Menstrual Hygiene and Health Development Impact Bond in Ethiopia

Assessment of School Water supply, Sanitary Infrastructures, Waste Management System and Menstrual Health & Hygiene (MHH) Situation

Adama City Administration and rural kebeles in Adama woreda of Oromia Regional State.

October 2021

Table of Contents

1. *Summary of Major Findings*

According to the data obtained from Adama City and Adama Woreda Education Offices, there are a total of 244 private and public schools (35 secondary, 209 primary). Of the total 244 schools, a survey was conducted on the 90 schools selected as intervention schools of the MHH-DIB Project. The 90 schools include all public and 20 private schools from Adama city and 31 public schools from Adama rural kebeles. One school from Adama city was dropped as AMREF, an African based health development international non-government organization, is currently working in that school.

Based on the 2013 Ethiopian Calendar (2020/2021 G.C.) schools' registration data, the 90 schools have a total 99,500 (52,928 girls, 46,602 boys) students.

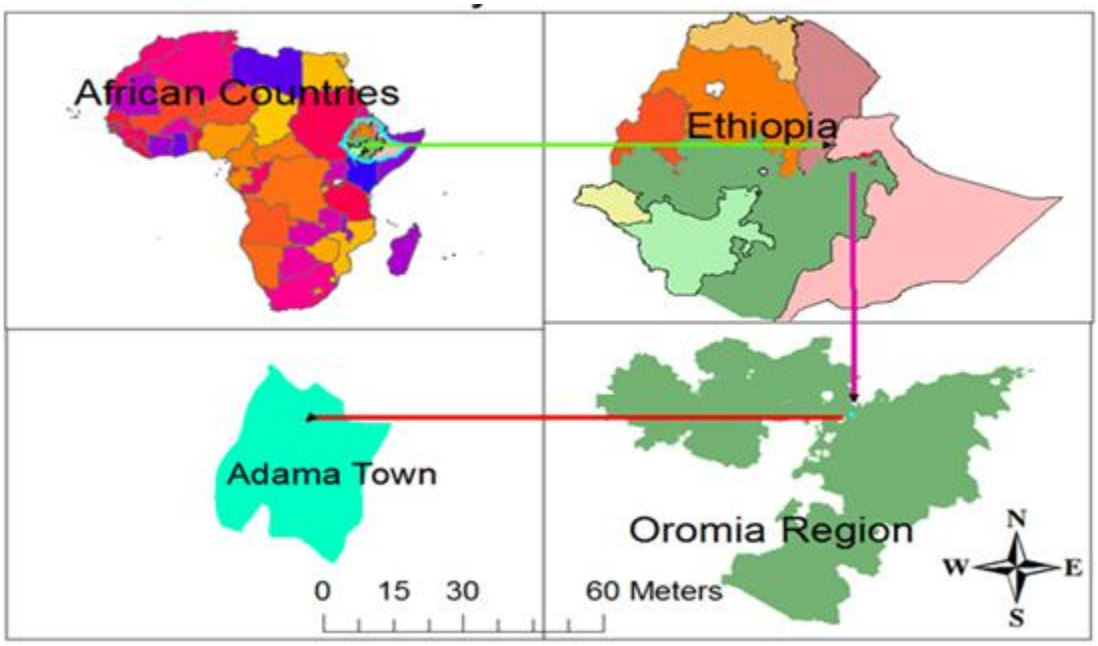

Figure 1. Map of Adama city/town Administration, East Shewa Zone, Oromia region, Ethiopia.

Adama City Administration is Further classified in 6 Sub cities.

1. *Bole Sub City*
2. *Abageda Sub City*
3. *Lugo Sub City*
4. *Dembela Sub City*
5. *Bolo Sub City*
6. *Dabba Sub City*

Access to Water

- 12 (13.3 %) of schools do not have water in their compound or in nearby Kebeles. More on this on table 4.
- Of the 78 schools that have water, 68 (87%) of school's water supply is piped water connected to system and supplied by gravity. These schools' water quality is in compliance with the national water standards and is considered safe to drink.

Access to latrine

- 18 (20%) schools do not have any latrines. However, of those schools who have latrine 72 (80%), almost all school latrines do not meet the national school wash standards although they are at different levels in terms of their quality. For example, the walls and roofs are sometimes constructed from CIS (corrugated iron sheet), they do not have doors, they have concrete or wooden slabs and are missing some basic features.
- Out of the 72 schools with latrine, 60 (84.8%) school's latrines do not fulfil the student/cubicle ratio of 25 or less girls/cubicle. Further investigation will be needed to look at whether the latrine seats are improved or not improved.
- Of the 72 school's latrines, 51 have their latrine in the school and within less than 30m distance. Of these 51 schools, 43 school latrine pathway is smooth, and from the 43, only 10 schools latrines are accessible by wheelchair and generally persons with different impairments.

Hand-washing facilities

- 38 (42.2%) schools do not have hand-washing facilities
- From existing hand-washing facilities, 44 (91.1%) of school's hand-washing facilities are not accessible to students with disabilities.

Liquid waste management

- 58 (64.4%) schools use private companies that use vacuum trucks for pit emptying while the rest of the schools' use/wait for government trucks. Schools in rural areas dig a new one when existing latrine gets full.

