Office. In most woredas data was collected in the dry and the wet season. As substantial changes are unlikely to happen at the service authority level within a couple of months, it was assumed that the score should be the same in both seasons. In case different scores were achieved (e.g. because different respondents answered differently to the same question), the lower score was used for the analysis because inconsistent knowledge about certain topics is expected to undermine sustainability.

The results in Table 10 show, for instance, that most Woreda Health Offices (all in the highlands and 4 out of 5 in the lowlands) monitor the ODF status of all rural kebeles at least once a year despite limited availability of operational budget (less than 1 USD/inhabitant/year) and limited access to transport (less than two functional motorbikes available for monitoring and follow-up activities in rural areas). However, the ODF status assessments by the Woreda Health Offices seem

inadequate when compared to the results of these sustainability checks where more than a third of the households were found to practice open defecation in kebeles officially declared as ODF (refer to Figure 4). This indicates that Woreda Health Offices either conduct their assessments less frequently than reported (and that the ODF status has changed in the meantime), that a different methodology is applied or that the assessments are not conducted systematically and thoroughly.

Table 9: Sanitation Service Provider Scores

Sustainability Factor	Indicator/Benchmark for Woredas	Highland	Lowland
Institutional	At least two Health Extension Workers continuously promote sanitation and hygiene per kebele (woreda average)	50%	40%
	Latrine artisans that serve the community in constructing and repairing latrines are present in at least half of the kebeles in the woreda	30%	0%
	At least half of the households indicate to have an implemented community action plan to improve the sanitation situation	90%	20%
Financial	Latrine artisans exist in the woreda that run on operational cost recovery basis.	30%	0%
Technical	At least half of the households have been exposed to sanitation and hygiene messages over the last year	100%	80%
	At least half of the households have a latrine with a roof, walls, a suitable hole and that is not expected to collapse within the next year	30%	0%
Social	All households report that the construction of an improved latrine is affordable (of which at least half without external subsidy/support)	0%	0%
Environmental	All household latrines are outside a 10-meter radius of any water source	60%	100%
	All latrines safely contain excreta or all households have sufficient space to build a new latrine when needed	10%	60%

Table 10: Sanitation Service Authority Scores

Sustainability Factor	Indicator/Benchmark for Woredas	Highland	Lowland
Institutional	Woreda Health Office reports to have sufficient dedicated staff to facilitate sanitation and hygiene promotion	40%	20%
	Woreda annual sanitation plan is in place and sanitation and hygiene is included in strategic woreda WASH plan	70%	80%
	Coordination structure for rural sanitation is in place at woreda level (e.g. Woreda WASH Team) and meeting on at least quarterly basis	40%	60%
Financial	Operational budget related to sanitation and hygiene promotion is at least 30 Ethiopian Birr/ person/year (1 USD/person/year)	0%	0%
	At least two functional motorbikes are available at the Woreda Health Office to monitor and follow-up on rural sanitation and hygiene	20%	0%
	Latrine artisans are reported to have access to finance at reasonable conditions	10%	0%
Technical	Woreda Health Office reports to monitor Open Defecation Free status of all rural kebeles at least once a year	100%	80%
	Woreda Health Office provides technical support related to WASH to all sanitation service providers and Health Extension Workers on request within at least a week.	70%	60%
	Construction quality is checked for all public sanitation facilities	50%	40%
Social	Woreda Health Office reports that comprehensive social inclusion actions are undertaken in the woreda to reach the poorest	10%	0%

Discussion

Geographical Variations

The results of the sustainability checks show significant geographical variations of the provided WASH services. For instance, the use of surface water as main drinking water source varies from 0% to 93% in the assessed woredas and open defecation varies from 0% to 96%. In some woredas more than 90% of the interviewed households report to mainly use an improved water source while in one woreda (Kori/Afar) not a single improved water scheme is in place. Generally, lower WASH service levels are found in the lowlands (Afar and Somali Region) compared to the highlands.

Indicators at the service provider and service authority level also generally show lower performance in the lowlands. For instance, in the lowlands it is less likely that WASHCOs are formally registered, have access to spare parts and undertake preventive maintenance on water schemes. Woreda Water Offices in the lowlands are less likely to perform construction quality checks on water schemes and to regulate tariff setting. Also, households in Somali and Afar regions are less likely to be aware of a community action plan to end open defecation or to have been approached with sanitation and hygiene messages through a Health Extension Worker.

Seasonal Variations

Seasonality is expected to mainly impact drinking water quality and water availability. As part of the sustainability checks one survey was conducted during the wet season and a second one during the dry season. The results confirm that water quality deteriorates during the wet season when only 34% of the functional improved water schemes provided water free from microbial contamination. In the dry season 70% of the functional water schemes were found to provide safe water. Overall, only a few schemes (20%) consistently supplied safe water during both the dry and the wet season.

