Community-led Accelerated WASH Project, Phase IV (COWASH IV)



Summary Report of Technical Field Visits to Ten Selected COWASH IV Woridas

March 2023

Acronyms

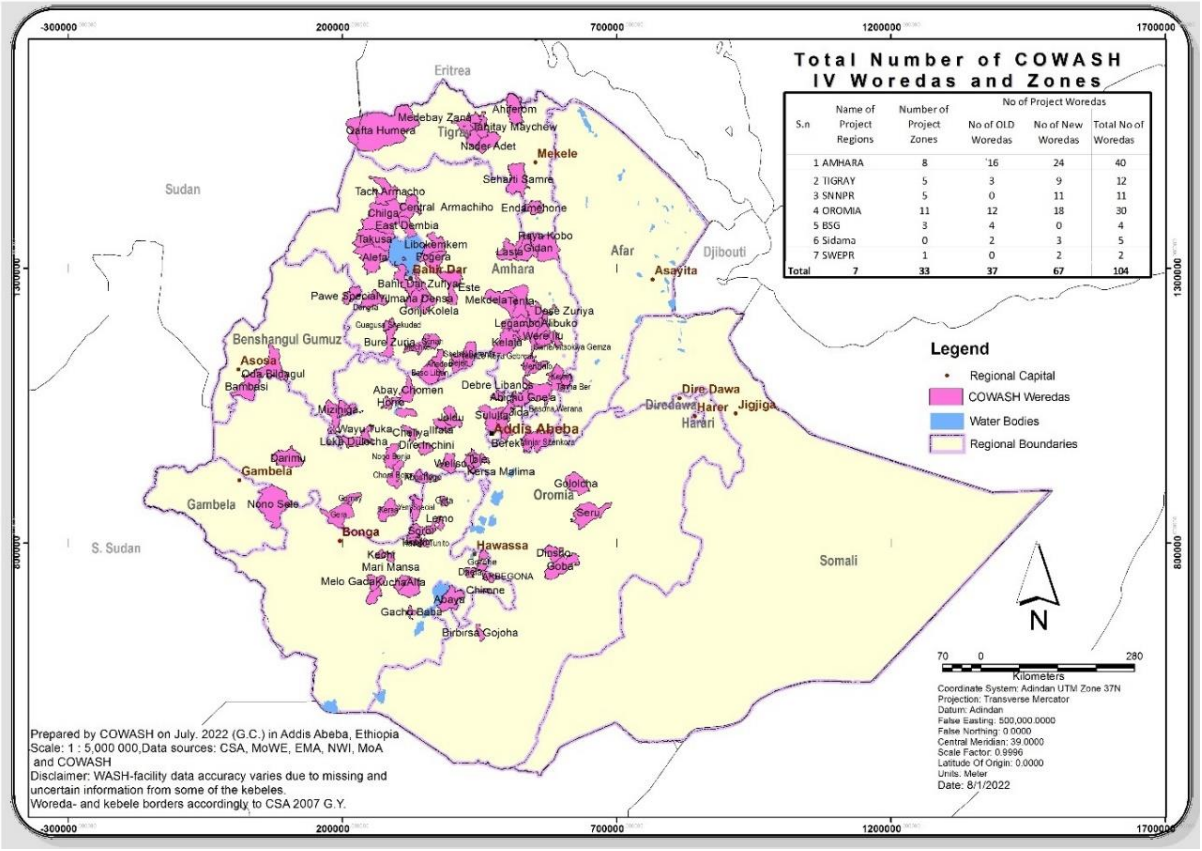
BoQ	Bill of Quantities
CMP	Community Managed Project
COWASH IV	Community-led Accelerated WASH-project Phase IV
EFY	Ethiopian Fiscal Year
MHM	Menstrual Hygiene Management
MoE	Ministry of Education
MoH	Ministry of Health
ODF	Open Defecation Free
PWD	Persons With Disabilities
RPS	Rural Piped Scheme
RSU	Regional Support Unit
SNNP	Southern Nations and Nationalities Peoples
VIP	Ventilated Improved Pit
VLOM	Village Level Operation and Maintenance
WASH	Water, Sanitation and Hygiene
WWO	Woreda Water Office

