

RAPPORT DE MISSION

Subject: Kenya WASH RSO Mission (WASH in Health center and Cholera response, Wajir County)
Auteur: Jerome BURLLOT (WASH Adviser/RSO Nairobi)
Date: Du 16 au 19 November 2015

Main partners and visited sites list:

Wajir (accompanied by Filomena Santoto, Kenya/Uganda ECHO TA, Eunice Maina, Kenya/Uganda ECHO PA, and Koen Henckaerts, Regional ECHO Health Expert):

- Save the Children (STC): Karen Poore (Director of Program Development and Quality), Beatrice Otieno (Area Manager), Martin Gichuru (WASH officer) and others staff
- Islamic Relief: Thomas Marori (WASH Coordinator) and his team, Rod Volway (Area Manager),
- NDMA (National Disaster Management Agency):
- Health county department: Executive Chief and operational staff
- Water county department: Executive Chief, Senior Engineers, Director of Water compagny

Table of Content

1. EXECUTIVE SUMMARY.....	3
2. BACKGROUND TO THE EVENT.....	4
2.1. WASH situation.....	4
2.2. Cholera trends.....	5
3. CAPACITY OF THE PARTNERS.....	7
4. MAIN FINDINGS.....	8
4.1. WASH Cholera response.....	8
4.2. WASH in Health structure.....	10
4.3. Drought preparedness (meeting with NDMA and Oxfam).....	12
5. MAINS RECOMMENDATIONS AND ISSUES TO FOLLOW UP.....	14
5.1. WASH Cholera response.....	14
5.2. WASH in Health structure.....	15

1. EXECUTIVE SUMMARY

The partner monitored in the WASH sector in Wajir County (Kenya) was Save the Children (STC). The initial STC project was focusing on nutrition with WASH intervention in the health structure but a WASH component for cholera response has been added after the declaration of the outbreak within the County.

The performance of STC is more or less acceptable but with many issues to be addressed and axes of improvement. The involvement of STC within the cholera response is very limited. STC mainly provide inputs to the County government Health department in charge of the implementation of the response. The proficiency of the STC staff in terms of WASH cholera response is quite low. In the meantime, the staff of the county health department seems to demonstrate commitment and some interesting relevancy in analyze and identification of the activities to be implemented and in adapting the response to their findings along the response. Given this situation it is relevant that STC limits its involvement to keep the local authorities the first responders.

The main issues noticed during the visit were:

- No presence of pool tester to monitor the activity of aquatab distribution (against the ECHO WASH policy). Pool testers should have been part of the inputs provide by STC to the County Health department since they provided aquatab.
- As much as possible, when at local market a HH water treatment product is already available, it should be the one used for the response to mitigate the risk of misused of product (dosing rate, ...) and to ensure sustainable access even after the end of the response. This type approach ease as well exit strategy by building on the existing at first instead of implementation of new service.
- Documentation about the outbreak at STC level was limited
- The hygiene promotion approach and materials should be more targeted, dynamic and adapted.

The WASH interventions of STC in the health structure within the framework of nutrition project demonstrate a clear lack of relevancy or inconsistency in some of the action led. Actually, the approach is too standard/holistic and it seems that most of the project has been designed based on a very weak assessment in terms of WASH.

The main issues noticed during the visit:

- Systematic importation of new equipment when there is some existing equipment that could have been upgraded and reused (e.g.: existing cistern ...).
- Technical implementation that could be much more efficient and effective (*e.g.: absence of by pass on rainwater harvesting system whereas it could have improved a lot quality of water stored and then storing lasting time; rehabilitation of health center latrine that left the latrine still non hygienic: no cover on the drop hole, no insect net on the vents pipe, wrong positioning of standing block, inappropriate plastering which left a lot of interstice for the bacteria strains to fix and develop*).

