

**EUROPEAN COMMISSION**

DIRECTION GENERALE POUR L'AIDE HUMANITAIRE & LA PROTECTION CIVILE
Regional Support Office for East and Southern Africa (Nairobi)

RAPPORT DE MISSION

Subject: Ethiopia WASH RSO Mission (*Eritrean camps in Shire and Drought emergency response in Afar territory*)

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Main partners and visited sites list:

Shire (*Endabaguna registration center; Histast camp; Simelab camp; Adi Arush camp; Mai Aini camp*):

- UNHCR: David Njoroge (National WASH Specialist); XXX (WASH Officer, Shire)
- IRC: Assad Abdella (WASH Coordinator) and his team on the field
- IHS¹: XXXX (Project Manager) and his staff

Afar (*Erbati, Barale; Afdera*):

- COOPI: Federico Capuro (Head of Mission); Daniel Chekol (Senior WASH Adviser); Dagim Demelash (WASH Project Manager) and their staff

Appendices list:

- ❖ 1: UDDT latrine study ToR
- ❖ 2: UDDT protocol for social acceptance evaluation
- ❖ 3: Final report on pilot test UDDT latrine
- ❖ 4: Final baseline report UDDT latrine

¹ Innovation Humanitarian Solution

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1. EXECUTIVE SUMMARY

The mission main focus was the monitoring of the Eritrean's refugees WASH response in Shire region implemented by IRC and coordinate by UNHCR. The mission was accompanied by Jacob Asens (ECHO TA in charge of the refugee's portfolio), the IRC WASH Coordinator, his staff on the ground, and the UNHCR WASH Specialist and Officer. During the mission, 5 camps have been visited: Endabaguna (*reception/registration center*), Hitsats, Shimbela, Adi Harush and Main Aini .

This mission was followed by a monitoring mission focusing on the drought emergency response in the Afar region implemented by COOPI. 3 locations have been visited.

Regarding the ***Erytrean refugees response implemented by IRC*** the main constraint to take into account when monitoring their action are:

- The turnover of refugees
- The complexity of the aquifer dynamic and groundwater quality (*limitation and seasonal variation of water resources; high presence of iron and mangan...*)
- The presence of a very rocky soil which hampers excavation work
- The absence of safe and appropriate disposal site for sludge and waste; the existing dump site are far and sometime not accessible during the rainy season

The main problem coming from the IRC intervention is related to the supervision (*contractor and quality of achievement as too variable from one facilities to another...; operational staff*) and the monitoring (level/quality of service/facilities/infrastructure) aspects as well as the technical proficiency of most of the staff meet on the field. In addition to that the management of resources (abandoned structure; no plan to reuse adequate construction materials; distribution of the facilities and communities contribution strategy...) can be considered as sub optimal (latrine...) with clear issue coming from IRC level of strategic thinking (*distribution of facilities/services*).

The main issues highlighted during the monitoring were coming from:

- the follow up of water quality and the way to perform chlorination,
- the selection of hydraulic fitting and pipe and the regulation/protection of water supply system,
- the presence of numerous latrine pit already filled up and abandoned accessible latrine structure (high source of pollution) with children playing around, the hygienic status of most of the latrine implemented (no cover on drophole and no net on vents pipe...).
- the monitoring of the ground water table, the cost efficiency...

The *overall level of performance* is not acceptable when it comes to the supervision/monitoring aspect (water quality monitoring; chlorination; latrine management....) and management of the resources (*especially in a region where the funds are very limited*). That's why among the recommendation issued within the framework of this report a clear timing has been assigned according the emergency of the issue/gap to be addressed. The way IRC will address those recommendations shall highlight more their effective capacity. In the meantime, during the monitoring some aspects of the setup of water supply

system and the partner's reaction to identified major technical problem appeared more or less adequate.

Regarding the UNHCR (Eritrean refugees response), the National WASH specialist demonstrates good knowledge of the situation, interest in the monitoring also trying to find solution to problem identified. However, the local WASH officer from UNHCR was discovering problem/gaps during the visit and did not show real interest in the problem highlighted. Moreover, his knowledge about the technical features of the WASH intervention led by IRC was quite poor. The level of technical assistance on the field from the WASH officer can be considered as very weak as well.

Regarding the monitoring of COOPI drought emergency response in Afar region very few achievements could be monitored as the project got a lot of delay notably to get the authorization to implement the activities from the local authority (*and the drought is finished now*). This issue together with the widely spread and remoteness of the projects targeted area constitute a clear constraint for the project implementation. However, it seems that the way COOPI is organized is adapted to it.

The monitoring revealed mainly problems related to the assessment and feasibility/design stage. There is a gap in terms of technical data collection, survey and hydraulic calculation. There is also a lack of eco-technical analyze to ensure the most cost efficient design and the most affordable operating and maintenance cost for the infrastructure.

The water needs in the targeted area is pretty clear and the project seems quite relevant.

The others problem identified during the monitoring were related to the design and modalities of the project' training component implementation. The methodology used was not adapted to adult education and the skill of the facilitator/trainer quite weak (COOPI is obliged to integrate Water office staff from the Woreda...).

The staff found on the ground seems to be proficient and experienced enough to implement the project activities if appropriate technical supervision and support is provided. The staff in general had demonstrates great interest in the monitoring and show good commitment to their work as well as motivation and potentially relevannt capacity to improve the quality of their achievement.

