

Cover picture: Daniel T. Fullah, Headmaster of Mabineh RC School at the newly built latrines



Evaluation Report: Enhancing WASH Activities for Communities and Schools in Tonkolili District, Sierra Leone

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Concern Worldwide

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Acronyms

CAPEX	Capital Expenditure
CLTS	Community Led Total Sanitation
FGD	Focus Group Discussion
GoSL	Government of Sierra Leone
HWF	Hand Washing Facilities
KII	Key Informant Interviews
M&E	Monitoring and Evaluation
NGO	Non-Governmental Organisation
PHAST	Participatory Hygiene and Sanitation Transformation Series
SSHE	School Sanitation and Hygiene Education
VIP	Ventilated Improved Pit
WASH	Water and Sanitation Hygiene
WATSAN	Water and Sanitation
WMC	Water Management Committee

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Paul Byars - Edinburgh University

Executive Summary

The evaluation of the Enhancing WASH Activities for Communities and Schools in Tonkolili District was carried out in the final three weeks of October 2012. This evaluated the project “*Enhancing WASH activities for Communities and Schools in Tonkolili District in Sierra Leone*” carried out by Concern Worldwide, between September 2011 and September 2012, in Sierra Leone. The review investigated the impact, sustainability, effectiveness and efficiency of the project deliverables. The following table sets out the project deliverables and the progress achieved against each activity at the point of the evaluation:

Project Deliverables	Progress Achieved
1. Construct 10 hand- dug wells and 4 boreholes	1. 9 hand-dug wells completed and 1 partially completed. 4 boreholes completed.
2. Results of water quality testing of 14 water points	2. 14 water points tested, results not available at the evaluation stage.
3. Construct 12 school latrines and 9 stand alone hand washing stations at schools	3. 2 school latrines still under construction, 5 not yet handed over to communities and 5 completed. 4 stand alone hand washing stations completed.
4. Establish and train 14 water committees in water point maintenance and repair	4. 14 water committees trained in water point maintenance and repair.
5. Establish 10 SSHE clubs and conduct CLTS in 12 communities	5. 10 SSHE clubs established and 12 CLTS community trainings carried out.
6. Provide on-going support and monitoring of the water projects to ensure sustainability and proper community ownership	6. On-going support and monitoring of the projects not yet achieved.

The systems and sensitisation activities were provided by Concern in response to the widespread health problems that are linked to the lack of access to improved water and sanitation facilities in Tonkolili. The evaluation found that there was suitable justification for all the interventions, though the impact of the final results of the interventions varied with each of the different project activities. A summary of the key findings of the evaluation are below:

- **Water Supplies:** The construction of hand-pumps and boreholes wells was a clear success of the project. The evaluation surveys of the households have shown a significantly increased access to improved water sources within the communities (from 37% to 71%). The good quality of the constructions will ensure that maintenance is focused on areas that can be addressed by the communities due to their usage practices, rather than from the results of poor build qualities. No serious technical issues were found with the water points, and only minor technical issues need to be addressed. However, the long term prospects of maintaining these systems are in need of attention. Sustainability issues, such as weak tariff systems, poor supply chains and governmental support will undermine the long term success of this project output.
- **Sanitation:** The pit latrines were very simply designed, and the latrine structures themselves were without any indication of serious faults. It was observed that several of these systems were community led constructions. Though they had lower build quality than the contractor led systems, there were no significant errors in the latrine component. The participation of the community was praised by the Concern technicians as being successful and will likely improve community ownership of the latrines. There are key omissions of site plans during construction. These issues, such as inadequate vent pipes and missing mesh, need to be addressed before the latrines can be approved. These corrective actions needed are not costly but the omissions indicate problems with

Concern's technicians' ability to understand fundamental design components of VIP pit latrines. This can be addressed by staff training and capacity building.

- Hand-washing facilities: These systems, whether the combination latrines or stand-alone stations, had several technical issues. The combination latrines had several omissions to the design that would impact performance, such as a first-flush system or filter to reduce the build-up of sediment; this will affect the effectiveness of the intervention. The combination latrines HWFs also omitted several fundamental aspects, which were included in their original design, but were not included in the construction phase. These omissions and oversights need to be addressed before the project can claim to make an impact on the health of the users. The stand-alone systems were poorly designed and constructed. These systems were found to be unsafe and offer a significant risk to the user from both poor design choices (such as having a loose slab suspended above the system) or from bacteriological contamination (such as having open water sources directly beside a functioning latrine). This is an unacceptable quality of work and it provides no value for either the donor or the host community. This evaluation found that the main reason for this low level of quality is mainly the lack of local expertise and experience in the design and construction components which is available in Sierra Leone.
- Hygiene Education: the health education, both as part of the school health education and the community led total sanitation were shown to be successful in sensitising and educating the communities. It is unfortunate that the recent Cholera epidemic skewed results in monitoring the effectiveness of this intervention, as there were only faint signs that it was this project which improved hygiene in the targeted communities. The lack of monitoring (including an unusable baseline study) is partly responsible for this project not being able to take credit for hygiene changes within the communities.
- Community Led Total Sanitation: The CLTS component was successful in motivating households to participate in the construction of their latrines. The combination of the Participatory Hygiene and Sanitation Transformation Series (PHAST) methodology allowed for a more sophisticated approach to working with the communities. This allowed for a broader approach to hygiene training including household sanitation practices, instead of a sole focus on latrine construction. It was noted that several villages had participants that did not construct latrines, and very few of the constructed latrines had hand washing facilities. This undermines the classification that many of the villages were free from defecation. Furthermore the monitoring of the open defecation status of the communities also highlighted weaknesses in the monitoring, which should have been taken into consideration. There was an unmonitored high risk group involving children in preschool years, which practice open defecation.

The lack of senior technical support for the duration of the project may have had an impact on the final technical results. The turnover of staff during the project implementation period may have resulted in inconsistencies in the technical results.

There are several recommendations which require action in order for this project to be a success and to improve future performance of water and sanitation interventions in Sierra Leone. The short term recommendations are mainly concerned with the correction and finalisation of construction issues present on the sites. The medium term recommendations are concerned with the necessary improvements in monitoring and evaluation of water and sanitation projects. It also includes an emphasis on capacity building for technical staff. Finally there is a need to research and develop strategies to deal with the important external components; such as the communities' interactions with

improved water sources, tariff systems and spare part supply chains, as well as the impact of CLTS in Sierra Leone. This will be critical to ensure sustainability of these types of projects.

Introduction

The Charity Water funded project “*Enhancing WASH activities for Communities and Schools in Tonkolili District in Sierra Leone*” was designed to improve the region’s water and sanitation problems in five chiefdoms in Tonkolili District, Sierra Leone. The purpose, as stated in the proposal stage, was to construct boreholes (4), hand-dug wells (14), latrines (12) and hand-washing facilities (17 – of which 4 were without latrine construction). It also consisted of providing the relevant software aspects to accompany the hardware WASH activities. The software components included training of water management and maintenance committees including thirteen Community Led Total Sanitation and Participatory Hygiene and Sanitation Transformation Series (CLTS and PHAST) approaches in the communities and ten School Sanitation and Hygiene Education (SSHE) forums in the Schools. This evaluation has been used to assess the accomplishments of this project with regards to it attaining its objective as well as measuring the changes brought to the communities in these water and sanitation interventions. It also seeks to reflect the successes, challenges and lessons learned during the implementation stages of the project. Furthermore it provides recommendations on approaches and mechanisms that could be used in future to complement Concern’s aim of reducing water and sanitation related diseases in Sierra Leone.

Methodology

The total number of individual sites, or villages, targeted for this project was twenty-four. As this number was sufficiently low, and in order to have a firm understanding of the projects activities, as many sites as possible were visited for evaluation. Problems with the condition of the road meant that access to certain villages was restricted. However the majority of the sites (83%) were surveyed. The combination of hardware and software, as well as the adoption of technology transfer concepts in rural socio-technical systems, necessitated an evaluation criterion that combined both quantitative and qualitative survey methodologies. Therefore surveys, interviews, observations and mapping were used in synergy to develop an understanding of the impact of the charity water project on the communities and schools in the five chiefdoms. The surveys used as part of the methodology are shown in Appendix D. The methodologies of each of the adopted practices are discussed below:

Household Knowledge, Attitudes and Practices Survey (KAP)

- **Household Interviews:** A total of 142 household KAP surveys were carried out throughout the five chiefdoms. The purpose of these interviews was to determine how each household had been affected by the project interventions. The water based questions were used to determine the quantities of water that they received from improved and unimproved sources. This used a 'piling' technique where the interviewee was given a finite number of tokens (always 30) which represented the total water entering their household in a month. They were also give pictures of sources and asked to distribute the tokens over the pictures to indicate from which source they received their water. This resulted in a percentage of water taken from each source. There were no noted difficulties from the communities in either carrying out this task, or a failure to understand the results. The household survey was also used to assess basic indicators for sanitation and hygiene practices such as by looking at the availability and the conditions of latrines, as well as the

availability of soap. All of the questions attempted to recreate the original baseline conditions and compare the results to the project objectives. The household interviews finally included an inspection of the built latrines. Though these were quantitatively observed and photographed. It was found that the variations and quality of the builds differed significantly between households. This meant that they are not possible to be analysed against each other. The methodology for selection used proportional distribution to select the households, and random distribution within the villages. For the targeted population of 8,222 individuals (which omits Yonibana which had a large town and no CLTS component) and applying a confidence ratio of 95%, a degree of accuracy of 10% and a design effect factor of 1.5, a total of 142 household surveys were carried out. These surveys were divided proportionally among the households in the evaluated areas and therefore each household in each village had an equal chance of being selected. Within this margin of error, these surveys give an indication of the water and sanitation practices in the communities. Due to the crossover of certain project activities the household surveys were carried out in each village regardless of the technical or software service that had been provided to them.

Key Informant Interviews (KII)

- Community and School Surveys: Each of the visited communities (four) and schools (fifteen) were evaluated. Both of these surveys investigated the support systems for the wells, boreholes, hand washing facilities and the latrines. This included access to spare parts and tools, community tariff systems, technician support, cleaning rotas and water treatment. The community and school surveys required input from key informants about the issues in the schools and the communities. For the schools this was normally the head-teacher, though if they were unavailable the deputy-head was interviewed instead.
- Interviews with staff: The evaluation also included meetings with the staff members. As there was no project manager or WATSAN engineer available, these meetings took place with the construction supervisor, engineering co-ordinator, community mobilisers and site technicians. Additional supporting meetings were held with the Assistant Country Director of Programs, the health co-ordinator and the Monitoring and Evaluation (M&E) staff.

Technical Observations

- Hand-dug Well & Borehole Technical Observations: All the visited water points were assessed totalling ten hand-pump wells (out of fourteen) and four boreholes (out of four). These technical observations investigated the condition of the water supply systems. Instead of evaluating the system as a whole, the individual components were assessed for any early signs of failure that may have occurred. The criteria included a list of conditions that ranged from extreme failure (such as serious damage to the structural integrity of the systems) to very mild issues (such as rusting of fast moving, and replaceable, parts). These items were checked if the conditions were observed.
- Latrine Observation & Hand Washing Facilities (HWFs): The latrines and HWFs were analysed based on the quality of their build. A total of ten latrines and four HWFs were investigated. Though there was one design used for the latrines some were contractor built and others community assisted constructions. The evaluation treated the resulting constructions as equal. There were two different designs for the HWF, combined and stand-alone facilities. The hand-dug well and borehole systems have a straightforward method for measuring if they have achieved an acceptable quality with respect to engineering standards, both what was accepted as minimum

standards as part of the design and for what should be deemed suitable for a European organisation such as Concern. For hand-dug wells and boreholes there is little variation in the technologies between different international Non-Governmental Organisations in Sierra Leone. There are substantial differences between latrine and hand-washing facilities designs, and there is no fixed standard to assess the designs. These were assessed both with respect to their individual design criteria and if they had failed any common (basic) construction practices.