In terms of drought and El Nino preparedness, from the meetings held on this topics analyze, the main issues noticed/suspected are:

- Unclear added value of the NDMA (Natural Disaster Management Agency, funded by EU)
- Limited level of analyze of the risks and the response
- Limited level of accurate and reliable data in general
- Limited local capacity of response (only 9 water truck in the whole county)
- No update of the water point mapping and no assessment of the water point capacity and sustainability

- Problem of corruption and illiteracy; problem with very high per diem request by the local authorities for their involvement and partners accepting such practices.
- Failure of the CLTS approach to tackle problem of open defecation

2. BACKGROUND

2.1. WASH situation

Most of the cholera cases (90%) come from Wajir town. According the health department, all outbreaks occurring out of Wajir town are quickly handled. The WASH situation in Wajir town facilitates the spreading of the disease. The Wajir County represents 10% of the whole Kenya's land mass, then one of the challenge of the zone is also coming from the wide spread of the County. The water department yearly budget is about 1Billion KES, and the total budget of the county is about 7 Billion KES.

The main issues/problematic are:

- ❖ **The sanitation situation of the town:** In Wajir town due to the high level of groundwater table, most of the latrines, when there is, are bucket latrine (*see pics in front*). The latrine coverage is about 48% percent with a high percentage of open defecation. Nowadays, the rich residence, institution and commercial building such as guest house try to implement what they call septic tank, but there is no design and no control of effluent, as well as no information/awareness regarding the functioning of septic tank and the needs to use detergent which will not affect the biological action of the septic tank. The bucket latrine represents about 95% of the latrine asset of the town. The bucket latrines are built with bucket of 20L most of the time overflowing in the environment. The sludge is handled manually; there is no mechanical desludging capacity in town (or obsolete). The content of the bucket should normally be disposed by the so called night soil workers into an unprotected dump site next to the town. The activity is not controlled and most of the time the night soil workers buried superficially the excreta next to the latrine, with all the risks of contamination of the groundwater and the well located few meters from the latrine location. The night soil workers (locally called *night soiler*) level of protection is also very weak and make then at high risk of contamination. The way to handle the bucket should be much more organized and control; the protection of the workers should be clearly improved with equipment that can limit as much as possible contact between human being and human excreta. The solid waste situation is also of concern, as solid wastes are spread all around the town, with again risk of pollution of the aquifer. Groundwater depletion has already been clearly noticed by the fact that that more and more shallows gets dry out quickly after the recharge by rainy season. In the meantime, there is a clear gap in terms of clear and accurate data regarding the aquifer dynamic, the level of contamination/pollution of the groundwater, the main sources of contamination/pollution.



- ❖ **The water access:** the water access in Wajir town is pretty tricky. The main water resources is constituted by a free shallow aquifer located between 10 to 15m underground but which can rise up to 1 to 3m from the surface after the rainy season. This type of aquifer in such semi urban setting is pretty prone to surface pollution and contamination. There are over 15 000 shallow wells located in Wajir town at HH level with latrine few meters far from the wells. The latrine itself should not contaminate the aquifer as the excreta are collected into the bucket, but still by overflowing of the bucket and buried of the content in the close environment there is a risks of contamination of the aquifer.

Most of the bacteriological test performed by partners and local health department shows HIGH level of contamination of the shallow groundwater aquifer (about 78% .

The knowledge about the deep aquifer is not very accurate, but it seems that the potential to supply the town by abstraction of this more protected aquifer is very limited. The deep aquifer (type??) is located between 60 and 75m. More than 15 attempt of drilling under 100m depth have been performed without success: either there is no water or the water is too salty and not suitable for human consumption. The maximum yield that can be expected from the deep aquifer so far is about 2 to 2,5m³/hrs, maximum 10hrs per day (apparently the aquifer has very low transmissivity parameter; to be confirmed). It means that one BH could supply maximum about 1250pp with 20L/pp/day, which is very low and make the town water supply through the deep aquifer unfeasible (according the current knowledge about the groundwater resources).

In some location visited, the water access relies mainly on water pond, rainwater harvesting and storing equipment and water trucking in case of drought.

Out of Wajir town about 70 deep BH has been drilled and are operational. The BH are disseminated in strategic location, but still north east of the county remains very limited in terms of drinkable water resources. Many deep BH encounters problem with high salinity of the water which make the water unsuitable for alimentary purposes, sometime for both human being and animals.



The water equipment in rural areas used to be operated by water users committee also in charge to collect the financial contribution from the users. Now, the water department start up a public water company which should be in charge to operate and maintain the hydraulic equipment and collect the users' contribution, as the former system has showed a lost mal functioning with a lot of disruption of the service, and diversion of the money. Of course, the main leaders in the rural area who benefit from the fees collection are reluctant to see this water company take over the lead on that.