The use of resources seems to be adequate for COOPI.

As for IRC some of the problems highlighted by the monitoring need quick reaction and then, timing has been given to them as well to address some of the issues according their degree of emergency.

2. BACKGROUND AND OUTLINE OF THE MISSION:



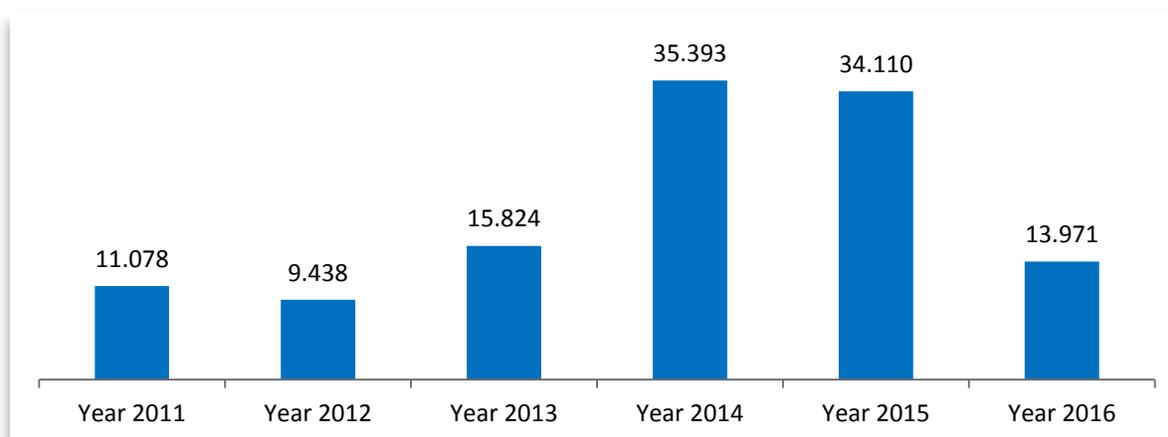
2.1. Shire – IRC/UNHCR

During the mission in Shire, 5 camps has been visited: Endabaguna; Hitsats; Shimelba; Adi Arush; Mai Aini. The mission was accompanied by UNHCR WASH Specialist and officer, as well as IRC WASH Coordinator and his staff on the ground.

The main constraint and challenge of the context are:

- The turnover of people in the camp. Eritrean are fleeing their country with for most of them the idea to reach some western countries. Most of the populations do not plan to stay in the camp.
- The complexity of the groundwater dynamic for both quality and quantity issues.
- The presence of a very rocky underground at the camp location which limit the capacity to dig appropriate pit for latrine.
- The access to local resources and risk of conflict with host communities
- The lack of resources
- Refugee population profile-mostly young refugees
- High numbers of unaccompanied children and lack of alternative care
- Limited basic services in the camps
- Lack of livelihood opportunities
- Onward movements from camps and risks related to smuggling and trafficking

New Arrival Trend 2011 - 2016



The total number of Eritrean refugees hosted in 4 camps under Shire is as shown below:

1. Shimelba camp (Opened May 2004)	5,347	Including 421 OCP beneficiaries living in Tigray region
2. Mai-Aini (Opened May 2008)	10,326	
3. Adiharush (Opened March 2010)	7,011	
4. Hitsats camp (Opened May 2013)	9,301	
Total All 4 camps as of January 31st 2016	31,985	

The unusually small household size of 1.6 persons in the Shire camps (compared to the average family size is 4-5 persons in the East African region) indicates that many refugees do not come as part of a family, but depart Eritrea for Ethiopia already with plans to move onwards. Mobility, including movement beyond Ethiopia, appears to be higher among the single and educated population, while refugees in family structures tend to reside longer in the camps.

Demographic Composition

- 72% youth (25 years and below)
- 61% male population
- 41% of the registered population are children

2.2. Afar region - COOPI

The projects in Afar region are related to the emergency response of the last drought. As for most of those projects, the capacity to act on water in an emergency response for residential communities is quite limited. Few activities like water trucking or quick reparation/rehabilitation could be implemented in a short time. Most activities and especially the one on hardware take time to ensure appropriate assessment and data collection, design, procurement and installation, and then most of them are

completed once the drought over. At least, those projects constitute a good preparedness action, which should contribute to decrease cost and improve efficiency of further potential response in the future.

3 sites have been visited during the mission: Erbat, Berale, and Afdera. The total population supposed to benefit from the project for those 3 locations is about: 5 500 pp out of the hygiene promotion activities.

The action radial is very wide and in very remote areas with clear need regarding water access.

The project monitored is implemented by COOPI and the project should end next February 2017.

3. CAPACITY OF THE PARTNERS:

3.1. UNHCR:

UNHCR is supposed to monitor and coordinate the implementation of WASH activities. The mission in Shire was accompanied by the National WASH Specialist from UNHCR and the local WASH Specialist assigned to the UNHCR intervention in Shire.

The *local WASH specialist* apparently was *more involved in the shelter component of the response* rather than WASH, *despite* of the fact that the *main challenges and concern are coming from the WASH sectors*. When the person in charge of WASH for Shire intervention seems to have some minimum technical skill, he was barely able to answer any question about the intervention led by IRC and the general issues related to WASH services for host and refugees communities.