MHH rooms

- 81 (90%) schools do not have MHH rooms. The 9 (10%) school's MHH rooms are equipped with few materials such as sanitary pads, soap, water, and curtains.

Hygiene Promotion

- 36 (40%) schools do not have regular hygiene promotion activities.

2. Introduction

Although a universal aspect of women's lives, one that affects most women and girls monthly for most of their lives, menstruation as a phenomenon is shrouded with shame, taboos, ignorance and secrecy. For Ethiopian women and girls, it means having to manage practically, dealing with discomfort and pain, as well as facing cultural – particularly religious – restrictions. Social norms link family honor with virginity and, still in many communities, marriage with puberty[1]. At the same time both urban and rural poverty translate into problems of affordability of products and lack of access to water and improved latrines as well as weak waste management systems.

The Menstrual Health and Hygiene Development Impact Bond is a three-year program which focuses on Adama city and surrounding peri-urban kebeles of Oromia Region. CARE Ethiopia is implementing this program in partnership with Pro Pride.

The program is aiming for three outcomes:

- **Outcome 1: Sensitization to healthy MHH practices and advocacy:** Improving MHH knowledge, creating demand for sanitary products and advocating for support to women and girls from institutions and communities
- **Outcome 2: Production and distribution of sustainable sanitary products**: Strengthened and sustainable local market in the supply chain of a variety of types of disposable and single and multiple use/ecological sanitary products meeting different needs. The supply chain includes looking at importers/manufacturers/distributors, wholesalers and retailers.
- **Outcome 3: Improved sanitary infrastructures and waste management systems:** Better menstrual hygiene through supporting access and utilization of sustainable sanitary infrastructures in institutions and households.

The overarching objective of the program component (improving school sanitary infrastructures, waste management systems, and menstrual health and hygiene) is to ensure that girls and boys are healthy and have access to clean and safe water, proper sanitation facilities, menstrual health and hygiene services and a conducive learning environment that would ensure their maximum performance in schools. Thus, the availability and proper use of sanitary facilities, in particular the management of human feces, solid and liquid waste and menstrual health can help prevent disease. Children who avoid environmental sanitation problems such as soil transmitted parasites; diarrhea and WASH related diseases have an increased chance of being well nourished

[1] National School Water, Sanitation and Hygiene (SWASH) Implementation Guideline, Ministry of Education, 2017.

and healthy. Levels of school absenteeism would decrease, mainly among adolescent girls) and students learning potential can be maximized.

This report is based on a pre-intervention assessment that focuses on Outcome 3: Improve school sanitary infrastructures, waste management systems, and menstrual health and hygiene through supporting access and utilization of sustainable sanitary infrastructures, waste management systems and MHH services in schools. Under this outcome, the program will support on promotion of sustainable safe water supply, sanitation facilities, waste management, sanitation behaviors and menstrual health and hygiene.

3. Objective

The overall objective of the assessment was to identify critical gaps in the current school sanitary/WASH situation and waste management systems and MHH to help steer implementation.

The assessment looked at and analyzed the existence and situation of:

- Sanitary infrastructures including water supply, sanitation facility, and hand washing facility
- Waste management (solid and liquid) systems
- Menstrual health and hygiene management services

Specifically, it assessed, analyzed and identified critical gaps in each of the schools for the DIB intervention. In doing this, the minimum School WASH standards stated in the National School Water, Sanitation and Hygiene Implementation Guideline (FMoE, 2017), and core indicators put for monitoring WASH in schools in the Sustainable Development Goals (WHO/UNICEF JMP, 2018) were used as a reference.

4. Materials and Methods

a. Description of study area

The assessment was conducted in public and private schools located in Adama city and surrounding peri-urban kebeles. Adama is a city administration in Oromia Region, Ethiopia which is surrounded by East Shewa Zone. It is located, 99 km southeast of Ethiopian capital, Addis Ababa. The city sits between the base of an escarpment to the west, and the Great Rift Valley to the east. According to the 2019 Population census projection (2.7% annual growth

rate from 2017) report, the city has nearly 380,000 populations. It is administratively divided into 6 sub-cities and 14 kebeles.

Adama is a busy transportation center. The city is situated along the road that connects Addis Ababa with Dire Dawa. A large number of trucks use this same route to travel to and from the seaports of Djibouti, through which 95% of the country's trade passes.

b. Data collection and analysis

This assessment mainly relied on quantitative methods and employed data collection tools such as key informant interview, focus group discussion, observation, and review of secondary data. Data was collected from September 21 to 28 in Adama City and surrounding peri-urban kebeles focusing on 90 schools by a team of 11 experts from CARE Ethiopia, Adama City Education Office, Water and Sewerage Authority and East Shewa Zone Education Office. Data collectors were selected based on their engineering background and experience on WASH. School directors and supervisors from each surveyed school provided the required information to the team.

A one-day training was provided to all data collectors on the data collection tool. In addition, training on data entry skills on SPSS Software was given to the team. Following the data collection, all experts entered the data into SPSS which was analyzed by an expert from CARE.

c. Limitations

At the time of the survey, the 2014 (the year 2021/22) student registration was completed by most schools. Hence, the assessment took the 30th July 2021 (year-end) student's roster number for its student population. Though significant change is not expected, the student number will be updated during the next and detailed assessment of sanitary infrastructures.