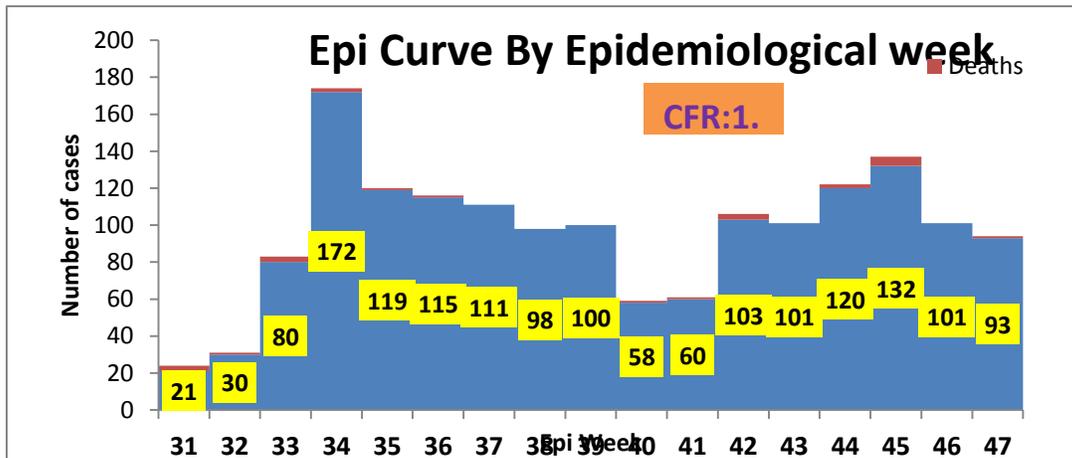
In Kenya or at least in Wajir county, it seem that all water equipment belong to the state.

2.2. Cholera trends:

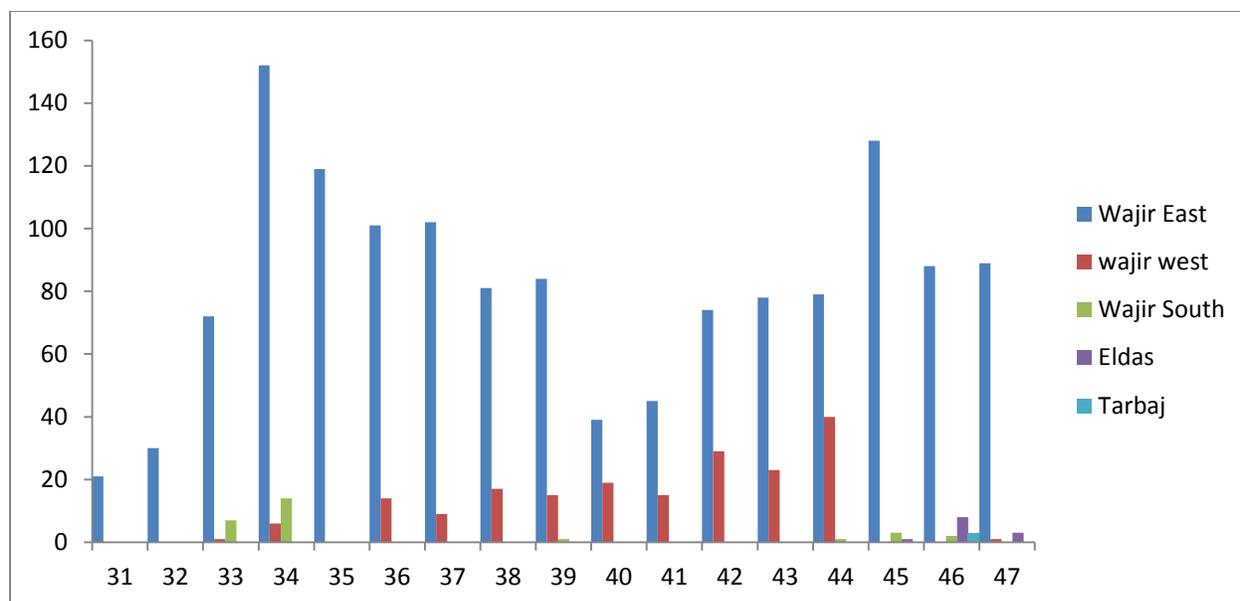
The Wajir already encountered 4 cholera outbreaks (2001; 2007-2008; 2009-2011; 2015) including the current one since cholera has been imported to the continent in 1971.