At least, this staff was able to remember some of the historic of the intervention.

Most of the problems/issues highlighted during the monitoring were *discovered by him in the meantime as us*. This situation clearly demonstrates a serious gap in terms of monitoring from UNHCR staff. Even, the National WASH Specialist from UNHCR who held a mission last December and issued at this time a bench of recommendations (among which some were the same as in this report) did not get any follow up from his own colleague about the progress in addressing those issues and implementing the recommendations...

The *same statement can be makes when it comes to the technical assistance supposed to be provided to partners by UNHCR to ensure:*

- appropriate and cost efficient design and management of facilities/services (e.g.: latrines, water quality monitoring, ...),
- minimum requirement for water and sanitation equipment set up,
- adapted and dynamic hygiene promotion approach
- etc...

In addition to that, the local WASH specialist from UNHCR did not demonstrate a great interest in the monitoring, even when serious issues were highlighted.

The **National WASH specialist** from UNHCR seems to be technically **enough proficient** for his job. He **demonstrates a great interest in the monitoring and was trying to supportive in findings solutions** to problem. He had almost a better overview of the WASH situation for the camps of Shire than his local colleague. Apparently, he reacts quite fast when some serious issues deserve his presence (e.g.: visit by him and the national WASH coordinator from IRC following the stopping of the main BH² supplying one of the Hitsaf camp...).

3.2. IRC:

National coordinator:

The same statement could be applied than for the UNHCR national WASH specialist. The WASH coordinator seems to have **some proficiency in WASH**, but with some **gaps when it comes to water quality and equipment of centralized water supply system**. Then, given some of the issues noticed during the visit it seems that the level of formalization of monitoring tools needs to be drastically enhanced from his side as well. **The WASH Coordinator should not discover all those problems because there is a technical monitoring visit from ECHO.**

It seems that the WASH coordination **understood the seriousness of some of the issues** reported and had some idea about the way forward.

Local staff (Shire response):

The **technical proficiency** of the staff meet on the ground apart one, is **quite weak**. Only the senior technical advisor shows some relevant technical skill, but still not very impressive for such volume of activities (IRC is in charge of the WASH in 5 camps). Most of the staff meet were young with **various kind of background not always related to WASH**. It is clear that **IRC struggle with human resources. The acting WASH manager was quite confused in trying to give an overview of the situation and even more when entering in details of the response. The management of the team and the capitalization regarding monitoring and data collection were also very poor and led too many gaps** and issues noticed on the field during the monitoring. The levels of proficiency of some of the staff as well as the level of supervision/monitoring do not enable them to be reactive and relevant/creative in identification of problem and solution, with an impact as well on the use of resources and then the value for money of the intervention.

The lack of technical proficiency led to some problem with design and implementation of the water and sanitation equipment like for instance: oversizing of some of the component, or sub optimal use of the resources/facilities, poor set up/selection of equipment/materials.... This situation affects also the sustainability of the action notably for latrine management for instance...

² Borehole

The level of equipment on the site is also poor: no water test to follow iron and mangan concentration; no systematic monitoring of groundwater table whereas the aquifer overthere is very complex and sensitive (this problem apparently should be solved soon), ...

The former WASH manager unfortunately passed away few months earlier but still hasn't been replaced with an appropriate profile which led to many gaps in the logic of intervention, the supervision and the monitoring.

Following the issues highlighted here above, there is a clear lack of capitalization, notably when it comes to pilot project, etc... There is also a clear need to be more resourceful to find the best to manage the existing resources.

Note: We have to *note* as well *when assessing the level of performance of the partner* that the environmental *context is particularly tricky* with regards to the water and sanitation services: complex hydrogeology which affect the quality and cost efficiency of the water supply; low seeping capacity of the ground and especially very high presence of stone and rock underground in many locations which hamper the construction of sustainable and appropriate latrine pits. The limited resources for the response can explain some of the issues noticed but only few of them.

Overall level of performance: When the partner demonstrates some good in/output from their intervention, the numerous gaps including some serious issues highlighted in this report give a low rate to their performance. There is serious need to improve certain aspect of their response and in particular the monitoring, the value for money along with the eco-technical analyze of the actions/facilities they implemented, ... In another hand, on some issues (iron, problem of water point level of supply...) the partner had a good and relevant reaction.

3.3 COOPI:

The *technical skill* of COOPI is a *bit weak when it comes to design and selection of pipe and fitting work* for water supply system.

The *technicians found* on the different field and in charge to directly implement the project seems to *have adequate experience at least for the basic part of the project*. However, the *lack of proficiency when it comes to hydraulic network, request a much rigorous and stronger supervision from the project manager*, especially for the main stages of implementation.

The design stage (hardware; water supply system) should be led by the national WASH adviser or others appropriate staff with regards to this aspect of the project.

The *capacity of the staff in charge of training is quite limited*, and most of facilitator or coach for the training component does *not have appropriate profile and obviously skill* to deliver or facilitate training for adult. Most of those staffs are coming from the Woreda water office as they are partner of the project.