There was inconsistency of data between the schools and the education offices. For example, the school's name and number of students by the education offices and the schools wasn't always the same. When this happened, we took the data from the school as education offices are extracting data from reports sent from the schools; and took names from school's sign boards to ensure accuracy of school names.

5. Findings

a) General-school information

Based on data extracted from July 2021 school's student roster, there are 99,530 (52,928 girls and 46,602 boys) students in the 90 schools covered by the survey. In percentage 53% are girls while 47% are boys.

Of the 90 schools, 71 schools are primary schools, categorized differently as grade 1-4, 1-6, or 1-8. The remaining 29 schools are Secondary schools from Grade 9-10 or 9-12. Due to space limitation and the COVID 19 protocol, 60 out of 90 schools use two shifts – half of the students attend class in the morning session and the rest half in the afternoon session. The 60 schools accommodate a total of 83,124 students (44,772 girls and 38,352 boys) while the 30 schools accommodate 16,406 (8,156 girls and 8,250 boys). The sanitary infrastructure planning in these schools will be based on the number of full-time students (57,705) plus the number of one shift students (41,674) from the two-shift based schools. In addition, the 90 schools have a total of 3,466 staff members including teachers and administrative staff.

Table 1. Public and Private schools in Adama City and Rural Kebles

Schools	Adama city				Adama Rural				Total
	Public		Private		Public		Private		
	Public total	Selected for intervention	Private total	Selected for intervention	Public total	Selected for intervention	Private total	Selected for intervention	
Primary schools	30	29	97	15	72	26	10	-	209
Secondary schools	10	10	20	5	5	5	-	-	35
Total schools	40		117		77		10	-	244
Total Schools selected for intervention		39		20		31			90

Minimum School WASH Program Package and Standards: According to the National School WASH Guideline, WASH in schools refers to a combination of technical (hardware) and human development (software) components that are necessary to produce a healthy school environment and develop appropriate health and hygiene behaviors. The hardware components include inclusive drinking water, hand washing, latrine, urinals and menstrual hygiene facilities as well as proper waste management in and around the school compound. The software component includes creating an enabling environment and hygiene promotion. Minimum standard for school WASH program includes but is not limited to safe water supply, sanitation facilities, good hygiene practices, menstrual hygiene management and solid and liquid waste management.

In an effort to contribute to the planning of pillar 3 activities of the MHH-DIB project, this assessment focused on identifying the critical gaps in the current schools WASH situation of 90 schools and findings are reported in the following sections. In addition, during the assessment data on the number of students (segregated by sex) and staff who are using these facilities was collected.

b) Component 1: Water supply

Water is essential for both drinking and sanitary use in the schools. According to the national standard, the water supply facility should be in the school compound or not more than 100 mts away from the compound with smooth and clear path.

Under this section, the report presents water availability, its source, whether it meets the standard for potable water, storage mechanisms, functionality and sufficiency. In addition, it reports on the existence or otherwise of hand-washing facilities in the school (including functionality) and whether or not the available water is connected to the faucets and sufficient for both drinking and hand-washing purposes.

1. Water Availability

The availability of water in the school compound is the major determinant for safe and secure Sanitation. The assessment found that most schools have a water supply system in the school compound. As indicated in the table 2 below, of the 90 schools surveyed, 12 (13.3%) do not have water supply in their compound or nearby kebeles. Of those that have access to water supply, 57 of 59 schools are from Adama city and 21 of 31 schools are from Adam rural areas.

Table 2. Water Availability in the school

Water system availability in the school	schools	Adama		In Percent
		Cities	Rural	
Available	78	57	21	86.7
Not Available	12	2	10	13.3
Total	90	59	31	100

2. Water Source and Quality (Compliance with national water quality standard)

Out of the 78 schools with access to water, 10 (13%) do not meet the standard and cannot be considered safe for drinking. These are accessed either from ponds, temporary storage tanks and rivers located outside the school compound. The rest 68 (87%) school's water is considered safe for drinking or comply with national water quality standard as they are getting water from the Municipality water line. These schools have water in their compound, pipe connected from the mainline which is powered by gravity. According to the discussion we have with the Municipality water and sewerage authority, the authority has a water quality monitoring and treatment system in place.