1. Introduction

The Community-led Accelerated WASH Project, Phase IV (COWASH IV) is a bilateral initiative between the Governments of Finland and Ethiopia which is being conducted under the umbrella of the One WASH National Program. Its overarching goal is to improve public health and well-being, social development and climate resilience in the communities of the project area. The objective is increased and sustained coverage of safe water supply, sanitation and hygiene in the rural areas of the selected woredas.

COWASH IV is building on the work of the three earlier phases of COWASH and focuses on the achievement of targets through the establishment of an enabling environment and the implementation of community managed project (CMP) interventions. Compared to the previous phases, COWASH IV is working in an expanded project area and now covers 104 Woredas in 34 zones of seven Ethiopian Administrative Regions (Amhara, Benishangul-Gumuz, Oromia, Sidama, Southern Nations Nationalities and Peoples (SNNP), South-west Ethiopia Peoples (SWEP) and Tigray) as indicated in the following map:

Figure 1 The



contractor used eucalyptus poles to reinforce the latrine slab

The Federal Technical Assistance Team conducted field visits to COWASH IV woredas to assess whether Woreda Water Teams had followed Ministry of Education and Ministry of Health technical drawings and Bills of Quantities in the construction of water, sanitation and hygiene (WASH) facilities at health posts and schools, as well as of community water points, in the Southern Nations and Nationalities People's (SNNP), Sidama and Oromia regions and also to check on the quality and integrity of construction.

Technical visits were made to the following woredas on the dates shown:

- Yem Special Woreda (13.7.2022) SNNP Region
- Tambaro Woreda (14.6.2022) SNNP Region
- Chirone Woreda (11.10.2022) Sidama Region
- Arbegona Woreda (12.10.2022) Sidama Region

- Gorche Woreda (02.11.2022) Sidama Region
- Daela Woreda (8.11.2022) Sidama Region
- Dinsho Woreda (22.11.2022) Oromia Region
- Gobe Woreda (23.11.2022) Oromia Region
- Geze Gofa Woreda (27-29.11.2022) SNNP Region
- Wondo Genet Woreda (7.12.2022) Sidama Region

All the visits to SNNP and Sidama Region Woredas were made with members of the respective Regional Support Units (RSUs) and visits to all woredas were made with members of the Woreda Water Teams. After the appointment of Bureau of Water, Mines and Energy Advisers in November 2022, those advisers also joined the visits.

In some woredas discussions were held with the Woreda Finance Office to explain about the fund flow.

2. The main findings

The common findings along with reasons explaining them, are highlighted below. As the intention is to highlight areas for improvement in the future, this report raises the issues and practical recommendations are presented in Section 4 below.

Under COWASH IV, all institutional WASH infrastructure is required to deliver a "Full-WASH" package. This means that each institution (i.e. school, health post or health centre) is required to provide all the WASH components (water, sanitation and hygiene) together – missing even one of the components devalues the entire package. In practice, COWASH IV "Full-WASH" includes Ventilated Improved Pit (VIP) latrines, should have water and soap available for hand washing and be built separately for males and females. Additionally, the "School WASH package" design includes a Menstrual Hygiene Management (MHM) facility consisting of four rooms built near the girl's latrines. Findings related to institutional WASH are presented in Section 2.2. Some woreda's did not construct the full school package in 2014 EFY due to 30-40% annual inflation escalating the construction costs to exceed budgets.

At the community level, COWASH IV construction includes safe water supply together with Community-led Total Sanitation and Hygiene campaigns aimed at encouraging and advising all households to construct basic latrines with hand washing facilities resulting in kebeles being officially declared Open Defecation Free (ODF).