The project managers as the national WASH adviser have mainly background in geology, then there is some gaps of skill with regards to hydraulic work. However, ***during the debriefing it happens clear that the project manager understood all the recommendations delivered through the monitoring***. It seems as well that he ***understood the actions to be taken. TO BE FOLLOWED...***

Overall performance: difficult to state on that as the level of achievement is too low so far. At least, it seems that the cost efficiency aspect is taken into account by the partners and that the staff seems to be more or less adequate for the project since there is led on the design and support for the main stage of the construction work (water supply system) from more senior staff than the ones found on the field.

4. QUALITY OF ACHIEVEMENT:

4.1. IRC – Shire Erythrean refugee's response:

The main problem identified in terms of quality of achievement or service providing:

- Lack of contractor supervision
 - ⇒ Ex.: big difference of quality in terms of construction work from one latrine to another; problem of respect of the design for latrine: cover of drophole missing or inappropriate; no net on vents pipe; setting up of the vents pipe in front of the access door; implementation of an elbow on the outlet of latrine which led to high water consumption and blockage of the outlet, etc...
- Lack of monitoring:
 - ⇒ Ex.: level of chlorine in the water network; fuel consumption; abandoned nonfunctional latrine structure (source of pollution); privacy issues on latrine facilities; planning of desludging needs in time (before pit get filled up), lesson learnt from pilot project (UDT latrine); record of water production/distribution; no clear and appropriate groundwater monitoring; water quality (iron, mangan, conductivity, TDS...); no water quality monitoring at HH³ level (see ECHO WASH policy); frequentation and opening schedule of water point, difference of level of supply by water point; taps missing or not functional ...
- Lack of rationalization in equipment set up (pb in use of resources):
 - ⇒ Ex.: oversized of generator, use of steel or GI⁴ fitting and pipe in a context of aggressive water (level of iron, ground, ...), inappropriate outlet of generator (impact the lifespan of the equipment)...
- Lack of formalization and security of staff:
 - ⇒ Process of chlorination and preparation of the mother solution with high concentrate chlorine product (toxic); monitoring tools; project technical documentation present on

³ household

⁴ galvanised

the field (poor), reuse of the resources (construction materials from abandoned latrine, ...) ...

- Lack of critical/strategic thinking and adaptation to the context:
 - ⇒ Ex.: problem of latrine distribution approach based on shelter (which led to situation with one latrine for 1 or 2 persons...); pilot solution directly implemented at large scale (latrine design with offset pit); lack of economic analyze of their action; no estimation of the needs at mid-term (latrine pit filled up and need of decommissioning of desludging; borehole losing capacity due to high iron concentration, ...), ...

4.2. COOPI - Afar Region:

The quality of achievement of COOPI on the ground could not be monitored given the delay on the project. At least, about training we can mention the following issues related to achievement but also design of the activity (despite of those problems are pretty recurrent in the RO NBO region for all the partners delivering training to beneficiaries communities):

- Lack of relevancy of the modalities of training following a very scholar approach instead of the education for adult principles (SARAR method)
- Lack of interactivity of the training (basically trainer/facilitator reading a manual...), lack of visual and illustration support for training (picture, drawing, scheme, video, exchange of experience, display of hydraulic fitting, ...)
- Lack of sustainability: no refreshing, no continuous training, no coaching/mentoring on site (but the partners plan to implement on-site training session during the implementation of the construction work which is at least a good point)

In addition to that, but once again this type of issues can be found in maybe 80% activities funding by ECHO in the region, there is no plan to clearly monitor/assess the impact of the training: no entry and exit test, no clear post training monitoring, no possibility to identified the strongest element and to use them as focal point to keep the memory of training, etc ...

5. MAIN ISSUE DISCUSSED AND TO FOLLOW UP:

5.1. Eritreans refugee's response, Shire - IRC:

5.1.2. Hitsafs (11 557 pp):

One of the **main problem** found on the field was the **presence of very concentration of Iron** (over 2,1 mg/L when the norms threshold is at 0,3mg/L). In consequence, the BH presenting such concentration of chlorine has been stopped, which **impact the average production and then availability of water** substantially, especially during the annual drought. **Most of the water points** do not get more than **2 hrs of water per day**. The water points located the furthest are even getting less than that (the **WP13 gets 13min. of water for the day of our visit**; problem of pressure). The problem was also coming from the fact that people was not informed about the problem, and then many complaint was raised by the

community when visiting the water point. **IRC and UNHCR found an appropriate solution** and PE tank (with as volume the daily demand of the water point) will installed next to the affected water point to ensure appropriate supply (the tank will be able to be filled up out of the peak time...).

For those water points located at the edge of the network, the problem is also related to a **problem of hydraulic regulation** of the distribution network and maybe hydraulic calculation to select the appropriate diameter. That said, we have also to note that the **partner** in charge (IRC) **had to cope with the new influx of people and the unilateral selection of new site by ARRA without taking into account the capacity of the existing water supply system.**

No backup generator at BH2. Problem of **generator oversized**, for instance BH3 has a pump of 4kW and a generator of 36kVA when 18kVA should have been enough.