Water users reported higher reliability of the water schemes during the dry season (i.e. higher likelihood that water is available when going to the water point), however users also reported longer queuing times during the dry season. The improved reliability can perhaps be explained by the higher demand during the dry season (and therefore higher public pressure to provide water) or the challenges of operating schemes during the wet season. It has to be noted that the survey in the dry season was not conducted during a time of drought and the shallow wells provided a reliable water source. The longer queuing times during the dry season are in line with expectations as less water is available from alternative water sources such as rain water harvesting.

No clear seasonal variations for sanitation service levels could be identified. While the results show some differences between the wet and dry season, these differences cannot clearly be attributed to seasonal variations because they could also be the result of trends over time (for instance slippage back to open defecation) or adjustments made to the survey tools between the two phases. Seasonal variations at service provider and service authority level are not expected and have not been assessed.

Multi-Village Water Schemes

The performance of 19 MVWS has been assessed as part of the sustainability checks and compared with other water scheme types. A majority of the MVWS (74%) and all other schemes (73%) were found to be functional during the wet and the dry seasons. While this functionality rate is in line with expectations for rural water schemes, the performance is currently below UNICEF's target of 90% functionality. For all types of water schemes challenges were identified with reliability, quality and quantity of provided water services. In many aspects, it was found that rural WASH service levels in the selected woredas do often not meet national and international standards. Overall, MVWS assessed currently provide similar level of service compared to other scheme types despite a

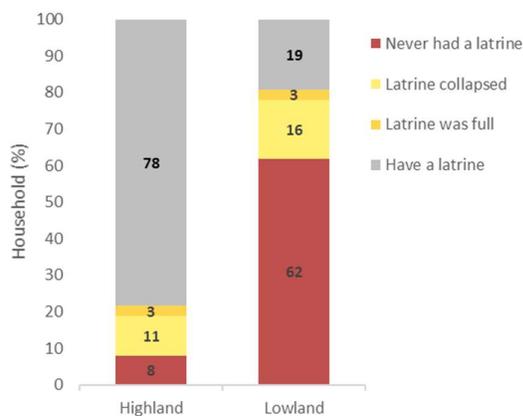
generally higher tariff that needs to be paid by the end users.

When assessed against service provider indicator benchmarks related to community-managed point sources and small schemes, MVWS scored considerably better than shallow wells and other schemes. However, when assessed against indicator benchmarks related to rural utility-managed piped schemes, the MVWS scored considerably lower. This was to be expected as the MVWS are not (yet) operated by rural utilities. Utilities are in the process of being introduced in all MVWS, however it is recognised that this significant adjustment in management approach is a long-term investment and will require intense capacity building and support before they are fully operational.

Open Defecation

The results of the sustainability checks show that open defecation is still widely practiced, in particular in the lowland areas. While in the highlands almost all households (92%) report to currently have a latrine or to have had a latrine in the past, almost two thirds of the households in the lowlands (62%) report never having had a latrine. Everywhere slippage back to open defecation after a latrine was full or collapsed is common as shown in Figure 5.

Figure 5: Latrines in the Past



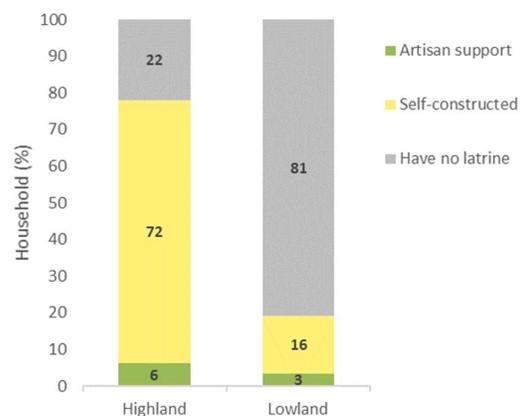
In Somali and Afar regions many households reported not to be aware of a community action plan to end open defecation, and only slightly more than half of the households report to have been provided sanitation and hygiene information by a Health Extension Worker.

In many woredas, the ODF status assessments by the Woreda Health Offices seem inadequate when compared to the results of these sustainability checks because more than a third of the households were found to practice open defecation in kebeles officially declared as ODF.

Quality of Latrines

In both highland and lowland areas many latrines were of unsatisfactory quality (note: in all woredas only dry pit latrines were observed): only few rural households have latrines with a washable slab (highland: 14%, lowland, 10%), latrines that offer privacy (highland: 26%, lowland: 7%) or have a drophole cover (highland: 12%, lowland, 3%). Handwashing facilities with water and soap present were only observed in very few households throughout the assessed woredas (3%).