The community level water supplies are required to follow the COWASH IV designs for shallow wells (boreholes), hand dug wells, on the spot springs with collection chambers and rural piped schemes (gravity schemes from a protected spring). Designs specify that water points should have good accessibility to persons with disabilities (PWDs), as well as conforming to the WSP++++ guidelines.[1]

Findings related to the community WASH are presented in Section 2.23.

2.1. Institutional WASH

Inflation

A rapid increase in prices of building materials is forcing both contractors and woredas to protect their gains and find compromise in dispute situations. In one instance, a contractor demanded a 30% increase in contract price five months into the contract, citing inflation since the contract was signed in May 2022. He suspended

[1] Water Safety Planning++++ means, WSP plus Climate Resilience + Operation & Maintenance + Water Fee Collection + Inclusion + Sanitation. Inclusion means that everybody, including PWDs should be able to access water points.

work pending a decision by the Bureau of Finance and Economic Development regarding approval or not of his demand.



Figure 2 The contractor used eucalyptus poles to reinforce the latrine slab at this school and the quality of concrete was poor so the slab was condemned and the contractor had to re-cast the slab using the steel bars specified in the MoE design.

Inflation also puts pressure on the contractors to cut costs, in order to protect their profits. Practices like using wood instead of steel bars to reinforce concrete latrine slabs, as well as neglecting to put fly screens on vent pipes, were commonly found in the field. More similar examples are listed below. Besides the lack of design specifications or contractor supervision in some instances, the inflation pressure is also leading to deviations from the design specifications.

It is our view, however, that the Bills of Quantities (BoQ) from the Ministry of Education and the Ministry of Health together with officially approved designs for latrines and water points should be followed in order to deliver quality infrastructure at the agreed price.

Supervision of contractors

Generally supervision of contractors by woreda staff is weak. Most of the time the supervisors do not have technical drawings to compare what the contractor is doing and what he should be doing according to the designs. Contractors are always looking for ways to build latrines or water points in the cheapest way possible so they tend to take short -cuts. Details are in the following sections of the report.

2.1.1. Sanitation

Deviation from latrine design specifications:

1) Some woredas are not using the correct technical drawings for construction of institutional VIP latrines. This was because the Bureau of Education and Bureau of Health did not send the correct drawings to the woreda education and health offices respectively.
2) In some woredas five and six room VIP latrine blocks have been built at health posts because contractors were given the design for a communal VIP latrine (six rooms) whereas the approved Ministry of Health design is for a two room VIP latrine with hand washing facilities where one room is for PWD. Building excessive rooms is wasting resources, as the number of patients per day does not justify it.



Figure 3 A six room latrine at a Health Post like this one is a waste of resources.



Figure 4 Another example of the wrong design being given to the contractor; a six room latrine under construction at a health post whereas it should be only two rooms according to the MoH design.

3) Some contractors do not provide manholes for emptying the pits at the back of the superstructure, as specified in the design.



Figure 5 No manholes at the back of this school latrine; thick reinforced concrete beams have been installed instead which adds to the cost. Note lack of fly screens on vent pipes

4) In the ten woredas visited, there were no fly screens on the top of vent pipes on institutional VIP latrines meaning that flies are free to exit the faeces-filled pits and alight onto peoples' food and drinks thus contaminating them with faecal bacteria which is likely to cause diarrhoea and diseases like typhoid.

Figure 6: Inappropriate flyscreen allows flies to escape from the pit. Mosquito screen is the correct screen to use.



Figure 7 Damaged vent pipe and no fly screen over the top at a school latrine constructed under COWASH IV.

5) At most girl's latrines there are no dividing walls in the urinals so girls do not use them for lack of privacy. Most woreda's do not have the new design for girl's urinals showing the dividing walls and small doors for privacy.