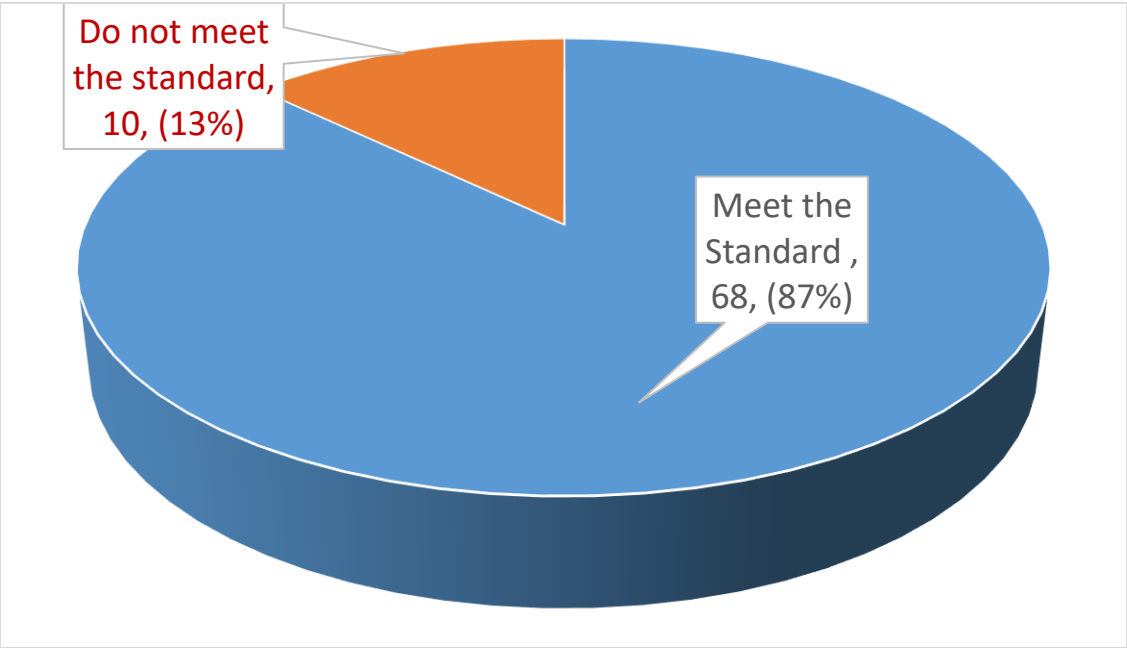

Figure 2. Schools Water sources and quality

Figure 3. Unprotected and not safe water sources in Makuyyee Adama rural schools.

3. Water storage/Reservoir availability, type and situation

Adama city administration has well managed and controlled reservoirs in secured and elevated locations. The reservoirs are designed and monitored to store quality water which is distributed to the public and schools. Each household and schools is recommended to use water direct from the pipeline rather than storing water. However, in places where water shortage is common, having reservoirs for storage are recommended.

The availability of existing Storage reservoirs is shown in the figure (4) below. There are a total of 63 reservoirs in the 90 schools included in the survey. The rest, 27 schools, do not have reservoirs at all. Of the reservoirs available, 57 are in good condition whereas the rest 6 reservoirs require either small or heavy maintenance. The reservoirs are made from different materials - 21 are made of fiber grass, 1 from concrete, 38 Roto plastic, and 3 from steel. It's noted that schools with reservoir are less affected by water rationing or in times of maintenance.

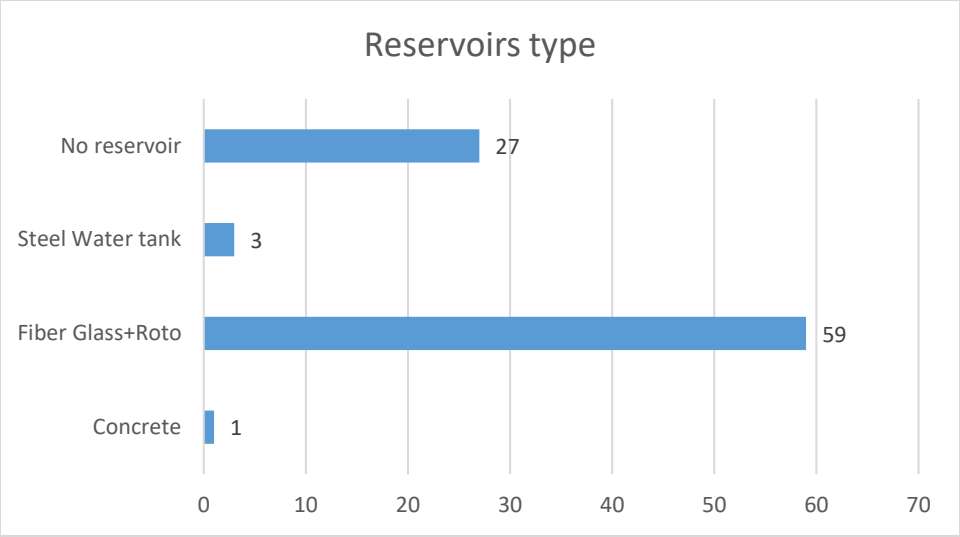

Figure 4. School's Reservoir type

Figure 5. Elevated steel water reservoir in Gaara School.

4. Water sufficiency against the number of students

Water is the basic need in schools for both drinking and sanitary purposes. According to the
Water is the basic need in schools for both drinking and sanitary purposes. According to the National standard, each student requires 5L water per day to meet drinking, sanitary and hygiene needs. In this assessment, all schools that get water from the municipality line are considered to have sufficient water although water management practices differ from school to school. Some schools use water for vegetation, washing and other purposes in addition to fulfilling drinking, sanitary and hygiene needs. Some schools also use reservoirs to store and supply water when it is not available in the mainline. Accordingly, a total of 68(87 %) schools are considered to have sufficient water in their compound.

In conclusion, of the 90 schools

- 33 schools require additional pipeline installation, replacement, and system maintenance to meet water sufficiency standard.
- Water in 10 schools is not potable and requires water treatment mechanisms such as chlorination or water filtering system.
- 12 schools that do not totally have water require new developments if water source is available.