Another **serious problem** about the water supply is coming from **the way chlorination is performed** (batch chlorination) **and monitored**. As in almost all the camp visited (only 1 was working differently) the person in charge to perform chlorination did not use their safety equipment (which actually were not adapted; for instance textile hand glove to manipulate high concentrate chlorine instead of rubber one...) and were preparing the mother solution in a confined environment with high presence of aggressive gaz from chlorine...). Furthermore, instead of injecting the chlorine during the filling up of the tank and then ensure appropriate mixing, the chlorine is injected when the tank is already full and the valves for distribution open 30 min. after. This procedure is only tolerated in case of bucket chlorination. The contact time should be more close to 2h with appropriate mixing and more close to 12hrs when the mixing is done by diffusion as IRC do. As in all the camp there is no monitoring of water quality at HH level.

The partner together with UNHCR tries to investigate but no explanation. The fact is that in the area the geology is pretty complex... The reaction of the partner on this issue was appropriate.

The partners does not understand how suddenly the concentration increased that much. They are considering given the needs of water and limited resource available to implement a treatment plant. The treatment of iron is pretty simple: aeration, decantation and filtration, but it means an additional investment and especially higher operating and maintenance cost. The maintenance has also to be ensured.

The turnover of refugees in this camp, more consider as step towards others destination refugee's have in mind, **make very tricky the involvement of beneficiaries population** in the activities, and the level of ownership is quasi null. This situation led to problem to dispatch the relief, plan the infrastructure and impact the lifespan of the facilities as there is no care at all from the users.

Only **2 communal kitchen** on the site (gathering about 11 500 pp) and both of them were **not functional**.

One of the main problems faced by the refugee's is the access to wood for cooking notably with conflict happening with the host communities on this topic. In addition to that, UNHCR estimate a gap of 513 pp without access to latrine.

In this camp, IRC develop 2 years a **pilot test for UDDT latrine** and reuse of the sludge. Apparently, **no appropriate monitoring has been completed**. Then, **after 2 years there is no lesson learnt from this pilot, no documentation produced, furthermore most of them seem to not be in used** (lifespan of the pit was supposed to be 8months and after 2 years none of them get full). As mentioned in the section quality of achievement, the design of latrine seems also to don't be appropriate (rebuild of an offset aside the latrine after the first one is filled up...) and already implement at large scale when it was a pilot.

Most of the latrines are not hygienic: no net on vents pipe, no cover on drophole...

The **main challenges when dealing with latrine in all the camp is the very high presence of rock and stone underground** which bound the implementation of appropriate pit size.

No presence of hand washing facilities in the camp.

The **level of survey and inquiries** to better identify the gaps and the challenges is **quite poor**.

Eco-technical analyze of the system in place should be undertaken by the partner to ensure value for money and cost efficiency in the response. Such analyze will also contribute to make the system more affordable for the users and plan a progressive handover of some of the task/duties in terms of WASH facilities management to the users.

5.1.3. Shimelba (5347 pp):

The populations living in this camp are there for long time, most of them are coming from the Kumana tribe. This camp might be the most stable in the area, nowadays this camp is quite forgotten from the donors community, **ECHO might be the only one investing over there**.

The **main problem** noticed in Shimelba was related to the **quality of water**. Actually, during our visit we found **very high concentration of chlorine in the water at water point level** (over 5mg/L against the average range of 0,3-0,5 mg/L out of epidemic outbreak period), as well as the **presence of fine particles** (showed by ARRA represent) which seems to be coming from the corrosion of pipe (aggressive ground, and then aggressive water enhanced by high chlorine concentration and GI⁵ pipe...).

The BH were not sealed.

There was a problem of coherence in the information recorded in the log book.

Regarding the **sanitation**, the **main problem** was the level of access to latrine. In the meantime, this issue was much more **related to an inappropriate distribution of latrine per user** rather than a lack of resources. Actually, when visited some latrine we found **numerous latrine used by only 1, 2 or 3 persons**. The problem is partly coming from the fact that all the **distribution of latrine was based on shelter and that numerous of them are under occupied**. This **issue should be solved** soon as the UNHCR Representative and the deputy director of ARRA pledge that now the partner will have to monitor the

⁵ Galvanised

number of people per shelter and the use of shelter when high population turn over (ECHO TA in charge has already asked for such improvement numerous time in the past without change).

The **level of technical documentation on the field** as for all the others camp is **quite poor**.

Water availability at water point is only **3hrs per day** (under standard when the quantity is in the standard).

The price of latrine: 1 block with 1 latrine and 1 shower = 10 000 ETB (460USD); 1 latrine stance alone = 8 000 ETB/stance (365USD).

Most of the latrines are not hygienic: no net on vents pipe, no cover on drophole... no hand washing facilities.

As for all the camp the **hygiene promotion approach** (doors by doors visit max 30min. by visit; coffee ceremony focus group/discussion,...) is **quite standard, holistic and repetitive... Not relevant** and the impact of such approach should be very low.

The **main challenge reported by the partner** is the **latrine use**.

5.1.3. Adi Arush and Mai Aini:

In Adi Arush numerous problem have been pointed out. Most of them have been also noticed in the others camp at different level.

Once again, we found **very high concentration of free residual chlorine** (FRC) in Mai Aini **at tap level** (over 3,5 mg/L).

Once again, the **distribution of latrine** per user was **pretty sub optimal** (1 to 3 pers /latrine stance) whereas this context is supposed to struggle with the funds. Whether the **problem is quite link with the family composition** of those camps (numerous group of young adult, ...), **it does not mean that the partner cannot put in question and adapt the current strategy to improve the value for money of the response and especially be able to serve more people with the same level of resources**.