The outbreak has been declared on the 06th of August and the first case from the central division of the Wajir County was line listed the 29th of July. To date, 1509 cases have been recorded with 21 deaths. Out of Wajir town, the most affected area has been the village of Godade with 310 cases, but still over 90% of the cases are coming from the Wajir town and direct surrounding areas. Most of the death happens in the community which could highlight a default in the level of communication/awareness about the outbreak and the disease (symptoms, location of case load structure ...).

The epidemiological curves show several peaks, which could be the sign of numerous sources of contamination and/or too early decreasing in the response involvement. The dehydration level of the patient/cholera cases is not systematically reported and is not shown in the follow up matrix/curves/tools.



It is important to note that Wajir town population has incredibly increased in the last 10 years due to drought problem as well as inter clan conflict and others sakes such as pulling factor from urban setting consider as economical and service center. The resource of the town notably in terms of water is not adequate for this level and density of population. In the meantime, this increasing of population affects a lot as well the environment with very high increasing of the quantity/concentration of pollution disposed into the groundwater.



3. CAPACITY OF THE PARTNERS: STC

In terms of WASH the level of performance demonstrate by STC is quite low, either in terms of cholera response or their intervention in Health facilities. We have to take into account that the STC project in Wajir did not initially include cholera response in their project but they modify promptly with agreement of ECHO their proposal to support the cholera response. This flexibility is highly appreciable.

The WASH officer from STC is not very proficient and its capacity to provide an added value in terms of technical assistance to the local stakeholders of the cholera response or WASH in Health facilities is very limited. The STC did not provide technical orientations, guideline and analyze to the Wajir health (or water) department. For instance, the health authority modifies the activities of the response based on their own analyze of the efficiency of what they start to do; e.g.: they found out by themselves that chlorination of wells is not efficient and that they should perform chlorination directly in a known volume containers. Although, time could has been saved as is it widely known nowadays by the WASH humanitarian community that wells chlorination must be replaced by action like implementation of a chlorination point to inject chlorine directly into the jerricane. Within the framework of the cholera response, it seems that the local health stakeholders are pretty committed with staffs who are trying to understand and improve the efficiency of what is done on the field. STC only provides input such as chlorine, jerricane, protection equipment, incentive for CHW¹ and so on... to the staffs of the health department who supply and supervise the community workers in charge of implementation of the activity.

This approach is relevant as it promotes the relevant local capacity and different step of the response and thus generates less dependency. The fact is that when you intervention is limited to supplies, it is

¹ Community Health Worker

important to ensure a consistent monitoring to ensure appropriate distribution and use of the relief provided.

The level of monitoring from STC seems to be quite low as well. There is no cross checking of the data provide by the health partners on the field. For instance, none of the stakeholders in charge of the cholera response own a pool tester to be able to monitor the activity related to safe water access.

Within the framework of the WASH intervention in the health facilities, the technical added value and the needs analyze /identification of problem, are quite low. Some of the actions led could have been much more efficient and relevant. The activities within the health facilities seem to be sometime too standard and not enough adapted and define based on assessment. The approach seems to be more built on *what could we do* instead of *what shall we do* with very limited relevancy in the findings of the initial assessment.

In the meantime, it is also appreciable to have a partner trying to work in such remote and complicate place.

4. MAIN FINDINGS:

4.1. Cholera response activities:

Only one cholera affected place has been visited with a school where cholerea response activities have been implemented. The place visited is an area at the edge of the town and so called Barwaqo.

The main involvement of STC in terms of WASH is in providing input and incentive to the health department and their community health worker (CWH). So far, there are 7 CTC² in the Wajir County.

The CHW get an incentive of 2000KES/month from STC.

The response approach in the most dense area seem to be targeted in the way that the CHW intervene at HH level focusing on the house of the cholera case and the surrounding HH with distribution of jerricane, aquatab and irregularly soap.