Figure 8 Girls' urinal with no dividing walls means no privacy so girls don't use it. Also the walls are not plastered as they should be according to the MoE design

6) Some contractors installed the latrine ventilation pipes inside the superstructure whereas the correct design is at the back of the superstructure where they are exposed to heat from the sun, which forms a convection current that removes odours and flies from the pit. Putting the ventilation pipes inside also means contractors have to cut holes in the corrugated iron roof which are then not properly sealed so rain comes into the cubicles making them less attractive for students to use. Figure 9 below shows the correct position of vent pipes and the correct air flow.



Figure 9 Vent pipe installed inside the superstructure whereas it should be outside at the back so it can be heated by the sun to create convection current of air inside the pipe.

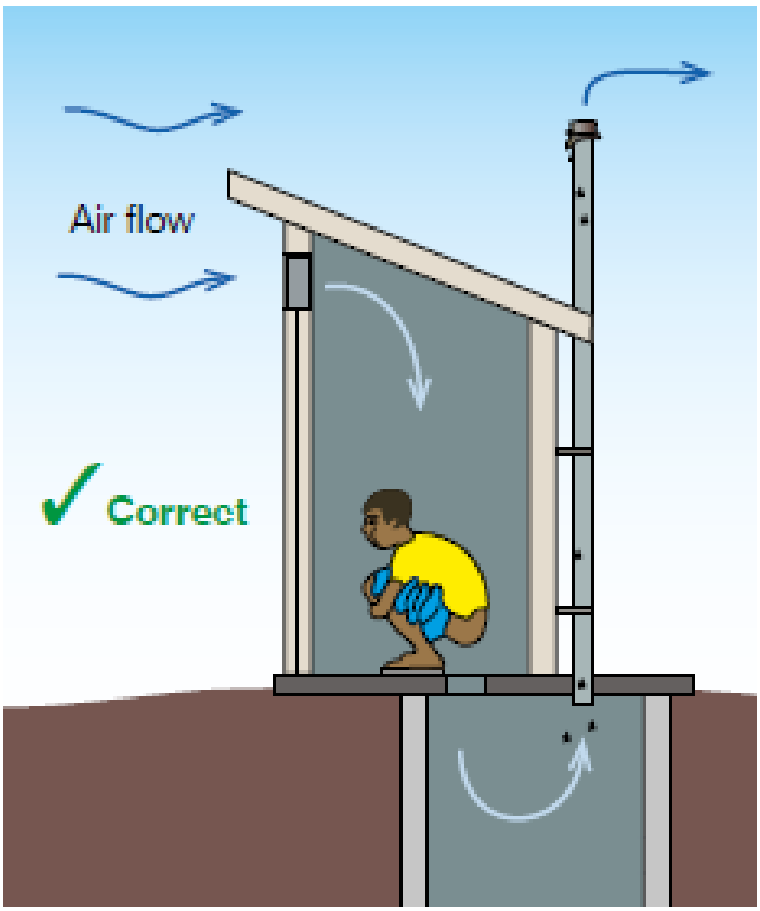


Figure 10. Correct design of VIP institutional latrines with the vent pipe outside the superstructure and over the pit with superstructure off-set from the pit showing air flow which removes smells and flies from the pit.

Deviation from the BoQ:

7) Some contractors are not plastering and painting the inside of institutional latrine walls as specified in the BoQ.

8) In at least two woredas contractors used eucalyptus poles instead of steel reinforcing bar to reinforce institutional latrine floor slabs which means that the slab is not as strong as it should be. (See photo above).

9) In one school, the concrete slab on the boy's latrine was so weak it was condemned by the RSU and it was re-cast using only steel reinforcement.

10) Some contractors use inferior quality sand for latrine construction. Such sand was found to have excess soil content, which results in weak concrete which will crack over time.

11) Contractors never put plastic coating on the bottom of latrine doors as stipulated in the BoQ to prevent corrosion and they are not instructed to do so by woreda supervisors.