Figure 6: Latrine Construction



Only three woredas were found to have latrine artisans present in at least half of the assessed kebeles. This indicates that in most locations there is no private sector serving the community in constructing and repairing latrines. The existing artisans were reported to be hardly profitable and

to have limited access to finance at reasonable conditions. Overall, in rural Ethiopia the construction of latrines is predominantly done by the households themselves (Figure 6) without any professional support from sanitation artisans.

Conclusion

UNICEF Country Programme

To strengthen UNICEF's WASH interventions in Ethiopia it is recommended to put more emphasis on the following aspects:

- Eliminating regional inequalities in WASH service levels provided to rural communities. In the highlands it is recommended to focus on improving reliability, accessibility and water quality of water schemes and to invest in improving the quality of latrines and combat slippage back to open defecation. In the lowland areas, it is recommended to focus on providing any improved WASH services at all as a first step.
- Strengthening water scheme management as well as service authority performance. Investing in the professionalization of service providers is recommended, particularly for MVWS. In the highlands, it is recommended to focus on improving services provided by existing schemes and to expand these schemes to reach a higher number of users. These activities should be accompanied with a strong action research component to continuously learn, innovate and adapt management systems and capacity building modules. In the lowlands, it is recommended to develop additional infrastructure, however with sufficient budget for close construction supervision, capacity building and post-construction follow-up over several years. More emphasis on gender balanced WASHCOs and water boards is recommended.
- Improving the water quality provided to rural communities. It is recommended to explore a wider promotion of water safety planning. As intermittent supply is a main risk factor to water quality, the effective implementation of a water safety plan is expected to not only improve water quality but also the reliability and overall management of a water scheme.
- Eradicating open defecation. It is recommended to continue supporting Community-Led Total Sanitation interventions, especially in the lowland areas. Focus is needed on institutionalizing the triggering activities performed by Health Extension Workers and on implementing post-triggering monitoring (e.g. sustainability checks) to learn about the effectiveness of the applied approaches and be better prepared to address slippage back to open defecation. ODF verification systems need strengthening to more accurately reflect the actual situation.
- Improving the quality of dry pit dry latrines. Professionalizing the construction of latrines through sanitation marketing approaches is a recommended option. However, innovations are needed to overcome the affordability challenges faced by many rural households in order to increase demand and to accelerate change.

Further, it is recommended to make use of the comprehensive dataset collected as part of the sustainability checks described in this Technical Paper. The data allows deep-dives into topics of interest. A continuation of the sustainability checks is recommended, however possibly based on a new sample and a revised number of indicators. This is expected to help gain a better understanding about seasonal variations and changes over time. Importantly, the results of the sustainability checks should also be used for

triggering action in the woredas included in this assessment. Local dissemination of key results is recommended combined with developing concrete action plans to improve the performance and sustainability of WASH services in Ethiopia.

Sustainability Check Framework

The data collected as part of these sustainability checks provides a comprehensive overview of the current WASH situation in the selected woredas and adds valuable information for strengthening UNICEF's rural WASH programme. It is recommended to continue the sustainability checks in Ethiopia and to incorporate WASH sustainability checks into UNICEF programmes in other countries.

To further strengthen WASH sustainability checks implemented by UNICEF and others the following points are recommended:

- Further develop the sustainability check tool with a more specific focus on either woreda-level evaluation of current stage of WASH sustainability (as done in this assessment) or on project-level checks after e.g. 2, 5 and 10 years after project completion (specifically on e.g. water schemes, communities and institutions that received UNICEF support).
- Strengthen the sampling approach: a more specific focus will impact the initial selection of WASH infrastructure and services before performing the sustainability checks, i.e. for a woreda-level sustainability evaluation the representativeness of results at woreda-level would need to be ensured, while for a project-level check the focus needs to be on recently completed interventions.
- Include baseline assessment to establish clear sampling frames prior to data collection. For project-level evaluations a comprehensive overview of UNICEF supported interventions needs to be established and for woreda-level evaluations a comprehensive overview of water schemes and kebeles (incl. their ODF status) needs to be prepared. As a next stage, governments and partners should discuss having national level sustainability checks, and find approaches that are not too costly and offer value-for-money.
- Strengthen methodology to assess service authority scores. While working at the same woreda office, different key respondents might provide different answers to the same question. To establish a solid baseline, the first round of sustainability checks could be done through a workshop where several woreda representatives jointly assess their current sustainability performance.
- Further develop and standardize the indicator framework (especially for service provider and service authority indicators). Review the current indicators to check the value of the obtained results for decision making and evaluate the difficulty to obtain high-quality information in the field (e.g. risk of bias, ease to understand questions, availability of requested data).
- Explore different data sources for the same indicator. Self-reported results are prone to bias, and therefore it is recommended to further explore sub-indicators with information from different data sources: e.g. reliability of a water scheme can be observed by the field team, be reported by WASHCOs and be reported by users, or the effectiveness of Health Extension Workers can be documented based on inputs from the woreda office, and based on direct interactions reported by households.

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