The school get some support also in terms of latrine basic rehabilitation, providing input such as chlorine product, soap, hand washing facilities (not very relevant when you have taps installed in the school compound, should be kept only in case the taps are without water) and jerricane. Health school club have been implemented with little efficiency. During the visit of what can be locally consider as the model school, we could observed children drinking water directly from the taps, meanwhile the master teacher was explaining us the success of the awareness of the children.

Safe water access:

The approach and the activities implemented have evolved from the beginning of the response, especially regarding the safe water access. At the beginning of the intervention, the local stakeholders

² Cholera Treatment Center

used to chlorinate the well (which inefficiency is widely acknowledged), then they used to do both well chlorination and distribution of aquatab with explanation on how to use it. Now, they are mainly distributing (1cp/HH/day = 20L) aquatabs to HH. In most of the case, the community is going to the closest health center from their place to get aquatab supplies. Apparently, the health department based on the current consumption, have still 2 months of stock.

At the beginning of the distribution many people were quite reluctant to drink chlorinated water because of taste and smell, but apparently with awareness people start to understand the benefit they can get from it. It seems that now most of people use it (according monitoring of the staff of the county health department about 77%).

The problem is that according the ***ECHO WASH policy***:

- ❖ The activity should be monitored rigorously to avoid misused or not used.
 - ⇒ Today, the health department and community health worker smell the jerricane of people to monitor if the water is chlorinated, when pool tester (cheap items) should have been made available by STC.
- ❖ In case there is a HH water treatment product already available in the area (especially in case of different dosing instruction to avoid confusion around the use of the product), it should the one distribute. In case the product is consider as inappropriate, it is relevant to subsidy the distribution and in parallel to give the contact of selected product providers to the main seller.
 - ⇒ In Wajir market water guard which is a different type of HH water treatment is available and cheaper than aquatab. This product could constitute an exit strategy for the people to still be able to access the product if they want after the end of the emergency intervention.

In the meantime, the monitoring of few HH with tested of residual chlorine in water container by pool tester and DPD reagent show 100% of positive test (4 HH tested at different location).

Spraying of case house and neighborhood:

Normally, at reception of the sick person the sprayers take the address of the person and then they are supposed to go to spray the house, latrine and the neighborhood. Practically, this is not done systematically. Furthermore, most of the monitoring of cholera response in the region and notably in place with long experience in fighting against cholera show that in most of the case the protocol of disinfection is not well known and apply by sprayer and can contribute to put in question such activity especially if it is not done rigorously. No spraying interventions have been observed.

Sanitation:

The sanitation aspect given the context is very tricky to address but the minimum for non-dense place should be to bury the excreta. The sanitation aspect is address only through hygiene promotion message fostering use of latrine with very little efficiency. The capacity to improve this situation in such context is very limited for an emergency humanitarian project.

Hygiene promotion:

The hygiene promotion component is pretty standard and basic. Actually, CHW are supposed to visit every day 20 HH to explain the cholera, the rules of protection, etc...

For a limited time duration and in the middle an emergency (not chronicle) this activity can be relevant but as the approach is pretty static and based on repeated same message, population lose quickly interest in it. Most of the messages focus on drinking safe water (aquatab) and washing hand with soap or ash. They also change their initial strategy to include message and support to population (technical advice) to implement dish track. The hygiene promotion should be more interactive, dynamic and creative.

The partners mentioned PHAST and CLTS. Actually, the partners try to implement some of the activity of the approaches. The explanation about how those activities are implemented was not very clear; apparently they just start with that. The problem is that they are also not able to explain why this activity has been selected.

In the meantime, the tippy tap jerricane using any container available in each HH seems to have work very well with most of the house visiting having one. This has been promoted by hygiene promoter and give a good example on how transform easily a message into a practice. Although, whether more than 75% of the HH have the hand washing facilities only 30% wash their hands regularly.

The awareness materials are not very well adapted with too much text and all the information are supposed to on one single poster which make it not clear, especially for people with very little level of literacy. According the master teacher of the school visited in Wajir town, about 95% of the population is illiterate. The posters should be designed and tested with a representative sample of the population. Different poster should have been produced by topics: cholera symptoms, what to do when suspected, main rules of protection...