Figure 11 Corroded latrine door; the solution is to make the doors shorter with 10-15cm gap between bottom of door and concrete slab.



Figure 12 This latrine door is too near the concrete and will get corroded by urine and cleaning materials like bleach.

12) Contractors use inferior materials, for example, they install grade 3 PVC vent pipes which have a wall thickness of 2mm whereas installing grade 1 with a wall thickness of 3mm would result in vent pipes that do not break prematurely. (See photo above). The BoQ for institutional latrines needs to be revised to state that grade 1 PVC should be used for vent pipes.

13) Access to institutional latrines for PWDs is challenging in all woredas visited. Most latrines have a concrete ramp but at the majority of latrines there is no proper path for a wheelchair user to access the ramp.

14) At some school latrines the contractor has made a 10cm high concrete kerb across the doorway of the disabled cubicle thus preventing a person in a wheelchair from entering. (See photo below). Also, some doors on disabled cubicles are only 70cm wide whereas the design calls for them to be one metre wide. Narrow doors also prevent wheelchair access.



Figure 13 Concrete kerb across narrow (70 cm) doorway (should be 1m) of disabled cubicle at one of the school latrines. Also there are no hand rails around the squatting hole as shown in the design.

Design faults:

15) There is a design fault in the design of school latrines in that the drainpipe from the boys and girls urinals goes into the pit whereas it should go into a soak away pit located a few metres from the latrine block. Excess urine entering the pit will prevent the timely decomposition of faeces so the pit will fill up faster.

16) The Ministry of Education guideline to construct a two-room latrine for teachers at schools is inadequate considering that some schools have 70 teachers implying that they will be queuing to use the latrine at break times.

In some COWASH IV approved institutional school latrine drawings the ventilation pipes are inside the building, which as discussed, **is not correct.** Also, there is no provision for manholes at the back to empty the pit when it is full. See the figure below.

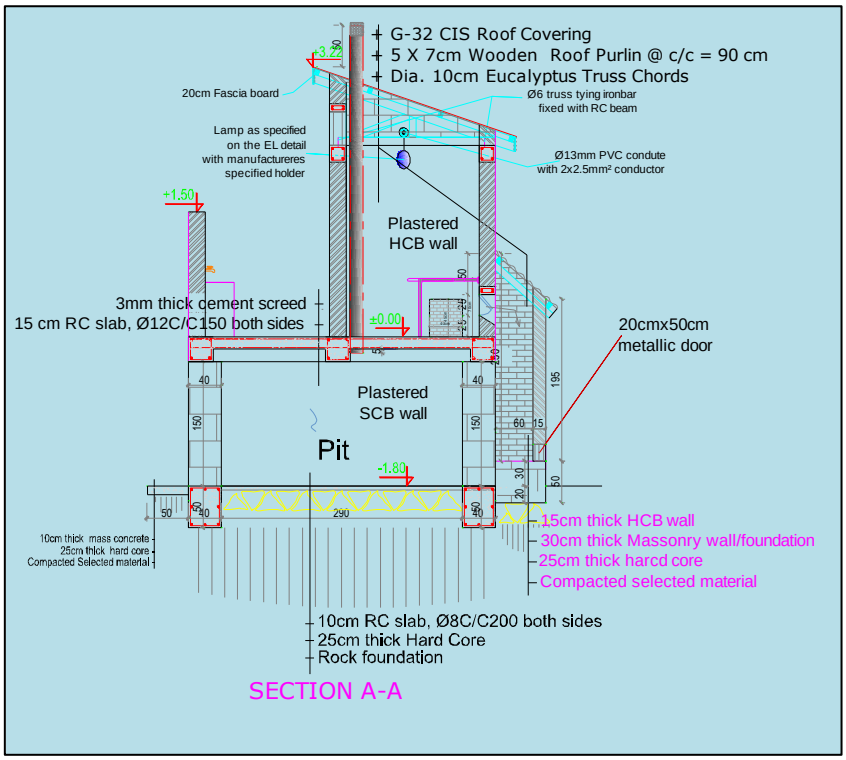


Figure 14. School latrine design for rocky/swampy areas in the School WASH Design & Construction Manual published by MoE and endorsed by COWASH IV shows vent pipes inside the superstructure whereas they should be outside.