Focus Group Discussions (FGDs)

A total of sixteen group discussions were carried out, each targeting different participants. The FGDs involved discussion with those from the communities and were used to confirm observations and to probe findings in more depth. Due to the resources available, and because of duplication in the results, the FGDs were selected in three of the five chiefdoms. The villages themselves were selected for a various number of reasons. The villages targeted, and the reasons for doing so, can be found in Appendix B. The three group types that were selected were as follows:

- Water maintenance and management committees: The focus groups specifically targeted those that were responsible for the maintenance of the school or community wells and boreholes and school latrines. The questions focused on the responsibilities of the committees with regards to the infrastructure. It also covered issues related to the committee's ability to resolve sustainability issues.
- Community representatives: This FGD was based on the community's perception of the project activities and their interaction with the committees. This was particularly important for the Community Led Total Sanitation aspects of the project. These individuals were selected at random, with an equal mix of males and females invited to attend. A random assortment of ages was also selected, rather than being confined to one age group.
- School Representatives: The final FGD took place in the schools. This targeted children between the ages of 8-14 years. These groups provided information on the School Hygiene activities and the children's perspective on the community led sanitation activities. The interviews were held in sight of the school authorities but, as with all focus groups, without the interference of any outside party. This FGD was shorter than the other groups. The questions were usually answered in unison by the children - a signal that there was sufficient truth in their interpretation of events.

Limitations with the Studies

The evaluation was carried out at the final stages of the rainy season in Sierra Leone. For this reason some of the road networks had sufficiently degraded and access by vehicle was severely limited. This resulted in four of the site locations not being visited as intended. See Appendix A for the full list of villages visited over the course of the evaluation.

The most important interference with the surveyed results was the impact of the recent cholera outbreak in Sierra Leone. The Cholera response resulted in NGOs providing widespread distribution of soap and hygiene sensitisation. This created two problems, firstly there was a disproportionate amount of soap available (with some households being able to present hessian sacks full of soap, rather than a single bar) than in previous studies in soap availability. This was intended to be used as a major indicator on whether hand-washing practices were being used. The second issue relates to the lack of reliable baseline data in this project. The consultancy company hired to carry out analysis of the baseline data found that many of the questions from the survey remained unanswered. They therefore felt the quality of the data was insufficient to be able to finalise analysis. The cholera sensitisation was observed to have created a new stigma about the practice of not washing hands. The majority of the households claimed to have always washed their hands. In 95.48% of the cases there was no noted change of those claiming to regularly wash their hands, or claiming that they have always had soap available. This contradicts many surveys and evaluations carried out, in the many

cases in the same villages, prior to the cholera outbreak. Therefore there are two conclusions - the cholera sensitisation has positively influenced the results, and many of the hygiene components cannot be seen to be fully attributable to this project. Secondly, that the lack of reliable baseline data is a significant problem in evaluating the success of this project as, with regards to hygiene, the results are contradictory to supporting information on prior practices.

It was also not possible, over the course of the evaluation, to meet with the DHMT. They should be responsible for co-ordinating efforts and assisting with the sustainability of certain parts of the projects. The reasons for this omission are because the DHMT was supposedly engaged in cholera responses and key staff was unavailable for a meeting. This was compounded by the elections which further limited their availability. However, as conditions in country have not changed with regards to dealing with sustainability as can be shown in the recent World Bank report on the rates of failure¹, there is a limited amount of new information that can be provided by the DHMT.

Finally, there were common issues with carrying out surveys in Tonkolili, including the language barriers, mistakes in surveys and misinterpretation of results. These were mitigated by using a skilled team of enumerators that had previous experience on these surveys. The translator used for the FGDs and KII had several years' experience with Concern in this regard, ensuring that the discussions were open and included all individuals in the conversations. All the household surveys were monitored by the evaluator, and checked for errors before submission. Double data entry was carried out on 20% of the surveys. It was found that there was a margin less than 1% of errors in the information. This was exceptionally low, but assisted by the use of Microsoft Access, which minimised reading errors.

Results – Overview of Outputs

Hardware Results: The project was designed to provide health benefits through a number of technical interventions. These fell into five categories of support 1) fourteen hand-dug wells, 2) four boreholes, 3) four stand-alone HWF's, 4) twelve combined latrines/HWF's and 5) CLTS latrine construction. The technical nature of this part of the project allowed for the systems to be quantitatively assessed. As all the components were photographed, then some of the results are demonstrated pictorially in Appendix E. This section will use the notation [n] as a reference to the picture in the appendix. Overviews of some of the more significant technical findings of these are shown below:

1. *Hand-dug wells:* Of the ten wells that were assessed one, in Fothaneh Bana, was unfinished. Two wells in Mofoko and Mabella had not been handed over to the communities. Only one of the systems had issues with the hand-pump (rusted bolts on the handle). The most frequently occurring problem with the wells was dirt, on the well area, the well walls and in the apron running to the spillway [1]. Only one of the wells, at Mapolie, had problems with the pipes - with some examples of superficial rusting on the joints [2]. The same well also had formwork still present in the top casings which had not been removed at the end of the project [3]. Four of the hand-dug well systems had very poor water that tasted and smelled foul. Two wells, in Kamathor and Mabineh 1, were found to have a metallic tastes, suggesting high iron in either the well system or aquifer. The other two, in Mapolie and Nyerko, had an odour suggesting biological contamination. Only two of the ten wells, in Kumrabai Masserah and Rowunkor, had sufficient fencing for the wells [4]. A proper fence consists of a non-porous ring surrounding the well with a suitable gate. These are only minor considerations, though the remediation will depend on the water quality results that were not available during the course of the evaluation.

¹ Multi-Indicator Cluster Survey – Validated data tables (2011), UNICEF Sierra Leone

2. *Boreholes*: The four boreholes visited tended to be cleaner than the hand-dug wells. All were in operation and had water that was classified as 'clean, clear and with a good taste' by the communities [5]. There were no noted technical issues with the designs, though all of the boreholes had missing gates and one had porous fencing. The design of the borehole area in many water points included a separated area for standing [6]. This indicated a good use of materials as they did not require the entire system to be surrounded by concrete.

3. *Stand-alone systems*: these HWF were poorly constructed and potentially dangerous to the host communities. The design included a loose slab that sits above the hand-washing areas [7]. This has to be regularly moved in order for cleaning or refilling of the system takes place. This is poorly designed and liable to cause severe risk to those using the system. Additionally the movable slabs are open and exposed to sunlight and vectors for illness such as flies. The majority of the systems were attached to latrine systems that were not constructed as part of this project. These systems were unhygienic and generally dirty with large amount of flies present at the sites [8]. This combines with the problems of the HWF to cause a significant health threat to the schools, as the water is liable to be heavily contaminated. The rainwater collection mechanisms are inadequately equipped for successful operation having no first-flush system and mesh, or filter, for stopping large particles entering the system [9]. The containers themselves have no provision for preventing the build-up of sediment from blocking the taps [10]. The combination of the depths of the systems (averaging over 1m) combined with the untiled finishing ensure that it is almost impossible to clean. The height of the systems also ensured that they would require a large individual to refill the systems [11]. Three of the four systems did not hold water [12].

4. *Combination of Latrine and HWF*: According to the dates on the site drawings these systems were designed at a later stage than the standalone versions. Some of the issues, such as the lack of access for refilling, the depth of the systems for cleaning and the tiling of the interiors had been dealt with [13]. However several of the problems that persisted with the stand-alone HWF were present in the combined systems. These included no first flush or filter systems no sediment build-up prevention solutions [14]. The manhole covers, though smaller, and with better lifting access, did not protect the systems from contamination caused by issues such as flies and sunlight [15]. There was also the suggestion in the KII and FGDs with the school committees that some of the HWF were used, partly due to the increased ease of access, for hand-washing at the top of the systems using the manhole, rather than from the taps. This would introduce faecal contaminants and further increase the danger presented by these systems.

The latrine structures themselves were simple in their design. The same design was used for the contractors and the community led systems. Only one of the eleven projects had the pipes from the pit sealed with mosquito mesh at the top [16]. Many of the pipes did not reach above the top of the latrine, instead being immediately under the CI sheeting on the roof [17]. It was also noted in several of the latrines that the spillways for the urine was deposited out the back of the systems into the local environment [18]. Additionally all the latrines that were observed allowed in too much light. This is a fundamental flaw in the construction of VIP pit latrines². The latrines that were functional had evidently become a breeding ground for flies - a vector for diseases in the

² To quote from practical action: "*one important aspect [of the VIP pit latrine] is that the inside of the toilet should remain dark as a means of attracting flies up the pipes where they will eventually fall and die*" - <http://practicalaction.org/types-of-toilet-and-their-suitability>

communities [19]. The latrine structure in Fotanah Bana shows signs of flooding [20] due to it being situated below a flood plain. This will cause a high risk to the surrounding households as the faecal matter will become suspended in the flood water. This latrine cannot be used until sufficient hydrological surveys have identified a remedial action for the site (excessive as a common practice, but based on the unique site conditions this will be necessary).

5. *Community Led Total Sanitation:* As the CLTS combines both technical and software approaches and depends on the technical capacities of the communities in order to be successful, there can be no standard beyond the minimum for pit design. The project was successful in mobilising the communities to build the structures [22-27]. It was noted that the communities themselves struggled with local construction for any other buildings except their houses. This included the school buildings and other irregular shaped structures [21]. This suggests that their need for technical input is paramount to the success of the CLTS project. It was also noted in the majority of the FGDs that communities continually requested tools for digging their latrines. They suggested that the lack of access to tools had prevented many of the communities from completing their latrines on time. Provision of tools would diminish the CLTS objectives, as the solutions have to be resolved at the community level. The findings do highlight a weakness in the mobilisation technique.

Software Results: The project also incorporated a range of software initiatives that were designed to either support the systems or compliment them. They included 1) Water Management Committees (WMC) 2) School Sanitation and Hygiene Education (SSHE) and 3) the CLTS/PHAST training. As the software components are harder to assess quantitatively and many of the issues are crosscutting, only the more significant outputs will be considered here with the remainder of the points being discussed throughout the report:

1. *Water Management Committees:* these were trained in all communities where hand-dug wells or boreholes were introduced. There are multiple components to these committees, such as by-laws, tariff systems, spare part supply chains and technical support that will be discussed in detail in the following sections.
2. *School Sanitation and Hygiene Education:* All the schools interviewed had received training from Concerns implementing partner Pikin-to-Pikin. The success of these interventions appeared to vary from school to school. Some children were taught songs, plays and lessons on vital hygiene lessons, other appeared to only have heard the lessons, but with little participatory learning.
3. *Community Led Total Sanitation and Participatory Hygiene and Sanitation Transformation Series:* This training was observed to have taken place over many of the communities. The success varied with each community. It indicates that much of the results depend on the strengths of the facilitators.

Analysis of the Charity Water Funded Project

1. Relevance

The needs and priorities of the target groups: The lack of access to improved water sources and safe sanitation systems is a well-known issue in Sierra Leone. The joint monitoring report by UNICEF and WHO on the water targets suggested that water supply coverage was only 55% of the country, and

that they were not on track to meet the millennium development target³. The coverage percentage was also shown to be dramatically reduced in rural areas. The same report indicated that 32% depend on unimproved pits and over 28% use open defecation⁴. There is again a discrepancy between urban and rural sanitation, with rural areas again having the larger percentage of sanitary issues.

The country's CAPEX deficit for WATSAN, according to the country status overview for water and sanitation, is \$134 million and \$23 million for sanitation. This assumes that the sanitation component will be CLTS zero subsidies, and will not require a contribution from the communities⁵. Therefore there is widespread need for access to improved drinking water. Tonkolili in particular is in need of basic infrastructure support. The recent evaluation by the World Bank in Sierra Leone estimates that there are 702 hand-dug wells, 155 boreholes and 154 protected wells in Tonkolili⁶. Of the hand-dug wells 45.3% and boreholes 30.3% are considered damaged and requiring repair. The numbers of sources available are insufficient to provide adequate water to Tonkolili, with only 54% of the population having access to an improved source of drinking water⁷.