Coordination:

Apparently there is a daily meeting held at the hospital with mainly health department staff and STC attending regularly. Others local county department are attending from time to time, or just because we were there as the health department made a full presentation of the cholera response to others county head of department like they did not know anything about the response.

4.2. WASH in health structure:

The visit of 3 health facilities (Drasheg, Tarbad, Barwaqo) plus the CTC highlight a certain number of issues in terms of relevancy of some of the initial assessment performed as well as the WASH action led by STC but also in terms of cost efficiency of the intervention.

The main issues noticed during the visit are:

Construction of storing capacity:

Improper construction of storing facilities for the nutrition input. The storing facilities have been built in iron sheet with limited ventilation (*see pic in front*) in an environment where the temperature can reach 40degree. Most of the alimentary items stored in the facilities can be stored in a place where the temperature is over 30degrees. This has to be corrected urgently as nutrition inputs can be wasted for the time being.



Sanitation:

Regarding the latrine/toilette the main input from STC is in building privacy wall (*see pic in front*). Of course the privacy wall is very relevant, but might not be the only thing or the most relevant thing to do in terms of public health. Actually, the latrines visited had no cover on the drop hole, inadequate positioning of standing block in the latrine, non-hygienic drop hole, no insect net to prevent insect or others vermin's intrusion into the pit.



So, it seems that the activity definition is based more on kind of standard approach or tick box approach rather than targeted intervention based on issues/problematic identify during the assessment. Thus the impact of the project on this aspect is very limited on public health and the action not very cost effective.

Hand washing facilities have been implemented in each location visited.

In terms of solid waste management at level of health structure, there is a lot of improvement to make. Especially, in the health center of Tarbad, we could find several very shallow hole (cannot be consider as a pit) with a lot of garbage spread all around including broken glass which could injured visitors and especially children.

Water access:

In two health center plus the Wajir school visited we found solar equipment to pump water for the school and the health center of Tarbad and just for light in the health center of Dasheg.

None of those systems were in used. They have been installed by the NGO called Mentor Initiative and some by the county government themselves. In Tarbad, the system is supposed to pump in a big (*about 30m3, see pic in front*) semi buried cittern



into an elevated tank connected to one tap in one building. The cistern is harvesting rain water from the roof top of the building. The same type of cistern has been found also in Barwaqo as well but there it was not connected to roof gutter and no system to pump of water. The staff of the health center explains that they don't use it as the tap connected to this system is located in a remote building.

This system should have been diagnosed to see if it is possible to upgrade it or to extend it, prior to install new equipment. STC implement 3 PE tank of (2x5m³ + 1x10m³) to store water collected by roof gutter. The roof gutters are directly connected to the PE tank without by pass to dispose the first minutes of rain load with dust from the roof. There is also a potential to increase the exploited roof surface to harvest water by adding roof gutter. This could be relevant in such environment relying mainly on rain water. The staff from the health structure told us that they used to store water for about 2 to 3 months, after that if no rain they need to truck water from Wajir (54km), which cost about 20 000KES/20m³. The town population fetches water from a water pond supplies by rain fall. The scarcity of water in the area can lead to conflict among resident and nomadic population.



In the Wajir' school visited was present a solar system to pump water from shallow well to elevated tank. The system was not working and the school was using another well with a pump supply by generator. Despite the master teacher who explains that it is not working because of the pump and not the solar installation, it is likely that the solar installation is not working. In Dasheg as well the solar installation to supply the building in light (so having batteries) was not working and the solar panel in anyway were not properly installed.

Hygiene promotion:

Most of the health structure had numerous drawing to aware people about different type of disease. The one about cholera seems to be the less relevant as not very comprehensive and content include a lot of writing when most of the population is illiterate (about 95%).

4.3. Drought/El Nino preparedness:

Apparently, the main fear of the NDMA³ related to the El Nino phenomenon is the rift valley fever. 1 M head of livestock have been targeted and so far 580 000 of them have been vaccinated (they said in 2 weeks??). NDMA mentioned the lack of fund to reach the 1M initially targeted. Apparently, what they need is not vaccination which are available but per diem and logistic support (problem of budget foreseen or over expenses???).

The meeting with representative of NDMA brought a lot of question in the level of analyze of the risks and mitigation measure of the management staff of NDMA meet.