These drawings should be revised. To enable the ventilation pipes to be outside the building, the superstructure should be offset from the pit by moving it forward by one metre, so that the front wall of the superstructure is above the wall of the pit. This gives space for the ventilation pipes to be attached to the rear side of the building and exposing them to sunlight (see Figure above). It also allows manholes for emptying the pit to be included. The corridor floor slab can then be constructed on the ground instead of over the pit. As less of the slab will then be over the pit, fewer rebar will be needed thus reducing the cost.

The Menstrual Hygiene Management (MHM) deposit box can be moved to the rear wall of the urinals to give space for the vent pipes to be fixed to the rear wall of the superstructure.

In one health centre the wrong design has been used as can be seen in this image. The roof is the wrong type and the door arrangement is also incorrect.



Figure 15 The wrong design was given to the contractor for this latrine at a health centre which should have five doors and the roof on top of the HCB

2.1.2. Hygiene

General observation

At some schools in rural areas students are expected to clean the latrines on a daily basis. Most parents object to this practice on the grounds that they send their children to school to learn and not to clean toilets. Therefore, school administrations need to be reminded that they should employ cleaners to clean the toilets and include the cost in their annual budgets. In this regard, the MoE is about to publish and distribute the **School WASH Operation, Maintenance and Management Manual** which details how latrines and water supplies should be maintained and properly managed.

Problems with Hand Washing facilities

In some schools there was no water or soap by the hand washing point outside the girls and boys latrines. Some schools did not even have a water supply but there was a water supply within 100 metres outside the compound. This shows that school administrations are not prioritizing hand washing with soap even when hand washing with soap is the single most important behaviour to reduce waterbourne and water-related diseases like typhoid and diarrhea.



Figure 16 Absence of soap at hand washing basins at school latrines is a common issue

An additional issue is that soap provided by the hand washing point is often stolen. One potential solution is to fit Soap Dispensers such as the Xopi type as presented in Annex 1. These use a long bar of soap with the operator using a small grating mechanism which produces soap flakes into the user's other hand which they can then use for hand washing. Installing a soap dispenser would prevent the soap from becoming stolen. Another option is to supply liquid soap dispensers tied to the tap with a piece of string or wire.

Anal cleaning

It has been observed that there is no soft paper/toilet paper in any school toilet. Students therefore use other materials for anal cleansing. Leaves are OK but some use stones and then throw these in the pit which is not appropriate as the pit will fill up faster and the stones will block vacuum hoses when the pits are emptied by the vacuum tanker. Therefore, school administrations need to budget for toilet paper or students should be encouraged to bring their own.

2.1.3. Menstrual hygiene management facility

According to COWASH IV and MoE guidelines to Bureaus of Education and Woreda Education Offices, woredas are to construct a "Full-WASH package" at schools, including an MHM facility of four rooms with water supply and a solid waste pit plus hygiene education for students. Due to inflation, most woredas cannot afford to construct the whole package. In some cases, they have reduced the size of the MHM building from four-rooms to one room. (See photograph below).

The cost to construct an MHM building is now around ETB 1,000,000, which will consume a large amount of the budget. Therefore, it is advisable to a) come up with a less costly design or b) use local materials for the walls and doors to reduce the cost.



Figure 17. The MHM facility at this Elementary School is only one room instead of the four rooms in the MoE design.

2.1.4. Water supply

Rainwater harvesting

Many schools do not have a piped water supply, a borehole or a hand dug well/hand pump. All schools have roofs and most schools in COWASH IV woredas are in high rainfall areas but only a few are equipped with rainwater harvesting equipment.