The cost of the desludging is about 40USD/6m³ (about 3 to 6 latrine pit) and the frequency 1 or 2 time per year in average and according the number of user.

Once again, most the **latrine are not hygienic** and the chlorination not properly done. There are few UDDT latrines, which seems this time to be in used and fitted with a cover on the drophole. The problem is that the cover is not adapted to the size of the drophole, then still some opening and movement of flies.

Numerous abandoned damaged latrine structure and already totally filled up latrine pit have been noticed within the camp and with children playing around. Within 10 latrines visited: 6 were filled up; 2 damaged (meaning 80% of latrine nonfunctional) and 2 only were functional and from the 10 only 3 had no problem of privacy or with their door.

The quality of achievement from the contractors notably for the latrine and then their supervision by the partner showed several issues: respect of the design (*no cover on drophole; no net on vent pipe; difference set up from one latrine to another: vent pipe in front of one access door, elbow on the outlet of the latrine...all that can led to problem of aeration and then fermentation in the pit, blockage of the outlet, proliferation of vermins...*), quality of the concrete and construction materials in general

The **hydraulic equipment** of the water supply system clearly **needs maintenance** (check valve and water meter not working, BH not sealed...). No get valve at water point, which will impact the whole water supply in case of leakage. As for the others camp, it has been noticed that some of the **hydraulic equipment of the water supply haven't been properly selected**. For instance: presence of ¼ ball valve for the outlet of the storage tank which will generate strong hydraulic hammer and then decrease the lifespan of the whole water network.

Most of the **jerricane** found at water point were **dirty**, whereas in the others camps they were clean.

Some of the construction materials, for instance the iron sheet are from **bad quality**.

In this camp, IRC is mixing a water resource having high concentration with one without but the process is not properly monitored (*no equipment to measure the quantity of iron, when it is very cheap maybe 100 to 200USD*).

Looking at the **design of latrine**, their dimension seems to be quite oversized (as for the others camp), and save on the funding to serve more people could be applied easily by small revision of their dimension (e.g.: height over 2,5m).

5.2. Eritreans refugee's response, Shire - IHS: Endabaguna (transit/registration center)

The WASH partner of UNHCR for this location is an American/local NGO named HIS (Innovation Humanitarian Solution).

Problem of **minor staying over 6 months in a transit center** have been reported by UNHCR/ARRA.

There is **no appropriate dump site to dispose safely the sludge as well as solid waste**. The former land fill used is now not accessible because of the rain. In addition, this site is located about 30km from the transit/registration center. The **desludging of latrine is undermined by many solid waste dropped into the pit by users**.

The care takers use to clean the latrine are always the same (no turn over) and they are all coming from the host communities as refugee's do not want to be involved in the cleaning of latrine.

The town in which the registration center is located **faces a regular shortage of water in April and May**, due to drop down of the water table into the BH use to supply the town. The total water of the town is estimated at 880m³/day when only 450m³/day is produced in average. HIS the WASH partner as well as the UNHCR WASH specialist did **not have any clue about the water access situation of the town**,

whereas this shortage of water affect both refugees (supply by the town water supply system) and host communities and can be a source of conflict at some point.

The taps lifespan is about 2 months due to the quality of the tap, then better quality should be tested as it can be cheaper at the end of the day.

Given the existing structure in the camp, ***the rain water should be promoted*** (only tank and connexion is needed) as water resource given the limited access of the town, at least for domestic purposes.

5.3. Afar region - COOPI

5.3.1. Erbati

In Erbati, COOPI only start cleaning of a well filled with any type of waste and especially by 4m of stones threw in it. Actually, when the pump broke down, the population has opened the trap door to still access water. The problem is that the trap door was sealed with mortar and then it could not be closed again.

The discussion with the partner on the site tackled the general access to water in this locality. The ***level of knowledge of the partner in terms of overview of situation was not sufficient***. The well cleaned could have been fitted with two hand pump instead of one, which would be worth in such situation with very high pressure on each water point.

The last problem discussed was the ***security of staff working in the well*** (gaz in the well produce by the motopump, risk of motopump falling down into the well..)..

5.3.2. Berale

In Berale, the discussion about the training component of the project started in Erbati continued with the partner. The ***problem related to the training*** are described in quality of achievement, basically: no test of knowledge before and after; method of training not adapted to adult education; pedagogic skill of facilitator and trainer...

The ***main problem*** discussed in Berale is the ***feasibility study and design of the water supply system expansion and the reuse of the existing equipment***. Too many data were missing or not accurate enough to ensure an appropriate design and cost efficiency/value for money of the intervention, as well as the sustainability.

For instance:

- the topographic survey has been done only with mobile phone (not accurate enough in the context),
- the yield and quality of water from the BH not known
- the hydraulic calculation were not done, the class of PN/NP not appropriate (exiting pipe 10 bars when the system require at least 16 bars NP/PN),
- there was no eco-technical analyze of the existing set up and the need of upgrading,

- the equipment to facilitate and encourage cost recovery from the user was not planned...