Poor sanitation and hygiene practices in communities are in part due to lack of access to improved water sources. A UNICEF Multi-indicator Cluster Survey suggested that in Tonkolili, 87.2% of households had a place for hand washing. It was also found, in less than 81.5% of the total household cases, that there was soap observed to be present at the facilities. Additionally, less than 4% of households had both water and soap present at the places that were used for hand washing.⁸

The FGDs indicated that water and sanitation was considered a priority of the communities. They showed a ready willingness to participate in the projects outputs either through participation in the construction, through formation of committees or through payments for tariffs. The recent Cholera outbreak in July 2012 has made water and sanitation a more pressing need for the communities, a need that is identifiable by the communities themselves.

The project also makes use of rainwater harvesting for the water supply for the hand-washing facilities. Every household (100%) interviewed for this evaluation had at some stage claimed that rainwater was an important part of their water supply. Though the communities find rainwater relevant to their daily practices, it has not been considered as yet by NGOs in Tonkolili or Sierra Leone as a whole. This project is one of the few that utilises this method of water storage for the hand washing facilities.

Policy and strategic direction of Concern Worldwide and government of Sierra Leone: All of the project activities were in line with the strategic objectives of Concern Worldwide. They are consistent with the broader aims, their vision for change and their mission of the organisation as a whole. The project is consistent with Concern's fourth strategic plan⁹, in particular strategic objective six which states: by 2015, Concern will have developed additional specialisations in the areas of water, sanitation and hygiene. This target is intended to result in reduced incidence and or prevalence of water borne diseases in the communities. This is applicable to all parts of this project.

The project is also consistent with the strategic vision of the Government of Sierra Leone. The national targets for water supply and sanitation coverage are 74% and 66 % respectively, with the same targets applied to rural and urban areas alike¹⁰. The Tonkolili District Council (TDC) has shared intentions to provide equitable water and sanitation access to all people within Tonkolili¹¹. It is unlikely that the GoSL will reach these targets before 2015, but there is growing pressure to achieve

³ WHO and UNICEF Joint Monitoring Report (2012) - see www.wssinfo.org/fileadmin/user_upload/resources/JMP-report-2012-en.pdf

⁴ Ibid.

⁵ Country Sector Overview Water Supply and Sanitation Sierra Leone (2010) – see www.wsp.org/sites/wsp.org/files/publications/CSO-sierra-leone.pdf

⁶ World Bank funded monitoring (2012) - Datasets available at www.sl-wash.org/

⁷ Multi-Indicator Cluster Survey – Validated data tables (2011), UNICEF Sierra Leone

⁸ Multi-Indicator Cluster Survey – Validated data tables (2011), UNICEF Sierra Leone

⁹ Concern Strategic Plan (2011 – 2015)

¹⁰ Government of Sierra Leone: (2008) National Water and Sanitation Policy

¹¹ Tonkolili District Development plan 2011-2013, TDC

results in this area. Therefore the outputs of this project are shared and consistent with the aims of Concern and of the local and national Government.

Intervention standards: The project adhered to intervention standards such as those presented in the Sphere guidelines¹². For the hygiene components this included the assessments of needs, the sharing of responsibilities, the inclusions of all sections of the population, the targeting of risk groups (identifying those that need more attention) and education of management of facilities such as the school latrines through support structures such as school or water management committees. For water supply these included the provision of technologies that, where possible, provided communities with at least 7.5-15 litres per day. There was a known limitation addressed at the proposal stage where one community, Bonkababy, required additional water supply support because they had a population of over 650 individuals, 150 people over the Sphere required maximum. The Concern WASH team determined that it was *"their duty of care was to ensure that a community has at least one water point available to them, even if it serves a population greater than 500 hundred"*. The selection of water sources, the site selection and measurements of volume of water that are available to the households, access and equity were consistent with the Sphere guidelines. There may be outstanding issues with water quality, but this will depend on the results of the water quality monitoring. The standards for latrine structures and hand-washing facilities, in particular the rainwater harvesting components, are not covered in detail in the Sphere standards. Though there is reference to them, such as the having a proper VIP latrine design, there are not standards determining how these should be constructed. The intervention standards that should have been used, without Sphere guidelines, should have been Eurocodes (European standards) that would have covered many aspects of the engineering methodologies and practice including quality, efficiency, safety and security. There was no evidence to suggest that these had been adhered to, or used, by this project.

2. Efficiency

Budget utilisation and costs of outputs: There are several sites that are still under completion and therefore the budget has not been fully spent, no comment can be made regarding the final expenditure. The costs of project outputs can be assessed based on the quality of the final constructions. The hand-dug wells and boreholes were shown to be under budget (after 5% tax and 10% retention) indicating a well utilised expenditure. The stand-alone HWF systems are in immediate need of repair, costing close to the expenditure spent on construction, and do not indicate any real value for money. All the combined latrines are missing components in the original design such as steel manholes, handrails for steps, urinary PVC pipes to soak-way; handrails for disabled latrines, PVC vent pipes etc. The omissions of the combined latrine issues were discussed with the engineering team who raised the point that the materials had already been purchased for the latrine construction before the drawings were updated, and that certain components were not included because the budget had been already been spent. This indicates a serious breach of engineering quality control, and the problems caused by these omissions will still require rectification. Finally the health and hygiene components were still in progress, with many of the ODF statuses to be confirmed. The budget was reported to be on target, though there are issues with the final value of the results.

It was also apparent that there were issues with staff recruitment and turnover. There was no project engineer for the entire duration of the project. Both the WATSAN engineer and Engineering Co-ordinator were not in post for some of the project period resulting in a lack of monitoring and support during implementation. The intermittent senior engineering input, which was provided only temporarily by short term personnel, may explain the final quality of some of the project outputs.

¹² The Sphere Project (2012): Humanitarian Charter and Minimum Standards in Disaster Response

3. Effectiveness

Objectives of the project proposal achieved: The overall objective, as laid out in the project proposal, was to improve access to safe water and reliable sanitation facilities for 7,228 people (3,618 males & 3,610 females) in 19 schools and 5 targeted communities. The five villages were targeted and a total of 20 schools were selected, because of problems on two sites in Masingbi.

There are problems determining the total number of beneficiaries that are affected by this project for three reasons. Firstly, the lack of accurate baseline data causes significant problems in the final calculations. Secondly, the change in sites, (from Masingbi, a very large town to Mamorka and Masankey, two large villages) has led to a reduction in beneficiaries. These were changed because of another actor who implemented their own WaSH project simultaneously in the schools. The Concern technical staff suggested that this was due to confusion with the local government responsible for delegating the project locations. They are reduced to 2,296 males and 2,290 females - totalling 4,586 pupils. When added to the total served by the water supply systems (2,296 people - including the school wells that are also used by the communities) the total is 6,882 individuals. This means there is a shortfall of 346 individuals. Finally, there are several projects, primarily the combined latrine and HWF systems, which are still under completion. Two sites have only recently begun construction, and five are partially completed or have not been handed over to the communities. The two new constructions will take several months to complete. The five partial completed sites should only take a number of days. Therefore the assumed final total number of beneficiaries cannot be evaluated as part of this consultancy. The majority of the water supply projects had been completed, as had the stand alone hand-washing facilities. These have been considered in the calculations of populations served. The project objectives are summarised in the project indicators as shown in the table below:

No.	Indicator	Substitute Baseline (2012)*	End-line (2012)
1	Number of pupils with access to clean water sources	0	3,014 of targeted pupils
2	% of people in target communities with access to clean water sources (household only)	Not Available	87% (2,296 people in target population)
3	Number of pupils in targeted schools with access to hand-washing facilities and soap	Not Available	1,637
4	% of people in the targeted villages who claimed to practice hand washing after using toilet and had access to soap	Not Available	97.8% (87.3% with soap)
5	Number of school latrines maintained clean by students	Not Applicable	3 Latrines (19% of all latrines built)
6	Percentage of households in the CLTS targeted communities that have constructed their own household latrine	83.8%*	90.1%
7	Number of communities having graduated to open defecation free (ODF) status	0	0
8	Number of well maintenance committee (WMC) meetings held on a monthly basis and regularly collecting fees from users	Not Applicable	45.45% of all WMC trained

* Baseline data attempted to be recreated at the end-line stage

There are several issues that will be discussed with relation to the indicators:

Indicator Number	Discussion Points
1	The end-line total was calculated from the total number of pupils that had been provided with an improved source of drinking water. The baseline value was assumed to be zero because none of the schools had access to improved sources prior to this project.
2	The percentage of people with access was calculated by those with who have been provided with an improved source. This includes two school wells (Masankay and Mapolie) which are used to serve both the schools and the communities. The number of people with access to the source referenced Sphere standards with regards to the number of people per source. Villages that had over 500 people and only one source did not have the number of beneficiaries extend to the entire catchment. The access to the water source does not consider the distance of each household to the source, though this was mitigated by each source being generally centrally located. It also does not include those that continue to take from unimproved sources to complement their improved water supply, or do not use the source - roughly 10%. The reasons for this are discussed later in the report.
3	The total number of pupils who wash their hands depends on the functionality of the HWF and the availability of soap. Though soap was rarely present at the hand-washing site, the FGDs suggested that soap was available at the school, under the ownership and supervision of the head teachers. The FGDs also suggested that all of the children had been provided with information regarding their hand-washing activities and would use the facilities if they worked and if soap is available.
4	The baseline question asked for this indicator was attempted to be re-created using memory recall. This proved difficult as the number of people allegedly bettering their previous (pre 2011) hand-washing practice only increased by 4.2%. This is much lower than anticipated, contradicting the vast amount of secondary data on the subject ¹³ . The vast majority (94.37%) insisted that they already washed their hands. The widespread availability of soap further confounded the reliability of this information.
5	Only three of the latrines were found to be cleaned by students. The latrines (not built by Concern in this project) attached to the stand-alone facilities did not look like they were cleaned regularly. As part of the HWFs involved training the school management to clean the latrines, as well as the HWFs, then this suggests that these have not been effective. For the combination latrines; two were cleaned by the teachers and three were cleaned by community members. Three were also incomplete and therefore not yet regularly cleaned. There was no indication among the FGDs that cleaning was supposed to be a task for the children as indicated in the proposal.
6	Calculating the percentage of households that had constructed their latrine had significant problems. Again, attempting to recreate the data at a later stage

¹³ Multi-Indicator Cluster Survey – Validated data tables (2011), UNICEF Sierra Leone See also Concern’s own information, prior to the cholera outbreak: Sierra Leone Programme: Tonkolili District Contextual Analysis (2012)

	allows for issues. The majority of the latrines are poor quality and have to be built and re-built on a regular basis. It was clear, from both the FGDs and site observations that an approximate understanding of their technical success varies with each household. Without reliable baseline data it is difficult to assess if the conditions are worse, or better, than what is currently visible. The cholera outbreaks linkages to the sanitation may again have meant there is a bias towards admitting that a household did not previously have a latrine system.
7	There is insufficient evidence to suggest that any of the communities have graduated to an ODF status. The ODF status is a cluster indicator that requires all criteria to be present the status can be awarded. This will be discussed in more detail in the section on the impact of the ODF status of the villages.
8	All of the villages and schools denoted that they had a WMC, though several had not started their meetings or the collection of their tariff systems. The community water points had more reliable WMCs, who appeared to fully understand their function and purpose. The school WMCs varied in both success and failures with regards to their functions, responsibilities and impact.

Factors affecting achievement of objectives: The construction of the water supply systems and the health and hygiene sensitisation components were two of the more successful parts of this project. The water supply projects, including both the hand-dug wells and boreholes, were found to have very few technical faults. Though not directly part of this evaluation, observed and surveyed wells by other organisations in the host communities had significant faults which could be evident at initial stages in their lifespan¹⁴. Concern has learned from previous experiences in this regard, in examples including depth of wells, size of caissons and materials used for the piping. Concern's long history in providing these sources of drinking water, combined with an experienced technical staff, have ensured that these project components were delivered on time. All the water points observed had minor problems (such as blocked aprons and spillways and dirty well walls), see section five of this report, but these were primarily issues that could be resolved by the host communities. Some aspects of the designs of the pit latrines for the schools were well considered with many features for potential users being factored into the structures. This included additional support for disabled users, separate areas for genders, privacy for the users, and a child-friendly look to the latrines. They also include deep pits that will not cause overflow issues in the near future. The success of the health sensitisation was also a significant contributor to parts of the project. Though the cholera interventions may have made it hard to distinguish the success in certain areas, there are other areas which suggest that many of the sensitisation lessons are being learned and understood by the communities. All the FGD in the CLTS targeted villages were able to recount key health messages related to defecation, including times and practices of hand-washing, information on the contamination of sources, spread of disease from water borne pathogens and also information of some local solutions to their problems. The facilitators of the CLTS approach had also been successful in getting communities to respond to their own needs with regards to sanitation.