It is recommended that institutional latrine designs are changed to include rainwater harvesting equipment including tanks large enough to store enough rainwater for hand washing for at least three months of the dry season.

School classrooms and offices can also be equipped for collecting rainwater and storing it in tanks.



Figure 18: The potential for harvesting rainwater at schools has yet to be realised.

2.2. Community water supply

1. General observations:

1) At six water points in Oromia Region, it was found that jerry cans were heavily contaminated with coliform bacteria because they were not properly cleaned whereas the water from the hand pump or spring was clean. As the end objective of the project is to improve peoples' health, spending millions of birr improving water sources only for householders to collect safe water in dirty jerrycans is counterproductive.

2) Access to water points for PWDs is challenging in all woredas visited. Some Woreda Water Offices (WWOs) have made an effort to construct paths and ramps but the majority of water points are not really accessible to PWDs. Most hand pump aprons have a concrete ramp but then there is no proper path to the apron.



Figure 19 Hand pump apron with ramp but no proper path to the ramp is a common occurrence

2. Taps

1) At all institutional water supplies visited the contractor has used cheap Chinese-made taps. These taps have weak internal washers and because users tend to over-tighten the taps when turning off the water the washers soon wear out and then the tap does not work as a tap. Then the school or health centre management either removes the tap completely and stops the water by turning off the gate valve nearby or just leaves it to run continuously when the gate valve is open for users to collect water, which wastes a lot of water and creates a drainage problem around the tap stand. One potential solution is to fit HDP lever-type taps as indicated below:



Figure 20 HDP taps are more sustainable than Chinese-made brass taps and are available in local shops

HDP taps should be included in the BoQ, so the MoE should update the BoQ for school water supplies and the MoH should update the BoQ for health institution water supplies.



Figure 21 Cheap Chinese-made taps soon stop working because the washer inside gets worn out, so are not recommended.

3. Pipelines

Where pipelines from protected springs cross a gulley or stream they should be supported by concrete pipe anchors otherwise the pipe will fracture over time and then a costly repair will have to be done. Along some pipelines visited there were no pipe anchors as shown here:



Figure 22 Suspended pipe joint with no pipe anchor

3. Valve boxes

At several locations visited there were no valve boxes for gate valves (see below) behind tap stands or at pipe junctions. This omission will cause gate valves to fail because they are exposed to damage from stones or soil. It is also more difficult to see whether a gate valve is leaking if it is not in a valve box. Valve boxes can be made of bricks and mortar or in the absence of bricks concrete can be used with the necessary formwork. The top of the box should be covered by a small concrete slab with a handle made from 8mm re bar.



Figure 23 Gate valve with no valve box exposes the gate valve to damage



Figure 24 A good example of a valve/meter box at one COWASH location

5. Handpumps

Installing Afridev or India Mark II hand pumps on shallow hand dug wells (maximum depth 20m) is not cost effective. For such wells a direct action hand pump like **Tara or Nira** which are cheaper would be more appropriate. Tara are made in India by the same factories that make Afridev and can be ordered from Afridev suppliers in Addis Ababa. Nira is made in Finland and Tanzania.



Figure 25 The Nira direct action hand pump can lift water from 12m and is a VLOM pump suitable for HDW

3. Reporting

There are some discrepancies in reporting what was achieved in 2014 EFY. Some woredas reported achievements in Q1 of 2015 in their 2014 reports.

In the WWO WASHCO files there are no supervisor's reports on construction progress.

There are no photographs of the finished infrastructure.