It is to be noted that, Adama being in the rift valley area, the ground water is known to be saline and with high fluoride content. Because of this, extraction of ground water for drinking purpose is not advisable. However, when it is mandatory to construct hand-dug wells for schools that do not have other option to access water; and if the extracted water is found to have high saline content (more than the permissible standard), the water should not be used for drinking purpose. It can, however, be used for cleaning and washing purpose.

5. Water line connectivity with Handwashing, Drinking water fountain and latrine

- 62 (68.9%) schools do not have a water line connected to hand-washing station and latrines.
- 41 (45.5%) do not have connected drinking water fountains. However, all schools with water from the municipality line, use the water in the school compound (including hand-washing faucets) for drinking purposes.

Table 3. Water line connected to Latrine and Hand washing

Water line connectivity	Schools	In Percent
Water line Connected to hand washing	28	31.1
Not connected /no water at hand washing station	62	68.9
Water line connected to drinking water fountain	49	54.5
Water line not connected to drinking water fountain	41	45.5
Total		100

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6. Drinking water faucets and Handwashing taps/stations (use points) sufficiency

One of the elements of a school friendly WASH facility included in the National school WASH implementation guideline is availability of handwashing basins/stations next to latrines and school feeding centers. The student/faucet ratio as per the guideline is 1 faucet for 100 students. Faucet number is calculated based on total student numbers if there is no shift system in the school. If student's school attendance is based on shift, the school WASH guideline recommends taking the shift with the greater number of students as the figure to be used.

The Table 4 below shows the number of schools with and without sufficient faucets in their compound. The survey found 60 (66.7%) schools to not have any or have insufficient faucets in their compound.

Table 4. Faucets for drinking

Faucets for drinking	schools	In Percent
Sufficient	30	33.3
Not sufficient	60	66.7
Total	90	100

c) Component 2 : Sanitation/Latrine facility

1. Sanitary/latrine availability

According to the national standard, schools should have sufficient, accessible, secure, clean, gender specific, private and culturally appropriate latrines that are also accessible by persons with disability. All sanitation facilities should hygienically separate excreta from human contact as well as maintain the safe transport, treatment and disposal of excreta.

- School latrines should be within the school compound and not more than 30m from the classrooms.
- The path to the latrine should be smooth and easy to use also by persons with disability.
- The girl's and boy's blocks should face opposite directions with 20m distance between the blocks and accessible to all ages, including students and staff with disabilities.
- In order to minimize the waiting time, the general recommended ratio of latrine/cubicles is as follows:
  - One stand/cubicle per 50 girls and one toilet for female staffs in rural schools
  - One stand and one urinal per 75 boys and one toilet for male staff in rural schools
  - In the case of regional capital cities and city administration towns, the number of seats to student ratio should be one stand for 25 girls and one toilet for female staff and one stand plus one urinal for every 50 boys and one toilet for male staff

Of the 90 schools surveyed, 18(20%) schools do not have latrine at all. However, the rest of almost all school latrines do not meet the National school wash standards although they are at different levels of quality. Some Adama rural school latrine blocks look like those in figure 6 and 7 at Qachama and Makuyyee schools respectively. However very few school latrine blocks meet the national standards indicated in figure 8 below.

Availability of latrine blocks survey checked the availability or not availability of latrine blocks in the school compound but did not make detail investigation on the quality of latrines which will be covered during the next assessment.

Table 5. Availability of Toilet/Latrine in the school

Availability of Toilets	No. of schools	Percentage	Number of seats/cubicles		
			Girls	Boys	Combined
Available	72	80	511	526	149
Not available	18	20			
Total	90	100			

2. Latrine technology type

The 72 schools that have latrines used different technology types. These were:

- 57 (63.3%) pit latrine with slab/cover. These were constructed from different mode of slab such as reinforced concrete, wooden materials and other local trees. Some of the slab's concrete are broken and cements are demolished. Hence, they require from minor to heavy maintenance.
- 11 pour-flush to open drain,
- 4 pour-flush to tank.

Table 6. Latrine technology type

Existing Latrine Technology type	**Schools' latrine type**	**In Percent**
Flush/Pour-flush to tank or pit	4	4.4
Flush/Pour-flush to open drain	11	12.2
Pit latrine with slab/covered	57	63.3
Pit latrine without slab/open/equivalent to no latrine schools.	7	7.8
No latrine schools	11	12.2
Total	90	100.0

Figure 6. Qachama School Latrine blocks slabs constructed from wood and mud and as no latrine

Figure 7. Makuyyee School Latrine blocks slabs constructed from CIS (corrugated iron sheet and wooden materials

Figure 8. AbaGeda school latrine in good construction status.

3. Location of girls and boy's latrine blocks

As mentioned above, the national guideline recommends **school latrines to be within the compound, not more than 30m from the classroom, and t**he girl's and boy's blocks to face opposite directions with 20m distance between the blocks. Accordingly, the survey finding shows that, from the 72 school with latrine,

- 51 school's latrines are in the school compound within 30 m from the classroom.
- 21 school's latrines are in the school compound, but their distance is more than 30m from the classroom
- From the 51 schools, 47 school's latrine blocks face opposite directions and the distance between boys' and girls' latrine is 20m and more,
- 32 school latrines do not meet either distance or orientation standards.