Factors affecting non-achievement of objectives: There was a known issue regarding the availability of sites for the borehole/latrine/HWFs in Masingbi. According to the project teams this was centred on the government allocating the area selected for the sites after the hygiene promotion and

¹⁴ World Bank funded monitoring (2012) - Datasets available at www.sl-wash.org/

mobilisation had been carried out. This meant that the sites at Mamorka and Mastheley had to be optioned as opposed to the original selected areas. This has delayed the construction on these two project sites. This was further compounded by the onset of the rainy season during construction.

The main technical problems on the project originate around the construction of the combo-latrines and design and build quality of the stand-alone HWF systems. In both instances there is sufficient evidence to suggest that the technical Concern staff involved in this project did not have sufficient capacity to either innovate with regards to the sanitation and hand-washing designs, or to understand the fundamentals of VIP latrine and HWF construction. The stand-alone HWFs are very poor in conception, design, and construction as well as in application to the field. There is no evidence that the constructions were monitored to include how the users were interacting with them. They were found to be, in almost all instances, impossible to clean, to protect and very few were found to be functioning. It was also noted, in all the FGDs except Kamathor that the method for cleaning the HWFs involved placing a child into the system. This would introduce new contaminants and pathogens into the area; it also poses a safety risk to the child, because they are not meant to be used in this way. Though the combo latrines (independent systems to the HWFs) were better designed there were problems with the construction phase. Many of the fundamentals of latrine design, such as the interior being dark¹⁵, the vent piping reaching the roof and being sealed¹⁶ and the spillway for the urine not being dumped behind the system itself¹⁷ were not included in the construction. This is true for all sites, whether contractor or community led construction. The combo latrines also showed problems with the HWF with issues such as lockable manhole covers and sufficient piping run-off to soak-ways not being procured for the project. These were included in the designs, though not in the finished latrines. Issues that were not factored into the original site drawings included a first flush system¹⁸, a method to stop sediment build up in the tank, and a way in which the system can be easily cleaned.

4. Impact

Community perception of the facilities and systems: The discussions with the communities, water committees and school user groups suggested that most people were satisfied with Concern's intervention. This was surprising as some systems were inadequate. For example, in Masetheley, which were provided with a HWF that had almost completely failed as it held no water, the community were only positive about the intervention. They struggled to offer criticism of the system and did not appear disappointed by the failings. This indicates either a high level of dependency, a lack of expectations of the project outputs, or a disregard for the project. Though not all the sites were in the same condition it was rare to have the groups, or individuals, criticise the projects efforts. In Yonibana it was suggested that they expected manhole covers for the HWFs, but did not appear upset about the condition of their systems. Therefore most of impacts of the projects can be taken from the user's practices rather than their explicit knowledge.

Access to safe and adequate water, and appropriate sanitation facilities: The two graphs (fig 1 and fig 2) show the impact of the project on the communities and an increase in access to improved sources. According to the household surveys the number of people with access to an improved source of drinking water increased in the targeted communities from 37% to 71%. This is less than the total number of people that have been technically 'given access' as per the minimum standard for disaster relief used in the indicators. This suggests a more complex relationship with the household water than the project is designed to accommodate. The quantities of household water entering the household from unimproved sources indicate the discrepancy can be shown in appendix C. The graph in 2011

¹⁵ From UNDP (1984) The Design of Ventilated Improved Pit Latrines

¹⁶ Ibid

¹⁷ See Höglund, C. (2001). Evaluation Of Microbial Health Risks Associated With The Reuse Of Source Separated Human Urine.

¹⁸ See Water Aid technical note on Rainwater Harvesting (2012)

http://www.wateraid.org/documents/plugin_documents/rainwater_harvesting.pdf

indicates the influence of existing sources prior to the project, and the 2012 graph shows the impact of this project. However, they also show that certain villages do not make use of the improved sources, though they have access to them. The reasons cannot be assumed to be only focused on location as regardless of the distances people still continue to utilise unimproved sources (see fig 3 – which only considers communities that have access to a working improved source). There is a more complex relationship with water and the technologies than previously assumed. The two graphs, fig 1 and 2, also suggest that rainwater is a significant contributor to household water. Though rainwater harvesting is considered an 'improved source' in relation to the JMP targets on water supply, the lack of first flush systems, clean guttering, safe storage and filtering in Sierra Leone suggests that they are more 'rainwater collection' systems than 'rainwater harvesting' and should mostly be considered unimproved.

Improvements in hand washing practices: The improvements to the hand-washing in the households and schools depends on two factors, the success of the software components (the school hygiene training and the hygiene components of the CLTS/PHAST approach in the communities) and the hardware - in this case the school HWF's.

The FGD with the children discussed the success of the school sensitisation. The majority of the children in the discussions could recount songs and activities related to hand-washing. They understood the times that they should wash their hands and the use of soap in the activity. There were some issues with school hand-washing practices in UMC Yonibana where the threat of the soap being stolen meant that the head-teacher would give the children the soap to use, as lather in their hands, *before* they went for defecation. This was to be washed off after they had used the latrine. The majority of the other schools left the soap at the latrine. This is an issue for the security of the latrines and water supply infrastructure at large schools. The hand washing practices by the communities, as discussed before, have been positively influenced by the cholera sensitisation that has taken place throughout the communities. The widespread availability of soap, and the distributions, as well as the continual community sensitisations has ensured that the results are extremely positive.

The technical success of the hand-washing facilities is dubious, both with regards to the communities and the latrine constructions. Only 10.1% of the surveyed households had hand-washing facilities at the latrines. This is compared to the 87.3% that had soap. This could mean that most people prefer to wash their hands in their homes. The presence of soap may well be as a result of the cholera response activities and therefore not a reliable proxy for hand washing.

Household level ownership of latrine: The latrines had many variations of designs and construction qualities. The majority (52.8%) of the slabs used mud-brick (or mounds) for the slabs. Others used concrete (23.24%) or other local materials (14.8%) for the construction of the slab. It was noted that those with concrete slabs were generally better constructed latrines. The general quality of the latrines was low. The walls of the latrines were the biggest issue- with 88.3% having problems, followed by 84.4% for the roofing. Independent discussions with Concern technicians and community mobilisers suggested that poor quality systems and collapse of latrines are common. Both of Concern's support groups suggested that assistance could be offered, sensitisation carried out, and education given, and within a couple of weeks the latrine systems would still develop problems, or the soap would no longer be noticed at the toilets. This suggests that some of the impacts of the project need to be re-evaluated within its Sierra Leonean context. In the group discussion with community members in Masethly there was request for subsidies for the latrines, which would be counter to the CLTS methodology. It was suggested by the community members that most households did not have latrines in the village. This looked like a scenario which suggested that they were still hoping for money for construction. This was the only village where this appeared to be an issue, therefore this indicated that most of the villages felt that the latrines were theirs as they constructed them.

Open defecation free (ODF) villages: It was reported by Concern staff – and further supported by visits from the DHMT/WATSAN, TDC-WASH and M&E Unit and one community stakeholder - that the targeted villages had fulfilled the criteria to be ODF. According to discussions with

Concern staff this was classified in nine out of fifteen villages. This ODF status was not confirmed by the site visits. Though around 10% of the household surveyed did not have a latrine, there can be no exceptions in the ODF categorisation. In Robung for example, which was categorised as being ODF by Concern, the community suggested that a large number of the households still did not have a latrine. They said that those that did not have a latrine “*were waiting for the dry season to start construction*”. All households must have a latrine for ODF to be applicable. Only 10% of the latrines had hand-washing facilities and soap present beside the latrine. The FGDs suggested that many of the communities did not have latrines, cover the latrines, or allow pre-school children to use the toilets. The majority of households, which had pre-school infants (aged between 3-5 years), used primarily OD. Though a small minority of the households claimed to use potties, the majority used the bush near the households. This was discussed with both the adults and children, with many confirming that the small children did not use the latrines because ‘the holes were too large’. The school pupils in the FGDs, such as in Robung and Masthely, did mention that several of the younger classes, which had access to the latrines, continued to use the bush for defecation. However in all the community discussion it was agreed that children by the age of eight years started using the latrines. This insight was confirmed by the site visits of the local area around the households, the FGDs and observations made during the survey period. This ‘high risk’ age category was not monitored by Concern.

Reduction in water and sanitation related diseases: Due to the small number of sites, the widespread distribution of the projects over a large geographical area, the lack of appropriate health data, the context of the recent cholera outbreak and the overlapping and interlinked nature of diarrhoeal and other water based diseases, any reduction of diseases caused by this project would be impossible to monitor or verify. Though this might be possible at some later stage, the immediate context of this evaluation does not have options for monitoring the health benefits this project offers. It was noted in the meetings with the CLTS mobilisers that they claimed that there was a difference with regards to the spread of cholera in their CLTS targeted villages as compared to other communities. This information was not replicated in the FGDs either with the communities themselves or with the water management committees. There were significant number of cases and fatalities recorded regardless of the interventions that had taken place in the communities.

5. Sustainability

Sustainability mechanisms: The project depends on different mechanisms to ensure sustainability. For the water supplies the Water Management Committee is supposed to take responsibility for the long term maintenance and repair of the systems. This includes establishing tariff systems, the fines for violations of the by-laws, access to repair kits and having trained technicians available. The school WaSH committees are responsible for collecting tariffs which cover the sustainability of soap and short and long term repairs on the latrines. The community sanitation projects are also supposed to be self-sustainable. Those that are triggered are intended to incorporate their understanding into everyday living, and continually construct their latrines, hand-washing facilities and suspended plate racks as they deem necessary. Furthermore there is supposed to be support provided to the communities from the WATSAN unit of the District Health Management Team who are responsible for water quality tests, hygiene promotions and trainings required to sustain efforts. Though the DHMT were not visited as part of the evaluation, there were several indications by Concern staff that the DHMT participated in project activities.

Effectiveness of the sustainability mechanisms: The lack of effective sustainability mechanisms sufficiently undermines the technical success of the water supply projects. The problems facing a community with regards to maintaining their source are many, and the problems are not addressed in this project. The context of this failure is significant with organisations such as Inter Aide suggesting

that Tonkolili has less than 23% of its hand-pumps functional¹⁹. Though the WMCs are appointed in every village and for the most part, regularly meeting, the tariffs that they are collecting are insufficient to deal with a significant problem that could occur with regards to their system. According to Concern staff - the amount collected by the communities is set at what the lowest household can afford to provide (normally 500le/month). Though this practice is good for inclusivity it would not provide sustainable maintenance results. The school tariff systems are significantly weaker than the community systems. Two of the villages (Yonibana and Mara) charge the committee the tariff, rather than the school itself. Petifu combines the school tariff with the money collected for the community water supply. Eight of the schools collected no tariffs, though one village, Fotanah Bana, suggested that they would be starting soon. The majority would only start collecting when the well or borehole needed repairs. It is apparent from the FGDs with the WMCs that they had been given no indication of the costs of repairs and a schedule to indicate how much money was required to be collected over a set timeframe. In the 19 interviewed committees the lack of adequate tariffs is compounded by i) those that don't know where spares can be bought (42%), ii) those that believe they can get the spares from the nearest large town (32%), iii) or that only 16% correctly understands that Freetown is the best place to procure spare parts. One village had a set of spares (5%) and one thought that Concern should be responsible for all repairs (5%). The same issues are observable with regards to the tools, with only 37% claiming to have access to the own kits. This is not as significant as tools are available locally, and many of the villages share tools in a cluster.