4. Recommendations

No.	Type of recommendation	Description	
1	**General recommendations**	There is no donor visibility at any of the COWASH IV construction sites. It would be appropriate for woreda's to erect a medium sized metal sign board next to the latrine or water point to indicate that funding came from the Governments of Finland and Ethiopia and the name of the site and both countries flags and the CMP logo.	
		Woredas need to have closer supervision over the contractors to ensure the BoQ is followed and proper quality of construction is achieved.	
		Bureaus should give practical hands-on training in the field to WWO staff on contractor supervision using qualified trainers	
2	**School Latrines**		
		Ensure that fly screens are fitted to the top of vent pipes. Follow the approved MoE designs and BoQ Ensure the PWD door is 1m wide	

		Ensure there are hand rails both sides of the squatting hole Make a wheelchair friendly path to the latrines Ensure PWD door opens outwards Ensure interior walls are plastered and painted Ensure there are dividing walls and small doors in girl's urinal Ensure internal walls of urinals are plastered to make cleaning easier Ensure that urine is diverted to soakway pits and not into the main pit Put fascia boards front and back of roof Paint both sides of fascia boards with two coats of oil based paint Provide toilet paper in each cubicle Provide liquid soap dispensers at hand washing basin or container Tie the dispensers to the tap with wire Ensure the doors have 10cm gap at the bottom to avoid corrosion	
3	**Health Post Latrines**		
		Ensure the approved MoH designs are used (two room type of VIP with one room for PWD) Fit proper sitting ceramic toilet for PWD (as per MoH BoQ) Otherwise, provide steel hand rails (as per drawing) Provide water supply to PWD cubicle Provide taps for hand washing Provide liquid soap dispensers and tie them to taps to prevent stealing Put fly screen on vent pipes Make a wheelchair friendly path to the latrine	
4	**Community Water Supplies**		
a)	**RPS**	Put concrete pipe anchors where pipe is unsupported	
		Install HDP lever-type taps NOT Chinese taps	
		Construct concrete or bricks and mortar valve boxes for all gate valves and cover with concrete lids	
		Provide break pressure tanks	
		Ensure that the protected spring is well fenced and has a retaining wall at the back to prevent landslides	
b)	**Hand dug wells with hand pumps**	Fix the rising main to the side of the concrete rings with metal brackets to avoid vibration while pumping	
		Ensure that the distance between the handpump spout and the concrete apron is 50 cm to avoid wasting water	
		Carry out water quality tests at all water points	
		Consider installing Nira Direct Action hand pumps instead of Afridev and India Mark II to reduce the cost	
5	**Hygiene**		
		The MHM facility in its present form has become expensive due to the escalating cost of building materials. The following adjustments can be made to reduce the cost: • Using eucalyptus poles and chikka (clay mud) for the walls instead of 20 x 40cm hollow concrete blocks. • Using local wood planks to make the doors instead of sheet metal doors is another option. • Reducing the thickness of the floor slab concrete from 10 to 8 cm (If the walls were of local materials there would be less weight on the floor slab). • Reducing the height of the front wall from 4m to 3m • Putting the 1000 lt water tank on a steel frame rather than a masonry stand.	

		• Replacing the chipwood ceiling with heavy duty plastic sheeting or thick cotton. • Replacing the two glass windows with steel shutters • Water pipe from the water tank does not need to be 1" it can be 3/4" PPR. • The drain pipe from HWF can be 30mm instead of 50mm. • The floor of the shower room could be cement screed instead of ceramic tiles. • Reducing the re bar in the grade beams from 12 to 10mm • Reducing the size of bars in the columns from 12 to 10mm. • Eliminating the electrical fittings would also reduce the cost; many rural schools are off-grid.	
		Provide liquid soap containers at hand washing points and attach to taps with wire	
6	**WASHCO files**	All paper files should be digitized and put on hard drives Take photos of completed infrastructure, and include in WASHCO files Ensure that all agreements are signed, dated and stamped	

Annex 1. Xopi Soap Dispenser



Xopi Soap Dispensers are available from Eerste Hollandsche Ideenfabriek, The Netherlands at Euro 58 each plus transport.