4. Compliance to latrine/cubicle per student number ratio for girls

- Of the 59 schools in Adama city, 54 schools do not meet the 25 girls/cubicle standard.
- Of the 31 schools in Adama rural areas, 15 schools do not meet the 50 girls/cubicle standard.
- There are no girl's only urinals all over the 90 schools.

5. Compliance to latrine/cubicle per student ratio for boys

- Of the 59 schools in Adama city, 39 schools do not meet the 50 boys/cubicle standard
- Of the 31 schools in Adama Rural areas, 25 schools do not meet the 75 boys/cubicle standard.
- There are only 3 urinals for boys in the whole of the 90 schools.

6. Cleanliness of Latrine blocks

As schools were closed during the survey, the team interviewed school directors to understand the cleaning system of latrines in the schools. This showed that 27 schools blocks are cleaned once a day, 22 school 2-4 times per week, 29 schools once per week and 1 school block is cleaned less than once per week. Almost all latrines have a bad smell except the few latrines in private schools and latrines dedicated for teachers' use only.

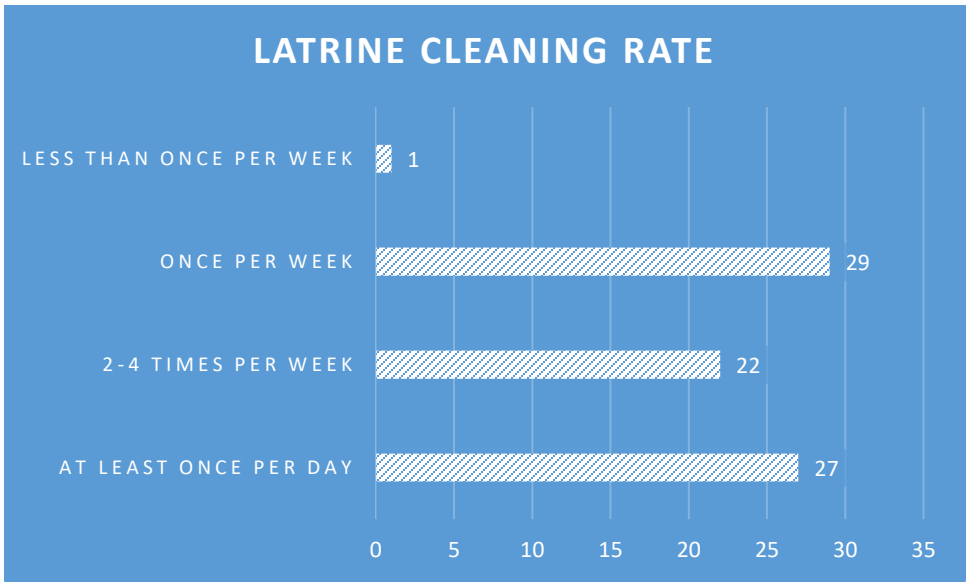

Figure 8. Latrine cleaning system rate.

7. Accessibility of Latrine blocks and seats

According to the national guideline, the path to the latrine should be smooth and easy to use including by persons with disability.

The survey found out that, from 72 existing schools with latrines:

- 51 school's latrines are in the school compound within 30 m from the classroom.
- From these 51 schools, 43 school's latrine pathways are smooth and easy to use.
- 8 school's latrine pathways are not smooth and not easy to use.

The survey also looked at whether the latrine blocks are inclusive (address the needs of persons with disability). To do this, the team checked if at least one cubicle is constructed to accommodate the needs of persons with disability – i.e., whether it had a raised seat, enough space for wheelchair users, wide doors, appropriate ramp and handrail. Accordingly, from the 43 schools with latrine that had smooth pathways

- 33 school's latrines are not accessible for wheelchair users and persons with different impairments.

Figure 9. Qobbo Luxo School latrine block servers both boys and girls

In conclusion, the activities of the project should focus to construct latrine in the public schools that do not totally have latrines. And if the school has only one block of latrine which is commonly used by boys and girls, the project will need to construct additional latrine to fulfil the single sex standard for latrines. But all other existing latrines need to be rehabilitated and efforts need to be made to make them meet the national standards. However, it is to be noted that fulfilling some standards, even for new constructions, such as maintaining a minimum distance of 30m from classrooms or 20m between boys' and girls' latrines will be determined based on availability of space in the school compound. In as much as possible, the project needs to do its best to make newly constructed latrines accessible – both in pathways and availing one single inclusive cubicle per block. If this is found out to be challenging, efforts need to be made to put few model latrines to help the promotion activities.

d) Component 3: Hand–washing facility

The hands of school children often come into contact with a lot of dirty substances during the school day, particularly after using school latrines. Proper handwashing is essential to stop fecal-oral contamination and spread of diseases and improve student's health. The national school WASH guideline emphasizes the need to provide hand-washing facilities in schools.

1. Hand-washing Availability

Handwashing stations included in the national guideline are basin (with soap, ash, or clean sand), water for rinsing hands (container with tap or jug for waterless latrine or pipeline), and soak-away pit to avoid standing water. Of the surveyed schools:

- 38 (42.2%) schools do not have hand-washing facilities at all
- 52 (57.8) schools have handwashing facilities for both girls and boy's latrine or one of them. However, almost all, 52 handwashing stations, require simple to heavy maintenance or new construction.