It is likely that with a combined weak tariff systems and the lack of knowledge about the costs of repairs will undermine the sustainability of the water supply projects. This could be offset by including the local government in developing sustainability strategies however the number of communities in Tonkolili in urgent need of WASH facilities may mean that this issue will be low on their agenda. Most of the communities recognised this fact, and were quick to suggest that either the contractor or Concern should assist them should their systems fail. There is a further problem with regards to the sustainability of the school wells. These systems are normally built outside the central village area, beside the schools. This means that the communities are less likely to use the systems (only two villages used the school wells, and these were all near the villages). It also means that the systems are vulnerable to theft and damage. Two of the villages, that had their wells built by Concern (and Charity Water) in 2010, had no pump mechanism or piping, which had either been stolen, or salvaged. These were not evaluated, but observed - as they were the source of water used to refill the HWF in the dry season. This indicates that these systems are less valued in the communities, but also, under circumstances where they can be shown to have an impact, these systems need to be provided with an added layer of protection (such as a security casing for the pumps). None of the wells had a security consideration incorporated into their design.

The school committees collected tariffs that covered the purchasing of soap and cleaning materials for the latrines. The majority of the schools claimed to have purchased soap, with most of the children in the FGD claiming that it was almost always present. It was also evident that the children put pressure on the teachers to have soap available. It was demonstrated that the money that is taken to pay for the soap and cleaning agents is taken from the tariff systems for the wells. Though the amount is small, it still offers a mechanism where money can be taken from what should be a continual and reliable source of income for the water supplies. The tariff is also supposedly used for minor repairs to the latrines - though no evidence of repairs, particularly for broken taps - such as in Mara Ansurul, Robung and Yonibana suggest that the tariffs have been used in this way. Longer term, it is also clear that the costing for emptying the latrines when they are full has not been considered. Though the smaller schools are likely to be able to use the latrines for upwards of 10 years without needing it to be emptied, the same cannot be said for the larger schools. None of the communities had

¹⁹ See Datasets of Inter Aide survey (2009) of Tonkolili. These were made available to all NGOs in Sierra Leone at publication.

prepared for this eventuality. As with the boreholes and hand-dug wells, there was significant threat of damage to the school latrine systems from the surrounding communities. Larger schools, such as UMC Yonibana, already showed signs of their systems being damaged (broken locks, forced taps, damaged doors) that were carried out by the host communities. A more sophisticated approach to security in latrine structures in these larger towns is required.

The stand-alone HWF systems are too poor in construction to merit sustainability. The majority have already failed, and without significant improvement to their designs, will not be capable of being sustained in the long term. The combined latrine HWF systems have all been designed with ease of access for refilling the systems in the dry season. This assumes that the well systems remain functional, and that the interior of the pipes do not become clogged with dirt and sediment that will build up within the tank.

Involvement of the beneficiaries and other stakeholder: The communities were reported to have been involved in many of the aspects of the project. The water supply projects had a developed method of bringing the communities together and involving them in some of the important decisions about the systems, such as location, appointment of committees, starting of tariff schemes. The same was true of the CLTS components with the majority of households participating in the sensitisation training and construction components. The FGD

The project also involved additional ownership and participation of the local communities by having community involved construction. The sites did exhibit less building quality, such as at Mapolie and Fotanah Bana, than those that were built entirely by contractors; however both sites made similar mistakes with regards to the construction, an indication that the problems originate with the technicians as overseers, rather than with the community members themselves. There were no significant mistakes made by the community build latrines and HWFs that were not also made by the contracted solutions. It was noted in the meeting with the technicians that there was a preference to working with the local communities rather than the contractors. One of technicians noted that *“there was a positive relationship with the communities and their participation in the construction led to an increased feeling of ownership”* The contractors were described as slowing down the process, by constantly being unavailable, whereas the local people were always ready and willing to work.

6. Mainstreaming issues (Accountability, HIV and AIDS and Equality)

Consideration given for the issue of HIV and AIDS: Concern staff have signed and agreed to the Concern Worldwide: Programme Participant Protection Policy and Concern Code of Conduct. This is inclusive of any actions that may cause harm to the host communities, including the spread of HIV and AIDS. This was also signed by the contractors that implemented with Concern. It was reported that before work began on the construction the contractors were talked through the policy, by the senior engineering staff, so that their obligations and responsibilities were clearly understood. The engineering staff was available for any questions regarding the protection policy throughout the project. There is also a reporting mechanism, available at most cluster villages that allow any issues, with either Concern or sub-contracted staff, to be raised. At the point of the evaluation nothing had been raised relating to the behaviour of the contracted staff. This was also true of the FGDs where there were few social issues were raised which could suggest an increase in the spread of HIV and AIDS. It was noted in the meetings with the WMCs that there is still an existing bias to those that suffer from HIV and AIDS. Several of the WMCs would restrict someone with HIV and AIDS from using the source. This was argued to be an understanding that *“sick people in general do not use the sources, and should be supported by the community”*. It does indicate that someone with a known case of HIV and AIDS would be faced with bias at these sources and that there is additional sensitisation that could be included here.

Equitable access to project benefits: The selection criteria for the majority of the sites were limited to the choices for schools that Concern has been supporting. The latrines designs included increased access for the disabled as well as gender segregated blocks. The locations for the community hand-

dug wells and boreholes were selected by involving the communities at the inception stage. All of the community sources were located in central areas in the village, allowing for the maximum equitable access for all users in the community. The FGD suggested that both the males and females were content with the location of the sources. It was noted that the CLTS construction depended on those that are able to construct the latrine systems for themselves, then to help those that are unable to help themselves. This meant that those that were unable to construct the systems were unable to do so. In Mabineh the FGD suggested that those that had not yet built a latrine were unable to do so because no one in the household was capable of digging. One woman informed the committee that she was requested to pay 60,000 le to the local men, but that she was unable to pay, and therefore had no latrine.

Specific vulnerable groups: Certain aspects of the projects were designed to consider vulnerable groups, such as the latrines and hand-washing facilities. Though some of the designs included access for disabled people, there was insufficient evidence to suggest that they would benefit from the changes. For example, the large latrine doors were provided for 'wheelchair access' were ambitious, but it does not consider the wheelchair access to the latrine itself. Neither does it consider that the wheelchair doors all open into the latrine - which would ensure that a disabled person would have to leave the wheelchair outside, thus invalidating the value in the design. There was also no indication of internal improvements to these latrines that would ensure a disabled person has adequate support inside the toilet area as they were identical inside to the other cubicles. This was again a deviation from the site drawings. There were also areas that were missed that could have further included vulnerable groups. The design of the latrines includes urinals which according to the proposal are "appropriate for girls and boys". There is no evidence to suggest that it is appropriate for girls, particularly because the majority of the urinal areas do not have doors -only one site had doors on their urinals. This is less of an issue for boys, as their backs are to any passers-by. The latrines missed an opportunity to include an area where girls could privately deal with personal hygiene, a well-known issue preventing young women from wanting to attend school. The design of the latrine could have ensured that there could have been private access to the hand-washing facilities from within the latrine, in place of urinals, that could have access to water from the HWFs.

7. Project Management and Monitoring & Evaluation

Strengths, challenges and weaknesses: As stated before, Concerns strengths with regards to the water supplies required the water supply technologies, in this case India MK II fitted boreholes and hand-pump wells, to be of a set design and standard. This process of service delivery has been utilised throughout Concerns work in Sierra Leone for a number of years. It is apparent from the meetings with the engineering and technical staff that they understand and apply the technology in Sierra Leone. The repeated process of providing these water supply systems has ensured that important designs and management lessons have been learnt over the years and is capable of providing technically successful projects.

The ability to provide a water supply technology is a major strength. The technical team involved in this project struggled when they were required to deviate from fixed designs and required on-standard technical skills to achieve the project objectives. This can be best understood in relation to the errors in the VIP pit latrine and fundamental HWF design faults. The mistakes made by the technicians in pointing out technical errors in the constructions, which were tested as part of the interviews with staff, highlighted significant problems in their implementation and project monitoring capacities. It is crucial to state that the engineering being discussed here is focused on concepts of technology transfer and does not include other engineering areas such as large structures (like the construction of health clinics or schools). This type of structural engineering is not under evaluation as part of this project. The engineering problems are with the application of new technologies, such as the hand-washing facilities and the combined latrines. The lack of technical ability, for what are essentially simple engineering tasks, is evident in all parts of the HWF designs, particularly with the stand-alone systems. It was stressed, at the proposal stage as well as the management and construction stage, that the designs were imported from '*successful Nigerian projects*'. The quality of

the site drawings for the stand alone systems was exceptionally poor, drawn in what appears to be Microsoft Word as opposed to a suitable engineering package such as AutoCad or Solid Edge.

Though the latrine part of the combination latrine systems were significantly better in design and build quality than the stand-alone systems, the lack of adaption to the local context is evident, as are the fundamental errors that should not be present in a VIP latrine. It was also shown that the technical team would, at times, make site decisions and construction choices that were not noted or shown to be approved by the engineer. This again is a serious issue, which exposes Concern to a high level of risk (legal or otherwise), should an accident happen directly related to site decisions that were made.

According to the staff meetings there was a noted lack of technical capacity. When site pictures were presented to the technicians, and when they were asked to highlight on the construction drawings any issues that could be observed, many basic technical omissions or faults were not noted. Additionally, when technical issues on the latrines or HWFs were presented to them they could not adequately support reasons for design faults. This lack of adequate knowledge will have an impact on other aspects of the projects, such as the construction component of the CLTS approach. The communities suggested both in the FGDs and in the meetings with the Concern staff that they value the input of the technical staff. The fundamental errors which were made on basic pit latrines construction would indicate that advice that was given could potentially be factually incorrect and harm the communities. It would also stop those that have already built latrines to aspire to more sophisticated builds for their latrines. They would not be able to seek additional advice if required, from Concern staff as they themselves are unaware of improvements that could be made. To fully understand the extent of capacity building that is required a more complete engineering evaluation is required. Though there is a clear need for technical education, it is out with the scope of this evaluation to quantify.

It was also noted that different components of the 'software' approaches acted independently. The CLTS/PHAST mobilisation was reported to not work in synergy with the SSHE. The field staff stated that they were unaware of the implementing partner's activities in the area, when the sensitisation was taking place. This was not true of the hardware and software aspects of Concern internally, as they were shown the work together on a number of interventions.

Monitoring and Evaluation systems: The projects each had their own reporting schedules and processes for analysing results. Though these reports were for specified project deliverables there were several omissions that should have been present for the monitoring aspects of the project for it to have been more successful:

- *Baseline:* There were concerns about the quality and reliability of the baseline surveys. It was assumed that the end-line could capture the results that were required. This is an exceptionally flawed reasoning as unforeseen scenarios, such as the cholera outbreak, would heavily skew and bias any later results.
- *Water Supply:* The techniques for measuring access to safe drinking water did not include any household monitoring to suggest that those without access would continue to use unimproved sources. The lack of understanding about where the water is taken from; as well as how it is stored, treated and used means that important lessons regarding household practices have been missed. The dominant role of rainwater in households also means that a potential opportunity has been omitted.
- *Sanitation:* As with the household water supplies, key information about sanitation - such as high risk demographics (pre-school aged children) were not monitored. As the CLTS monitors the open defecation free status, not the number of latrines built, there is insufficient evidence to support why each household having a latrine as the only indicator that is measured. As with the water supplies, certain omissions may also have limited the potential of the project. The lack of monitoring of any high quality and innovative designs utilised by some households meant that local ideas and lessons learned are being lost. Without this monitoring it is also difficult to show that the CLTS project is progressing up the 'sanitation ladder' rather than being stationary.

- *Hygiene:* The project introduced new hygiene technologies, the HWF, into the communities. It would have been anticipated that there would be a significant amount of information on user practices, alterations that were made to suit these practices, and improvements to the designs. There was no evidence of any of this monitoring, or any alterations that were made to the initial designs. This is a significant oversight and may highlight the reasons why so many of the systems were inadequate or had failed.