³ Natural Disaster Management Agency

Despite of the production of comprehensive contingency plan for the county, problem like animals feeding and watering, criteria to identify hotspot and vulnerability, flood haven't been mentioned. In the meantime, it was difficult to get information about what have been done and what is the added value of the NDMA. One of the most relevant document issued within the framework of the natural disaster preparedness is the mapping of the water resources and the contingency plan but so far the mapping of water resources haven't been provided and it has been done mainly by Oxfam. Whether the water points apparently have been mapped, their capacity and the limit of exploitation of those haven't been assessed. Although in 2011, the county already faced a drought but no capacity/sustainability assessment/analyze of water resources has been done. Very few hydrometer to measure the quantity of rainfall have been installed within the county.

The level of analyze and capacity to assess the sustainability of the ground water resources of Wajir town, to be able to identify the most sensitive spot in town and the most capacity of the most wealthy one to supply more people is very low.

The NDMA told us that the NDOC⁴ is still waiting for direction, so no activities are going on at their level (??).

Still some positive points can also be highlighted:

- The County Ministry of Agriculture provide seeds to farmers in case of flood
- The County Ministry of Water implements contingency stock of water storage but only in Wajir town. The problem of road has been raised to explain the lack of outreach prepositioning.

Interesting information: the NDMA explains us that they faced a lot of resistance from especially rural population when trying to aware them about the risks and the forecast for El Nino. The religious people took the forecast as the NDMA people were trying to speak in the name of god and that they were not entitled, no one knows what is going to happen, only god...

Meeting with Oxfam:

The first project developed by Oxfam GB was focusing on advocacy for water management and use of solar toward the county government, with as success many small scale solar system implemented but numerous in an improper set up and not working any more one year after implementation.

The main problems encountered by OGB were:

- The level if literacy in the County and especially at the level of the communities leaders.
- The corruption, with diversion of money and means

⁴ Natural Disaster Operational Center

OGB stopped to implement training unless a better strategy of response is implemented.

Now, together with others stakeholders of the preparedness and response to natural disaster like MCI⁵, CRS⁶ and SNV⁷, they try to identify and adapt a relevant model of accountability and management of water service. They also should look at data based needed to define and adapt appropriate model.

The County authority implements recently a water company with the idea to take over the management of all hydraulic equipment and ensure payment.

The mapping of water point has been done by OGB, but as they mentioned the problem is that the authorities do not update the document.

OGB and it can be and an issue at some point pilots the management of 13 BH⁸ by a private body. This approach if it is relevant can be at some point in **concurrency** with the direction taken by the local authority when the water company has been appointed. Since the Kenyan water act of 2012 the hydraulic equipment belongs to the state but the operating and management of it can be delegate.

In the whole county apparently only 9 water trucks are functional and most of it operates by private bodies. That's why also OGB wants to build a new system on the existing one (*e.g.: subsidies of the private water supply sector in case of the drought instead of to import external capacity; cf. resilience*), which by principle constitutes a relevant approach.

OGB is also monitoring the groundwater table in about 14BH. ***They have tried to implement CLTS to tackle the issue of open defecation, but they said that the method failed.***

Another problem reported by OGB is apparently the system of incentive payment/per diem for the local authority who ask about 7000KES/day for a mission, which is a huge amount for the place. If it seems fortunately OGB refuse this practice, others actors like CRS and MCI accept it. This is a serious issue that should be investigated and addressed in accordance.

OGB also have funding from DIFD to improve water access of about 15 000pp, so far they reach 23 000pp. The funding from DFID is a result based funding, which seem to be a relevant strategy.

5. RECOMMENDATIONS, PROPOSITIONS AND ISSUES TO FOLLOW UP

Need of investigation/harmonization: Investigate and address in accordance the system of incentive/per diem for the local authorities follow by each partner.

5.1. WASH Cholera response:

Water access:

⁵ Mercy Corps International

⁶ Catholic Relief Service

⁷ Service of National Volunteer

⁸ Borehole

Ensure availability of pool tester to monitor use of aquatab or others HH water treatment product at HH level. Staff in charge from the health department and from the CHW should have it, as well as the WASH supervisor of STC.