5.3.3. Afdera

In Afdera, we could not visit the new site for the project as too far to reach within a day and wrong information initially from the Woreda about the accessibility. So, we discuss the water access of the Afdera town planned by COOPI originally. The plan for Afdera had to be reviewed upon request from the Region water office. Actually, this relocation of the project was very worth, as the situation of water access in Afdera is totally unclear with what it seems a waste of resources.

Afdera is located next to a salt lake exploit by private companies. There is only salt water in the area, and people are used to drink water from an hot spring after cooling down. Then, 3 years CARE with fund of USAID implement a unit of reverse osmosis (about 300 000 USD) to remove the salt, which was abandoned 2,5 years after. So, first the process seems to be after been oversized and not based on water analyze which mean more operating and maintenance cost as well as initial, moreover the lifespan of reverse osmosis membrane is short, especially compare to ceramic membrane which could have been used in this process.

Then, the operators did not have any clue about how it is working, in consequence the ***maintenance was not properly done and after few years the system performance dropped down significantly. The private companies paid brand new reverse osmosis equipment*** with higher capacity instead of to maintain properly and expend the existing system. Furthermore, while installing the new treatment plant, a BH has been drilled (*funded by Region which got a lot of funds from World Bank and UNICEF following the drought*) few kilometers from the town where apparently fresh water has been found. Thus, the water supply source should now be this BH and the treatment plant a ***waste of resources...***

At the end, it was ***benefic that the project has been relocated.*** The new location for the project is also (a town (75km from Afdera off the road) a place where ***CARE with USAID fund*** implement a water supply system from a BH drilled by CARE and 7 km from the town. ***The water supply system had last few months and then it stop working.*** The reasons for the failure of this project were not clear from the Woreda water office. ***The partner should*** complete soon his assessment, and then should ***learn from the failure of this project to ensure better sustainability to his action*** and avoid waste of resources.

6. RECOMMENDATIONS:

6.1. IRC:

6.1.2. Recommendations to be addressed within 1 month:

- Implementation of clear protocol for chlorination of water: preparation, injection, mixing and monitoring; Correction of the current way to do it at every step; Improvement of safety of worker in charge to produce chlorine solution; ensure appropriate and reliable monitoring way... Ensure appropriate training/supervision of the staff in charge.
- Decommission or blocking up of non-functional latrine to avoid source of contamination, access to children and risk of injuries
- Recycling of construction materials from abandoned structure/facilities to reuse in further actions
- Improvement of generator outlet (to avoid undermining of generator lifespan)
- Identification of functional and non-functional latrine; needs of rehabilitation; closure of latrine having their pit filled up (until desludging); blockage of non-functional and damaged latrine to avoid risk of contamination of the living habitat
- Improve the planning of latrine desludging to avoid late desludging (a basic piece of wood could be used to measure the level of feces into the pit with a clear threshold on the level fix up which imply a desludging within 1, 2 or 3 months...)
- Improve drastically the level of monitoring and supervision; source of information and tools/template; formalization (ToR, strategy, action plan...), backup and cross check of information; develop check list, monitoring matrix/steering table; implement survey/inquiries (schedule and level of supply as well as frequentation of water point...); average storage capacity at HH level; log book at pump station and storage tank location (with record of fuel consumption, water production, working hrs of generator, static and dynamic level of groundwater table and recovery time when measured, starting and stopping time of tank filling, quantity of chlorine used...).
- Investigate the presence of fine particles in the water supply of Shimelba camp
- Mitigate the risk of hydraulic hammer by appropriate fitting implementation (long run closing valve, inertia steering wheel, hydraulic vessel according the level of risk.

6.1.2. Recommendation to be addressed within 3 months:

- Rationalization of the equipment/composition as much as possible (and according the possibilities offer by others sites equipment's manage by IRC) of:
 - water supply system: replacement of oversized generator but more appropriate one (to reduce the fuel consumption and final initial cost of system...); ensure backup system; harmonized the number of hygiene promoter as it is always the same despite of big population variation from one camp to another...
- Rationalization of the distribution of equipment by users:
 - Latrine: avoid 1 latrine for less than 5 or 7 people
- Test on few facilities the approach for latrine management: second latrine pit connexion (angle on the outlet) once the first one is filled up; then follow up the level of blockage occurring as well as the quantity of water needed to flush the latrine...

- Implementation of groundwater table water monitoring equipment to ensure follow up of static and dynamic level as well as recovery time of the most sensitive BH
- Implementation of water quality monitoring plan including follow up of the raw water quality (iron, mangan, conductivity, TDS, hardness and alkalinity and eventually bacteriologic test) at main different season critical time of the year; and including HH level FRC or bacteriological test
- Improve regulation of hydraulic system to ensure fair and equal level of supply between water points.
- Ensure that all BH⁶ head are sealed to avoid access
- Ensure that most of latrines at least are hygienic meaning: no access to pit from the vermins; cover on drophole and net on the vents pipe outlet, ensure identification and correction of non-conformity in latrine construction/design, ensure stability of the latrine slab/structure...
- Privacy of latrine must be ensured (opening, door...). The gender mainstreaming in general should be improved.
- Epidemic data from each site should regularly collected and record, in order to be available on the field.
- Ensure that all the taps at water point are functional and not leaking.
- Where there is big changes in the yield of the BH, pump test at critical time of the year should done or redone... to ensure appropriate tapping of water.