Supporting Discussions

Challenges Faced

The project faced several challenges over the course of the year. The project staff were able to raise certain issues that affected the project outcomes:

- Cholera: the cholera outbreak caused significant problems both to the timings and to the impact of the project. Though the outbreak increased the immediate sanitation and hygiene activities in the project area, staff had to reduce their activities on this project in order to assist with distribution of cholera kits.
- Lack of local knowledge in rainwater harvesting: though the qualities of the HWF were exceptionally poor it was noted that constructed RWH systems are not common in Sierra Leone. It was ambitious, and culturally relevant, to invest in these projects. The lack of local guidance that is available, or even reliable case studies of similar projects, is exceptionally rare. Though the systems were not successful they did require much more external assistance than was made available, throughout this project, to the engineering and mobilisation teams.
- Communities' perceptions: Both the water and sanitation components require the communities to have a full understanding of the project's benefits. The community mobilisers indicated that there were several instances where communities would be sufficiently mobilised to construct latrines, or to provide hand-washing facilities for themselves, and yet future visits would indicate that the same households had reverted back to previous practices. There was also very little progression in the constructional quality of the buildings, over time, due to the focus being on users using a latrine. The same can be shown in relation to water. The quantities surveys (as shown in fig 1, 2 and 3) indicate that though individuals have access to an improved source of drinking water they will still continue to use some source of unimproved water. The mixed perceptions will impact both the short and long term sustainability of both water and sanitation interventions.

Lessons learned

There were several lessons that were learned over the course of the project. Some of the demonstrable lessons that were learned are:

- Design Adjustments: The HWF were significantly readjusted from the stand-alone systems to provide a more sophisticated design which dealt with some of the failures of the previous designs. This included ease of access, interior tiling and a direct link to the latrine system itself.
- Prepared Communities: The technicians noted that the CLTS activities were particularly strong in areas where the communities had previous experience in building concrete san-plats. This understanding was incorporated into the community's construction activities and thereby improving results.
- Readiness for capacity building: It was also apparent, from meeting with the construction supervisor and technical staff, that there is a need for training. The staff members were acutely aware of the need for lessons to be learned and internal training to be given.
- Borehole trainings: The technical staff suggested that they had significant problems with the repairs of boreholes. They claimed that there was no retrieval method if the rods or pipes were accidentally dropped into the systems. Though this is not an issue that directly affects current boreholes, it is a lesson that has been learned by staff that has not been incorporated into the training or the toolkits of those responsible for repairing the boreholes.

Recommendations

There are several recommendations that need to be made in the short (1-3 months), medium (3 months -1 year) and long term (over 1 year):

Short Term Recommendations:

- **Hand-washing Facilities:** The stand-alone HWF need to be urgently addressed and made safe for the communities. The systems can be redesigned and altered to significantly reduce any harmful effects. The combo systems must also provide vital components that were designed to be included (manhole covers, taps) and those that were not (first flush systems, filters).
- **Latrines:** The latrine at Fotanah Bana must be urgently investigated to find out if it poses a risk to nearby households. The remainder of the latrines must also be adjusted to suit the original designs, including addressing the vent piping, ensuring the latrine interiors are dark and fixing the urinary spillways. Checks need to be made regarding the communities cleaning practices of these latrines.
- **Water Management Committees:** The tariff systems have to reflect the self-sustainability required of the communities. These have to be set at a price that will allow the systems to be maintained, not what the lowest paying households can afford. There are multiple options available²⁰ and these should be explored in more detail to see how they are applicable to Concerns projects. The same considerations for fundraising have to be made for the schools, where the water supply systems need to depend on much more robust tariff systems in order to be successful.
- **School well security:** The security of Concerns school wells needs to be investigated, as there is ample evidence that these systems are more vulnerable to theft and salvaging than community systems. Security measures should also be taken at the latrine structures of the large town schools.

Medium Term Recommendations:

- **Capacity building:** The technical failures linked to the latrines and the HWFs indicate the extent of training that is required of the field staff responsible for implementation. Concern staff need to be capable and comfortable using international engineering standards. They also need to be able to respond to different technical issues, such as being able to safely adjust the initial designs of projects if they are deemed unsafe, inefficient or of low quality. Any new projects in WATSAN should incorporate a significant component of the budget towards training. A review of engineering capacities among staff should also be carried out.
- **Monitoring and Evaluation:** More sophisticated monitoring and evaluation methodologies should be developed to ensure that key lessons learned, and best practices, are not lost. These are context specific and should reflect the type of project that is being implemented. For example, the hand washing facilities should include M&E that has detailed information on users practices and personal feedback. More importantly they should be designed to ensure that key targets of the projects (such as CLTS or the use of the HWFs) are not omitted and high risk situations are monitored.

Long Term Recommendations:

²⁰ See the tariff scheme calculations in: Rural Water Supply in Africa -Building Blocks for Handpump Sustainability (2004) Harvey & Reed

- **Sustainability:** Concern need to work with other organisations to present to the government solutions that will allow the water systems to be maintained. There are several options for this, including providing subsidies, increasing private sector support or investing in alternative technological options. Concern must develop a cohesive advocacy strategy in this regard. They must also appreciate that the government is overwhelmed and unlikely to be able to support the projects in the short to medium term. This should include a review of the CLTS and PHAST activities and strategies which are shown in this project to only provide short-term gains rather than sustained improvements.
- **Water Practices:** The results of the community water practices indicate that households are not using clean water as would be expected. There needs to be additional research in this area. Future projects should focus on water education and on providing alternative technical choices to wells such as household water treatment systems New approaches should also include improving rainwater collection.

Conclusion:

The charity: water funded project's objective was to improve water and sanitation in targeted communities in five chiefdoms in Tonkolili District in Sierra Leone. The project provided almost all of the proposed activities, including the construction of twelve latrine structures, eighteen water supplies, seventeen hand-washing facilities and thirteen community hygiene projects, which were outlined in the proposal. These were relevant as they were designed to address both the perceived needs within the communities and needs that will directly influence the health of the project beneficiaries. This project was also consistent with the vision of Concern in eliminating extreme poverty. It was also aligned with the targets of the Government of Sierra Leone as they look to reduce poverty and improve health to those in the rural areas.

The effectiveness of the project activities varied in their success, with the boreholes and hand-dug wells being positive outputs, and the hand-washing facilities highlighting some of the more significant problems. The CLTS component was found to be not as effective as the ODF statuses suggested. This indicates a weakness with regards to how the implementation and assessment of ODF targets which needs to be adapted to suit the context of Sierra Leone.

The water supply component was delivered efficiently, proving value for money and indicating that Concern is competent in the provision of these services. Concern's inadequate experience in rainwater harvesting meant that the HWFs were not efficient in their delivery or operation. The latrines too had fundamental errors, but could still prove effective as long as noted technical issues are addressed.

The impact of the project will depend on the success of the technical components. The water supply components have been shown to make substantial improvements to their host communities improved water supply intake. The impact of this project on sanitation and in reducing health issues will depend on whether the technical problems with the latrines, HWFs and CLTS are addressed. The lack of sufficient monitoring throughout the project means that the real impact of activities is difficult to measure.

The long term success and sustainability of the project activities can be questioned. The successes of the water supply components are unlikely to be sustained due to inadequate support from the local government due to the extensive nature of the rural water supply problems. The communities' capacity to deal with these issues is also limited due to significant underinvestment in tariff schemes and lack of access to markets. Concern needs to support communities to develop



strategies to ensure that WASH facilities can be adequately maintained on a sustainable basis. The latrine structures and HWFs require little long term support; however the lack of quality in their final construction has shortened their life expectancy. The CLTS and hygiene components have already shown that the impact has diminished shortly after sensitisation interventions. More research is required to assess the suitability of current CLTS and PHAST approaches to the Sierra Leone context and to determine if they are the most appropriate method of delivering long term development in sanitation and hygiene.

Appendix A - Site Visits

Project Sites Visited				
Visit	Village	Date Visited	Project Type	Completion Estimate*
1	Mofoko	15/10/2012	School_Well	
2	Yonibana	15/10/2012	School_HWF	
3	Yonibana	15/10/2012	Sch_Latrine_HWF	
4	Bonkababy	16/10/2012	Comm_Borehole	
5	Pertifu Yoni	16/10/2012	Sch_Latrine_HWF	
6	Mapolie	17/10/2012	Sch_Well_Lat_HWF	Lat 95%
7	Mabineh 1	17/10/2012	Sch_Well_Lat_HWF	Lat 95%
8	Mabella	18/10/2012	Sch_Well_Lat_HWF	Lat 95%
9	Kamathor	18/10/2012	Sch_Well_Lat_HWF	
10	Nyerko	18/10/2012	Community_Well	
11	FothanehBana	18/10/2012	Sch_Well_Lat_HWF	
12	Masethley	19/10/2012	School_HWF	
13	Mara	19/10/2012	School_HWF	
14	Robung	19/10/2012	School_HWF	
15	Masankey	23/10/2012	Sch_Well_Lat_HWF	Lat 90% HWF 90%
16	Mamorka	23/10/2012	Sch_BH_Lat_HWF	Lat 20% HWF 50%
17	KumrabaiMassera	24/10/2012	Community_Well	
18	KumrabaiMassera	24/10/2012	Sch_Well_Lat_HWF	Lat 80% HWF 10%
19	Rowunkor	24/10/2012	Community_Well	
20	Maconteh	24/10/2012	Sch_BH_Lat_HWF	Lat 95%

* Completion estimates are based on construction time remaining. Systems that have not been handed over are 95% completed

Project Sites Visited - No project			
Visit	Village	Reason	Project Type
1	Masingbi	Project taken by Unicef	Sch_BH_Lat_HWF (x2)

Project Sites Not Visited			
Visit	Village	Reason	Project Type
1	Mapamurie	Road Access	Sch_Well_Lat_HWF
2	Rothongboi	Road Access	School_Well_HWF
3	Masuba_EMS_School	Road Access	School_Well
4	Makoma	Road Access	Community_Well

Appendix B – Focus Group Discussions

FGD Number	Charity Water Project Type	Specific Focus Grouping	Purpose of FGD	Selection Criteria - Number of FGDs are in brackets ()	Targeted Village
1	School Hygiene Committee	School Hygiene Committee	Investigate the role of the school hygiene committee with regards to the hand washing facilities and latrine cleaning. Other issues include gender involvement in the committees and gender roles. Also includes discussions on the benefits of HIV/Aids awareness the project may have provided.	Villages that have been provided with a stand-alone HWF (2) or combined latrine/HWF (1) only	Masethley (HWF)
2					Robung (HWF)
3					Yonibana (Latrine/HWF)
4	School Hand-dug well/borehole + Latrine + HWT Facilities	Water User Committee and members of the parent/teacher associations	The FGD is to develop an understanding of school sustainability by looking at support structures for water supply and sanitation. This includes by-laws, tariff schemes, spare part supply chains, tools and technicians. The hygiene component will include discussion on latrine hygiene and cleaning activities. It will also look at the communities' perceptions of the hand washing facilities and the perceived impact that these have made.	Schools that have HWF/Latrine and Borehole (1), Schools that have HWF/Latrine and hand-dug well (2),	Masinkay (Latrine/HWF and Borehole)
5					Mabineh (Latrine/HWF and Hand-dug Well)
6					Kamathor (Latrine/HWF and Hand-dug Well)
7	CLTS and SSHE	Child SSHE clubs and random selection of children from villages	The purpose is to establish the effectiveness of the hygiene activities including the CLTS and SSHE. The discussions will focus on the effectiveness of the sensitisation techniques and practices at a school level. It will also allow practical feedback from the children concerning their opinions and recommendations of the ODF status of the communities.	Schools that have HWT only and CLTS (2), Schools that have been provided with full latrine/HWT systems and CLTS (3)	Masethley (HWF)
8					Robung (HWF)
9					Masankay (Lat HWF)
10					Mabineh (Lat HWF)
11					Kamathor (Lat HWF)
12	CLTS triggered communities	Community representatives not directly involved in the WUC	The FGD will explore the communities' perceptions of their sanitation problems and their thoughts, opinions and feelings about the CLTS approach. It will also relate to their experiences of having an Open Defecation Free village and the 'sanitation ladder' as well as ownership of latrines structures. Other questions will involve issues on vulnerable groups such those with HIV/Aids or other disabilities	Villages that have graduated to ODF status (4) of which village that have successful systems (2) and unsuccessful systems (2)	Robung (ODF)
13					Masankay (ODF)
14					Mabineh (Not ODF)
15					Masethley (Not ODF)
16	Communities that were not included in the HH surveys due to size	Water User Committee and members of the parent/teacher associations	The meeting will cover the difference between large and small towns, and the support systems for large school (and multiple school) catchments in Yonibana. Similar to the community borehole questions, but focused on these types of schools uses of their water supplies and latrine structures.	FGD will focus on school committees of a large town (1)	Yonibana (Latrine/HWF)