Table 7 Availability of hand washing

	schools	Percent
Availability of handwashing	52	57.8
Not available	38	42.2
Total	90	100.0

Figure 10. Handwashing facility detached from latrine block (left) and attached/within the latrine block (right) in one of the private schools.

2. Availability of water and soap at the hand-washing stations

From 52 schools that have handwashing facilities.

- 25 schools have water and soap during the survey
- 3 have both liquid and solid soap during the survey.
- 24 handwashing facilities had neither soap nor water during the survey

The discussion with the school administration and staff shows that 86 schools staff prefer liquid soap while the rest 4 prefer solid soaps. However, this needs further investigation and back-up from a discussion with students as well.

3. Hand-washing surplus or excess water usage and management.

Water from handwashing should not be left to stand still or overflow not to make it a place for breeding insects and bacteria such as mosquitoes. Soak-away pits are used to avoid standing water or excess water from handwashing can be re-used for different purposes. The survey found out that,

- 21 schools use hand-washing surplus water to water plants close to hand-washing stations.
- Few schools, hand-washing surplus water is simply spilling over
- some other schools guide the surplus water to pit latrine holes.

4. Handwashing facilities infrastructure indicators.

According to the national standards, what is expected is "Hand-washing facilities with water (i.e., water pipe or container) are available for each latrine block and there is soap available at the school level."

We found that36 schools handwashing facilities that met the student ratio standard

5. Accessibility of hand-washing facilities

Access – refers to whether the hand washing facilities are accessible to young children and students with disabilities. Accordingly, out of the 52 schools that have hand-washing facilities, 28 (73.3%) school's hand-washing facilities are not accessible to small children while the rest 24 (26.7%) school's hand-washing facilities are accessible.

Only 8 (8.9%) schools hand-washing facilities are accessible to those with disabilities; the remaining 82 (91.1%) are not accessible or have no handwashing site in the school.

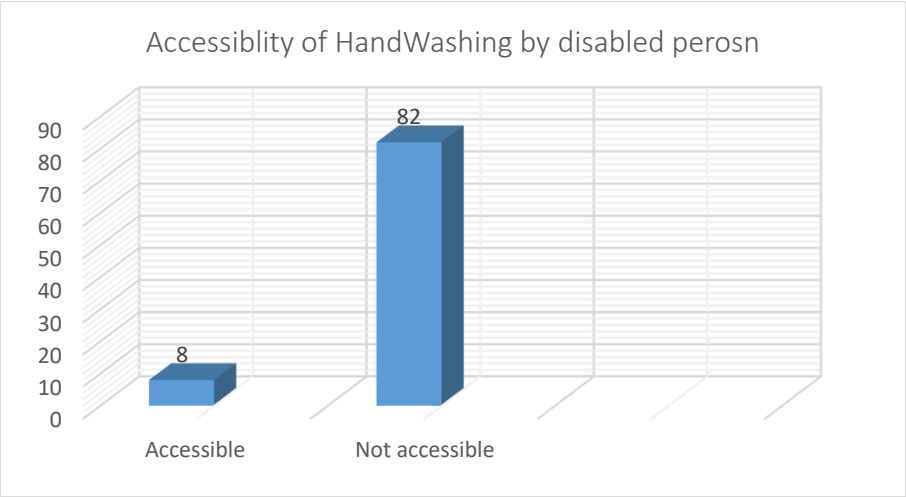

Figure 10. Accessibility of handwashing facilities in the school compound.

In conclusion, the project aims to rehabilitate existing hand-washing facilities by, for example, connecting them to the municipality water line, changing faucets, and ensuring water from handwashing is properly managed. In schools where water is not available and with no ground water source to develop, hand-washing jerry-cans that needs to be filled by the school administration and students will be introduced. Except for hand-washing facilities to be constructed, it will be difficult for the project to make hand-washing facilities accessible for small children and students with disabilities.

e) Component 4: Waste Management System (solid and liquid waste)

Table 8 shows our findings regarding solid waste (garbage) disposition. We found that 67 (74.4%) of schools dispose of garbage by dumping these into an area and then burning it.

Table 8. Solid waste (garbage) disposition from the school

	Mode of Solid waste disposition systems.	schools	In Percent
	Collected by municipal waste system	4	4.4
	Buried and covered on premises	12	13.3
	Openly dumped and burned	67	74.4
	Not available	7	7.8
	Total	90	100.0

Liquid waste management

- 58 (64.4%) schools use private pit emptying companies using Vacuum track
- 6 (6.7%) schools have safe seepage pits
- 15 (16.8%) schools shift the latrine superstructure to other areas when it is full.
- 39 (43.3%) school's septic tank or pit latrine have safe covers that protects the surrounding area from contamination.

f) Component 5: Menstrual health and hygiene management (MHH)

According to the national guideline, MHH interventions in schools include safe spaces for girls to wash, change and dispose of sanitary pads, access to emergency pads, get information and counseling about menstruation, and rest to alleviate menstrual pains and cramps.

1. *Availability of MHH rooms and materials*

The survey found out that, of the 90 schools surveyed,

- *9 schools have MHH rooms with bathing area*
- These 9 schools MHH rooms are equipped with the required materials such as sanitary pads for emergency use, soap, water, and curtains
- 7 schools have pain-relives (paracetamol).
- 14 schools' latrines have locks, adequate water and soap for hand-washing (outside latrines) and menstrual washing (inside latrines) and bins for disposal of single use pads.