6.1.3. Recommendation/proposition:

- Consider not only unit price of equipment to be implemented within the framework of the project but also the lifespan to assess the best economical options.
- Improve data collection and capitalization in general including the epidemiological data from each site as well as from the host communities. Improve the understanding of the host communities water supply access.
- Improve in general the economic analyze of the WASH actions planned in general and the cost efficiency and value for money of the intervention, as well as affordability of the system for the user (to ensure better self-reliance of the users...)
- Improve the equipment of the water supply system:
 - Ensure get valve at each water point to avoid impact from leakage
 - Ensure presence of functional water meter (on main distribution line as well as at the source of water) and check valve
 - Ensure presence of purge/drainage and air valve on the network to enable flush of deposit (high concentration of iron...) and facilitate restart of the water supply system after a stop
- Improve the level of monitoring, survey and inquiries notably by better use of the hygiene promoter capacity. Improve the targeted of the hygiene promotion actions (based on specific issues in specific location of the camp and identified by hygiene promoter walking about within the camp...)

⁶ borehole

- Improve the level of monitoring and capitalization about the pilot of UDT latrines existing
- Ensure safe disposal of the solid waste and sewage (black water)
- When new BH and new network ensure that the materials use for the equipment are the most adequate for the existing quality of water and ground (avoid use of GI or any steel pipe when the water and ground are aggressive)
- Plan the WASH needs of the camps at mid-term taking into account lifespan of the main equipment for instance latrine (pit), BH, pump, generator...
- Improve in general the contribution of the targeted communities within the implementation and management of the WASH facilities/services. Develop a strategy at mid-term (3-5 years) with clear tasks expected to be hand over/done by the communities at different stages of the period considered.
- Improve the transfer of experience on innovation, good and bad practices, etc...
- Improve the level of technical documentation on the field. Ensure appropriate technical scheme of water supply system with all relevant technical information mentioned (safe yield or BH and pumping hrs, size of generator and main features of pump, diameter and materials of pipe, volume of storage tank...).
- When designing an equipment (e.g.: latrine) the BoQ should be optimized to use the less resources necessary to don't affect the quality and the service provided (see for instance the height of the latrine implemented in all the camp – the argument in such environment is not really acceptable compare to others context of intervention of the region.

6.2. COOPI:

6.2.1. Recommendation to be addressed within 1 month:

- Improve the data collection and the feasibility assessment of the Berale water supply system expansion.
 - Ensure cross check of the data collected and ensure appropriate communication with the different local national stakeholders involved (Regional, zone and woreda level).
 - Perform and provide a topographic survey (using accurate equipment) of the main pipeline (pressure line and main distribution line);
 - Perform and provide hydraulic calculation and find the best eco-technical option between diameter of pipes, location of storage tank and pump (to avoid pressure over 16 bars on the pipeline as the price for such pipe would rocket sky) and type of pump to be implemented; Develop an eco-technical analyze of the intervention and the different options envisaged
 - Produce hydraulic and topographic profile of the pipeline
 - Provide the final features of the main equipment to be implemented: pipe, pump, generator
 - Perform or redo pump test following clear and standard procedure: step down test, continuous test for X hrs...

- Ensure water quality monitoring and at least water quality test at the stage of feasibility study, especially: iron, mangan, conductivity, TDS, pH, hardness and alkalinity and bacteriological test...
- Ensure all BH head are sealed
- Ensure presence of water meter on the different main supplying line
- Ensure the presence of a relevant and appropriate log book at pump/generator station to record at least: water production, working hours of generator, fuel consumption, service of generator, any breakdown...
- Ensure that the set up and the equipment of the water supply system are optimized to make the infrastructure cost efficient and the most affordable for the communities in terms of O&M cost...
- Complete and provide final assessment and plan for the Afdera water supply project

6.2.2. Recommendation/proposition:

- Improve the technical support from senior staff at assessment/feasibility, design and main implementation stage...
- Improve the overview of the whole water supply situation when intervening in any communities
- Ensure appropriate safety of staff when for instance working in wells
- Ensure optimal use of the water resources (especially in such arid context...). For instance in Erbati if the yield of the well enable it, implement two hand pump on the well instead of 1 to ensure access to more people.
- Improve the relevancy and modalities of training strategy and implementation:
 - Based the strategy of training on adult education
 - Ensure more time for practical training and interactivity
 - Develop appropriate tools and pedagogic materials for the training: scheme, drawing, presence of spare apart or else, interview, audio or video, picture to ensure illustration of the training and a more practical/visual approach rather than to focus on concept... Build on identify good and bad practices/experience identified in the context to illustrate some of the topics of the training...
 - Ensure knowledge or practice test before and after training to be able to “measure” the impact and identified the strongest attendees of the training...
 - Improve the sustainability of the training by implementation of refreshing, coaching or mentoring approach using for instance the strongest attendees of the training to provide technical support (as focal point for instance) to others attendees and keep the memory of the training to ensure longer dissemination in time...
 - Improve the skill of trainer and/or facilitator of training to deliver training for adult
 - Develop a higher level of training) if relevant/feasible) for the strongest trainees to ensure a dynamic of improvement (capacity building) and avoid trainee losing interest...