Appendix C – Household Survey Graphs

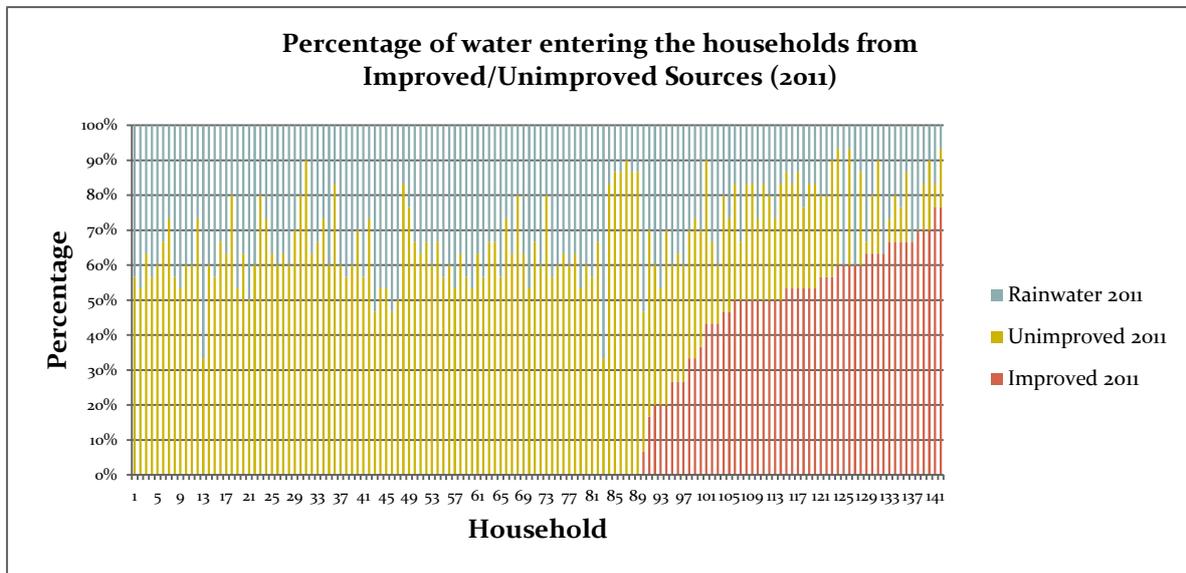


Fig1: access to improved water per household 2011

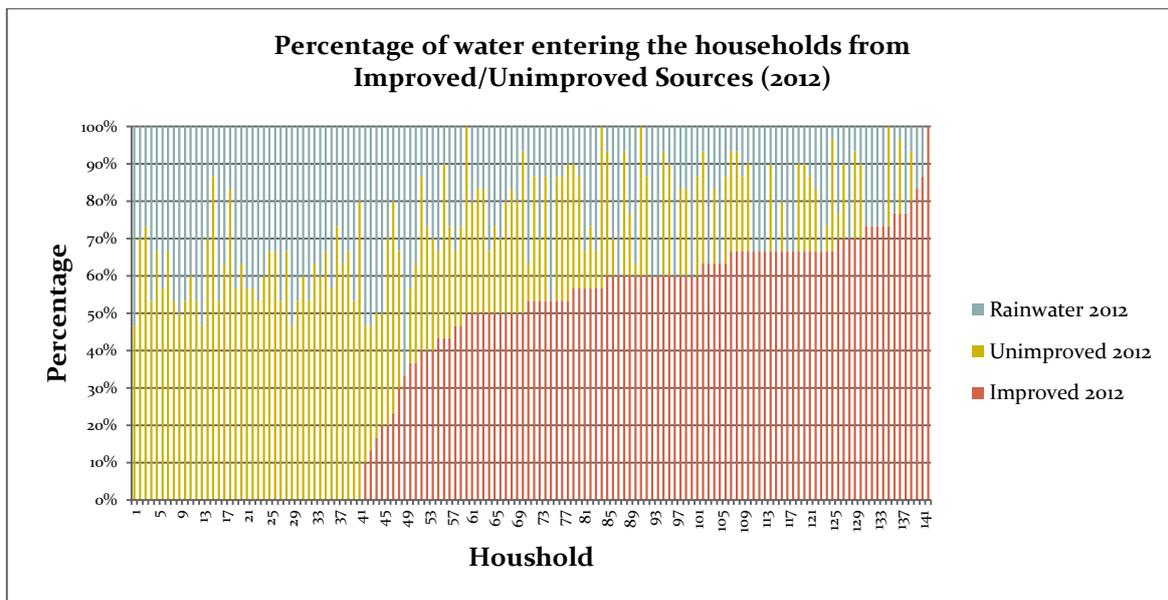


Fig2: access to improved water per household 2012

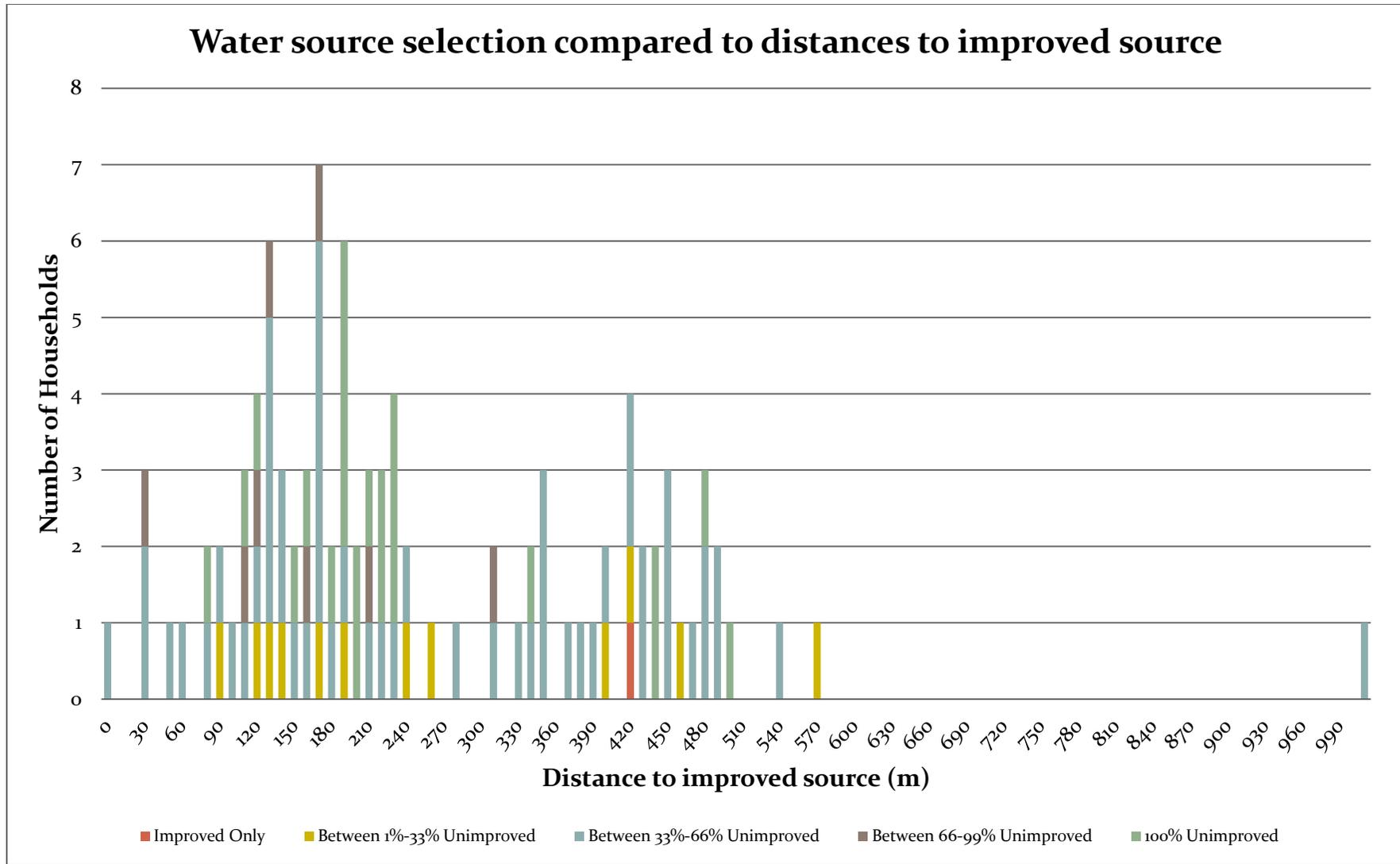


Fig3: Water source selection and distance to improved source

Appendix D– Surveys

Charity water funded Rural WASH Project Household Baseline- End line survey Questionnaire

INTRODUCTION

- Greet the person you are interviewing and introduce yourself.
- Explain the purpose of the survey: this survey aims to capture the baseline and end line situation of the households in the project areas in line with the indicators set in relation to Water and sanitation to measure the impact of the project and has nothing to do with the person and the data will be treated with anonymity.
- Ask if the persons you are speaking to have any questions for you before continuing.
- Ask if the respondent is willing to be interviewed. If agrees, start the interview.

1. BASIC INFORMATION OF THE HOUSEHOLD

S/No	Questions	Answers
1	Questionnaire No	
2	Name of Enumerator	
3	Name of the respondent	
4	Gender	1. Male <input type="checkbox"/> 2. Female <input type="checkbox"/>
5	Number of people in the household (Including respondent)	
6	Name of the chiefdom	
7	Name of the section	
8	Name of the village	
9	Date of Interview: (DD/MM/YY)	
10	GPS	N W
11	Checked by	

2. ACCESS TO WATER SUPPLY

Question: Where do you get most of your water from? A) In the wet season in 2011 & B) in the wet season 2012? Token Meaning: Total water collected in the household in one month. Please use ONLY 30 tokens and use All tokens.					
SOURCES	School Hand- pump Well or Borehole	Non School Hand-pump or Borehole	Pulley or Open dug (Traditional) Wells	Rainwater	Stream, River, Scoop, Spring or Pond
DURING WET SEASON (BEFORE SEPTEMBER 2011)					
DURING WET SEASON IN SEPTEMBER 2012 (NOW)					
3	if school well is used – state name of school				