2. *Awareness creation activities on menstrual hygiene management*

In addition to MHH intervention, what keeps girls in school during their period is knowledge and increased awareness on mensuration and its management. During the discussion with the school administration and staff, we have learnt that

- 67 (74.4%) schools have moderate awareness creation activities – but these sessions are not extensive and well planned.
- 23 (25.6%) school do not have MHH awareness raising activities at all.

Table 9. Menstrual health and hygiene management

Menstrual health and hygiene management (MHH) awareness creation conductions	schools	Percent
Moderately award	67	74.4
Not conducted schools	23	25.6
Total	90	100.0

g) Component 6: Hygiene behaviors/promotions

- Of the surveyed 90 schools, 36 (40%) schools do not have any hygiene education/promotion activities while the rest 54 (60%) schools carry out regular hygiene promotion activities.
- 30 (33.3%) of school's students do not practice good handwashing at all times. However, the rest 60 (66.7%) of school's students practice proper handwashing at all times and this was strengthened mainly due to the COVID 19 outbreak.
- 72 (80%) schools have a system of regular monitoring for personal hygiene.
- 58 (64.4%) schools have a responsible body to maintain latrine cleanliness

Table 10. Regular hygiene promotion activities are conducted in the school,

Availability of Hygiene behaviors/promotions	Schools	Percent
Availability of hygiene promotions	54	60.0
No regular promotions availability	36	40.0
Total	90	100.0

Table 11. Handwashing practices available in the school

Handwashing practice availability	schools	Percent
Good handwashing practice schools	60	66.7
Not good handwashing practice schools	30	33.3
Total	90	100.0

h) Component 7: School sanitary infrastructures sustainability

Maintaining a timely and effective operation and maintenance services is a key and unavoidable function or a sustainable services and facility management. Operation may include activities such as putting on and off the engine of the motor run by a diesel, electric from the grid line or from solar power; opening or closing valves to divert the water to a reservoir or a drinking water supply point or to a sanitation facility or opening a valve of the excess water to a drain. The site of a water supply point and the surroundings must be kept clean. Maintenance is the up keeping of services through effective and timely repair of malfunctioning and replacement of damaged parts of the facilities.

The school's division of responsibilities among different stakeholders.

- 69 schools have a shared / division of responsibilities to help sustain management of sanitary infrastructures
- 22 schools' operation and maintenance plan is integrated with other school improvement plans
- 43 schools have preventive maintenance strategies
- 24 schools have sources for capital investment
- 35 schools have budget for operation and maintenance
- 7 schools have efficient school shops in their compound

I. Conclusions and Recommendations

The following are some of the major conclusions and recommendations drawn from the assessment results:

- Most schools water supply are piped systems from the main municipality or rural water supply systems connected from controlled reservoirs. The project aims to improve existing systems ensuring required water flow to the school compound, rather than developing completely new systems. However, in intervention school especially rural areas where there is no access to water at all, the project aims to develop one as long as the ground water fulfil the permissible water quality standard.
- Some reservoirs in school compounds provide additional storage in times of system maintenance and water shortage. 75 schools water systems operate by gravity distribution from multi- reservoirs available in city or rural areas. Hence, there is no need

of additional reservoir construction for gravity piped schools. However, the project will consider constructing reservoirs for non-piped or non-gravity supply schools in rural areas.

- The work on latrines will also as much as possible be centered on improving the existing latrines, ensuring hand-washing facilities, making doors lockable from inside, plastering, painting, installing vent pipes etc. based on detail gaps in each intervention school. New additional blocks of latrines need to be constructed in schools where there are no latrines or latrine blocks are not separate for boys and girls.
- In schools where the distance between girls' and boys' latrines is too close and affects the privacy of girls, the recommendation is to leave the existing latrines for boys and construct new latrines for the girls as per the standard. However, such an adjustment and construction of new latrines fulfilling the 20m distance between boy's and girl's latrine and 30m distance from class rooms is subject the availability of space in the school compound and may not always be easy to do so.
- To make existing handwashing facilities functional, from simple to heavy maintenance work is needed. Such activities include connecting water from the main distribution line, pipe and fitting work, structural work, drainage work/soak away pits and other related activities which will further be investigated before implementation.
- We have learnt during the survey that availing solid or liquid soap at handwashing station has not been successful by almost all schools. It is either taken away or misused by students. We, therefore, recommend working with PTA so to reach at to best possible solution. This will include students to come up with their own soap, or schools to put some nominal fee with registration fees and supply soap to students.
- In as much as possible, the project will also do its best to make newly constructed latrines accessible – both in pathways and availing one single inclusive cubicle per block. If this is found out to be challenging, efforts will be made to put few model latrines to help the promotion activities.
- The project cannot also make existing hand-washing facilities or drinking water fountains accessible as the work will be to make sure that these facilities are functional. However, newly constructed facilities will need to consider accessibility standards.
- The number of available MHH rooms is insignificant. The project will need to work closely with school administration to negotiate and influence them so that they can avail space for MHH rooms. The focus of the project to be making MHH room functional by fulfilling the necessary materials in the rooms. This includes but limited to access to water and soap, IEC/BCC materials, sanitary pads for emergency use, mattress and curtains as needed.