When applicable, the existing hydraulic structure or others existing services should be promoted to improve safe water access instead of to implement new structure/service (e.g.: the semi buried cittern in health center instead of implementation of new PE storing capacity. Hand pump could have been used to ensure a mean to fetch water into the cittern).

The following point should be investigated and the option selected should be justified:

Instead of aquatab and according the cultural acceptance and cost efficiency of the various product, the already available on the local market water guard could has been subsidy (if the product seems to be appropriate and not expired), instead of to import a new product that will not be able available at the end of the intervention.

Whether the existing product is not consider as appropriate for technical, economical or socio-cultural sakes, link between private seller and providers could be ensured to enable access in case of demand after the intervention.

In any case, the imported chlorine product should propose the same dosing rate as the existing product. By principle the dosing rate of the product should match the volume of most frequent water containers available on the field. Usually the most found volume of water container is 20L.

The water guard bottle cost 50KES and can last one month for one family (5-6pax) and then is the cheapest product.

Sanitation:

In the non-dense areas where groundwater is not that shallow, population should be fostered to build or use their latrine but as last resort at least people should be fostered to bury their feces.

In the dense area solution for safe disposal should be investigated.

In the CTC, the disposal of the sick people excreta should be done in a specific pit and not common latrine. Each bucket of excreta should be disinfected with 2% chlorine solution, and as well 2% chlorine solution should be spray inside the pit after each time one bucket of excreta is poor in it.

Hygiene promotion:

Develop adapted awareness materials mainly based on drawing and not text. The awareness materials should be designed and tested with a representative sample of the targeted population prior to launch large production. The posters should be laminated or in vinyl to ensure sustainability and to enable outdoor implementation.

Develop a posters per topics for instance: cholera symptoms and what to do when it is suspected; main rules of protection, ...

In general, the hygiene promotion should be more dynamic and participatory. The activities developed should be creative and as much as possible ludic. The hygiene promoter should ensure that the initial very repetitive approach evolve to a more dynamic and creative approach with introduction of new way/activities to address the problem..

5.2. WASH in Health structure:

Miscellaneous/assessment:

Improve the level and consistency of initial assessment to ensure proper overview of the situation of each health facilities and relevant diagnosis leading to adequate identification of the main issues and room for improvement.

Improve the coherency and relevancy also of the definition of the WASH intervention to led and appropriate ranking if necessary.

Improve the temperature in the storing facilities built in health facilities to stored nutrition input. For instance thatch could be put on the roof top to contribute to male temperature cooler inside the facilities. In anyway a thermometer should be installed in all facilities to follow up this temperature issue.

Water access:

Improve diagnosis and valorization of existing equipment such as semi buried water cittern, rain harvesting tanks in fiber cement, pump and solar equipment.

Optimized the rain harvesting roof surface connected to storing tank and in the meantime the available volume of functional water storage, especially in place like Tarbad where people rely mainly on rain water otherwise they need to truck water.

Implement systematically a by-pass on the pipe connected the roof gutter and the storage tank to enable disposal of the first minutes of rain to clean the dust and others potential pollutant present on the roof. This small improvement on the equipment to harvest rain water will improve a lot the water quality of stored water and then the storing time will less undermine the water quality.

To ensure a minimum access to safe water at level of health center or school, ceramic filter could be envisaged in case of no or limited access to disinfection products.

Sanitation:

Especially when intervening in health facilities and school, presence of cover on latrine drophole should be ensured to constitute a barrier on a route of transmission. Thus, ensure as well presence of insect net on the out/inlet of the vents pipe.

Ensure that the latrines are hygienic in the way that it is easy to clean.

Ensure (school and health center) presence and functionality of hand washing facilities and soap.

Check the setup of the latrine: positioning and size of standing block, drop hole, privacy, accessibility ...

Improve the solid waste disposal situation (very bad in some health center). In case, refuse pit are implemented the existing waste spread in the health structure compound should be removed to the refuse pit, especially contaminated waste, broken glass, etc...

Hygiene promotion:

The awareness materials related to hygiene and WASH in general should be better adapted to the context and the level of literacy of the targeted population and developed in participatory manner.

Hygienic problem in health center should be point out by the assessment. Level of health center staff awareness about hygiene issues should also be assessed and in accordance awareness session/briefing could be organized for this specific category of workers.