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4. SANITATION

S/No	Questions	Answers Baseline (in September 2011)	Answers Baseline (in October 2012)
1	Does the household have access to a toilet (<i>latrine</i>)?	1. Yes <input type="checkbox"/> 2. No <input type="checkbox"/>	1. Yes <input type="checkbox"/> 2. No <input type="checkbox"/>
2	If Yes, Did they household construct its own toilet (<i>latrine</i>)	1. Yes <input type="checkbox"/> 2. No <input type="checkbox"/>	1. Yes <input type="checkbox"/> 2. No <input type="checkbox"/>
3	If Yes to no 1. Do the children in the household use the toilet (<i>latrine</i>) :	1. Yes <input type="checkbox"/> 2. No <input type="checkbox"/> 3. No children <input type="checkbox"/>	1. Yes <input type="checkbox"/> 2. No <input type="checkbox"/> 3. No children <input type="checkbox"/>
4	If No to no 3. Are children allowed to defecate near the house?	1. Yes <input type="checkbox"/> 2. No <input type="checkbox"/> 3. No children <input type="checkbox"/>	1. Yes <input type="checkbox"/> 2. No <input type="checkbox"/> 3. No children <input type="checkbox"/>
5	If Yes to no 2. (<i>toilet built in 2012</i>) Observe the toilet (<i>latrine</i>):	Walls damaged/needing repair/partially collapsed: 1. Yes <input type="checkbox"/> 2. No <input type="checkbox"/>	1. Yes <input type="checkbox"/> 2. No <input type="checkbox"/>
		Roof structure damaged/needing repair/partially collapsed: 1. Yes <input type="checkbox"/> 2. No <input type="checkbox"/>	1. Yes <input type="checkbox"/> 2. No <input type="checkbox"/>
		Slab Material: 1. Concrete <input type="checkbox"/> 2. Plastic <input type="checkbox"/> 3. Mud-brick <input type="checkbox"/> 4. Other <input type="checkbox"/>	1. Yes <input type="checkbox"/> 2. No <input type="checkbox"/>
		Is the Slab damaged/needing repair/partially collapsed: 1. Yes <input type="checkbox"/> 2. No <input type="checkbox"/>	1. Yes <input type="checkbox"/> 2. No <input type="checkbox"/>
		Is there hand-washing facilities and soap present: 1. Yes <input type="checkbox"/> 2. No <input type="checkbox"/>	1. Yes <input type="checkbox"/> 2. No <input type="checkbox"/>
6	What did you use to wash your hands last year? (circle all that applies)	SOAP 1 DETERGENT 2 ASH 3 MUD/SAND 4 NONE 5 OTHER 6 (SPECIFY)	
7	What do you use to wash your hands now? (circle all that applies)	SOAP 1 DETERGENT 2 ASH 3 MUD/SAND 4 NONE 5 OTHER 6 (SPECIFY)	
8	If soap is mentioned in No 7 above, ask to see the soap, did you see it?	1. Yes <input type="checkbox"/> 2. No <input type="checkbox"/>	

School Sanitary Survey Latrine Form

1. School Name:	2. Well Use Community <input type="checkbox"/> School <input type="checkbox"/>	3. N:	4. W:
5. No of Girls	6. No of Boys	7. No of Teachers	8. Date:
9. Number of Latrine blocks and Number of units: (blocks) (units)			
10. How are the latrines assigned: Gender <input type="checkbox"/> Academic Grade <input type="checkbox"/> Teacher/pupil <input type="checkbox"/> not assigned <input type="checkbox"/>			
11. Are the separate cleaning areas for girls/boys: Yes <input type="checkbox"/> No <input type="checkbox"/>			
12. Is there disabled access: Yes <input type="checkbox"/> No <input type="checkbox"/>			
13. Do the school children ever use the bush for defecation : Yes <input type="checkbox"/> No <input type="checkbox"/>			
14. Does the latrine get cleaned? Yes <input type="checkbox"/> No <input type="checkbox"/>			
IF YES	15. By whom?		
IF YES	16. How often? (days)		
IF YES	17. What cleaning agents are used?		
IF YES	18. Ask to see cleaning agents, if they are not brought within 2 mins mark as not present Present <input type="checkbox"/> Not Present <input type="checkbox"/>		
19. Observe the latrines condition:			
	All Compartments	Some of the Compartments	None of the compartments
Are the walls dirty?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are there flies?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is there an odour?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is it dark?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is there paper for wiping yourself?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is there covers for the pits?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20. What is the condition of the piping? Cracked <input type="checkbox"/> Unsealed at top <input type="checkbox"/> Damaged <input type="checkbox"/> Satisfactory <input type="checkbox"/>			
21. What is the condition of the slab?			
	All Compartments	Some of the Compartments	None of the compartments
Concrete slabs?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cracked or damaged?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are they dirty	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Urine diversion?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22. What is the condition of the roof: Missing Sheets <input type="checkbox"/> Leaking <input type="checkbox"/> Damaged <input type="checkbox"/> Satisfactory <input type="checkbox"/>			
23. What are the condition of the pits: Sealed <input type="checkbox"/> Unsealed <input type="checkbox"/>			
24. Where is the nearest water source: Under 30m <input type="checkbox"/> Between 30m – 100m <input type="checkbox"/> Over 100m <input type="checkbox"/>			
25. Are there any signs of seepage? Yes <input type="checkbox"/> No <input type="checkbox"/>			
26. Are there any signs of flooding Yes <input type="checkbox"/> No <input type="checkbox"/>			
27. Is the latrine Locked? Yes <input type="checkbox"/> No <input type="checkbox"/>			

IF YES	28. Who controls the access to the latrine?
IF YES	29. What time is the latrine locked?
30. Does anyone outside school attenders (school staff and pupils) use the latrine? Yes <input type="checkbox"/> No <input type="checkbox"/>	
General comments on the latrine:	
Hand washing Facilities	
31. Attached to Concern built latrine Yes <input type="checkbox"/> No <input type="checkbox"/>	
32. Condition of the system: Functional <input type="checkbox"/> Non Functional <input type="checkbox"/>	
33. If non-functional- cause?	
34. Length(m):	Breadth(m): Depth(m):
35. Condition of guttering: Cracked <input type="checkbox"/> Coming off wall <input type="checkbox"/> Damaged <input type="checkbox"/> Satisfactory <input type="checkbox"/>	
36. Is there soap present: Yes <input type="checkbox"/> No <input type="checkbox"/>	
37. Can the HWF be locked? Yes <input type="checkbox"/> No <input type="checkbox"/>	
IF YES	38. Who controls the access to the HWF?
IF YES	39. What time is the HWF be locked?
40. Is there ease of access to refilling the HWF? Yes <input type="checkbox"/> No <input type="checkbox"/>	
41. Can the opening of the water tank be sealed? Yes <input type="checkbox"/> No <input type="checkbox"/>	
42. Is there evidence of cross contamination? Yes <input type="checkbox"/> No <input type="checkbox"/>	
General comments on the hand washing facilities:	

School Water and Sanitation Information			
1. School Name:	2. Date:	3. N:	4. W:
5. Head Teachers Name:		6. No. of Girls:	7. No of Boys:
8. Number of Latrines: Working: Not working:		9. Well: Working: <input type="checkbox"/> Not working: <input type="checkbox"/>	9. HWF: Present <input type="checkbox"/> Working: <input type="checkbox"/> Not working: <input type="checkbox"/>
Water			
10. Has the school be provided with an improved source of drinking water? Yes <input type="checkbox"/> No <input type="checkbox"/>			
If no	11. What source is used: Unimproved <input type="checkbox"/> No Source <input type="checkbox"/> Rainwater <input type="checkbox"/>		
12. Does the village/school have storage to spare parts for the well? Yes <input type="checkbox"/> No <input type="checkbox"/>			
If yes	13. Are the spares in good condition Yes <input type="checkbox"/> No <input type="checkbox"/> Are they stored in a dry/safe place		
	Yes <input type="checkbox"/> No <input type="checkbox"/>		
If no	14. Where can you buy spares		Don't Know <input type="checkbox"/>
If no	15. Why have you not bought spares		
16. Does the village/school have storage of tools Yes <input type="checkbox"/> No <input type="checkbox"/>			
If yes	17. Are the tools in good condition: Yes <input type="checkbox"/> No <input type="checkbox"/> Are they stored in a dry/safe place: Yes <input type="checkbox"/> No <input type="checkbox"/> Is the tool set complete: Yes <input type="checkbox"/> No <input type="checkbox"/>		
If no	18. Where can you buy tools		Don't Know <input type="checkbox"/>
If no	19. Why have you not bought tools		
20. Does the host village have a trained technician: Yes <input type="checkbox"/> No <input type="checkbox"/>			
If yes	21. Are they capable of taking apart and replacing the hand pump Yes <input type="checkbox"/> No <input type="checkbox"/>		
If no	22. Does the village have an outside technician that they can contact Yes <input type="checkbox"/> No <input type="checkbox"/>		
23. Are the wells treated with chlorine: Yes <input type="checkbox"/> No <input type="checkbox"/>			
If yes	24. Who treats the well:		
If yes	25. How often: When the well was built <input type="checkbox"/> Weekly <input type="checkbox"/> Monthly <input type="checkbox"/> 1 – 3 months <input type="checkbox"/> 3 – 6 months <input type="checkbox"/> 6 months – 1 year <input type="checkbox"/> over 1 year <input type="checkbox"/>		
If yes	26. What dosages are used: 1 tbsp <input type="checkbox"/> 2 tbsp <input type="checkbox"/> 3 tbsp <input type="checkbox"/> Depends on water <input type="checkbox"/> Don't know <input type="checkbox"/>		
27. Is there a water user committee specifically for the well: Yes <input type="checkbox"/> No <input type="checkbox"/>			
If yes	28. Is it the same committee for the village wells/boreholes? Yes <input type="checkbox"/> No <input type="checkbox"/>		
If yes	29. How often do they meet to discuss the wells: Never <input type="checkbox"/> Weekly <input type="checkbox"/> Monthly <input type="checkbox"/> 1-3 months <input type="checkbox"/> 3-6 months <input type="checkbox"/> 6mths- 1 year <input type="checkbox"/> when there is a well issue <input type="checkbox"/>		
If yes	30. How many men and women are on the committee: (men), (women)		
31. Who is not allowed to use the well:			
32. Does the village/school collect money for the wells? Yes <input type="checkbox"/> No <input type="checkbox"/>			
If yes	33. How much is collected per month:		
If yes	34. How is it collected:		
If no	35. Does the community/school wait until the well is broken before collecting money? Yes <input type="checkbox"/> No <input type="checkbox"/>		
Sanitation			
36. Has the school been provided with a latrine: Yes <input type="checkbox"/> No <input type="checkbox"/>			
If yes	(Complete School Form)		
Sanitation Comments:			

Appendix E – Site Photographs



1) Dirt on the well wall, common in most wells. Rowunkor, KunikeSanda



2) Rusting on Pipes Mapolie, KunikeSanda



3) Formwork still in casing. Maplie, KunikeSanda



4) Suitable fencing. Kumrabai Maserah, KunikeSanda



5) Abbas Bangura at his School borehole, Masinkay, Yoni



6) Area for standing beside the borehole, Masinkay, Yoni



7) Loose slab over hand-washing area, Mastheley, Malal Mara



8) Condition of the latrines attached to the HWF (Not Concern built), Yonibana, Yoni



9) No first flush or filter, Mastheley, Malal Mara



10) Interior of tank – showing pipes for water no method for preventing buildup of sediment from entering tap, Mastheley, Malal Mara



11) Teacher attempting to clean the HWF, Mastheley, Malal Mara



12) One of three non-working HWF, Mara, Malal Mara



13) Tiled (but dirty interior), Kamathor, KunikeSanda



14) No first flush system or filter, Mabella, KunikeSanda



15) Heavy lid - exposed to flies and sunlight, Yonibana, Yoni



16) No mosquito mesh, on top of the pipes, FothenehBana, KunikeSanda



17) Piping that does not extend beyond the roof structure, Mabella, KunikeSanda

18) Urinal outflow, Kamathor, KunikeSanda

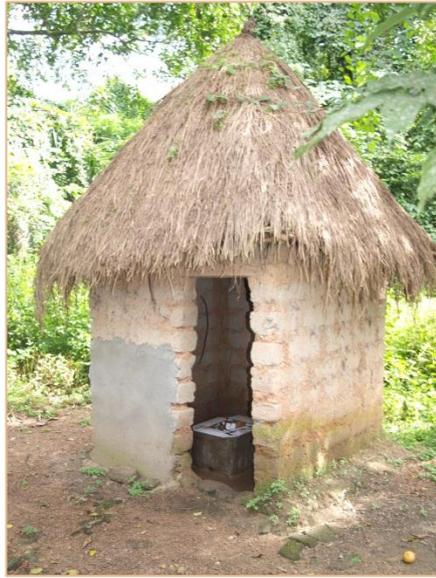


19) Lighting interior of latrine, FothenehBana, KunikeSanda

20) Indications of flooding, FothenehBana, KunikeSanda



21) Construction of irregular structures – Schools, Mabineh 1, KunikeSanda



22) Examples of excellent CLTS Construction



23) Examples of excellent CLTS Construction



24) Examples of adequate CLTS Construction



25) Examples of adequate CLTS Construction



26) Examples of poor CLTS Construction



27) Examples of poor CLTS Construction