Undoing Inequity: inclusive water, sanitation and hygiene programmes that deliver for all in Zambia

Full mid-term review report, April 2015

Focus group discussion, Mwanza West Ward

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Acronyms and abbreviations

AIDS	Acquired Immune Deficiency Syndrome
CCDRP	Cross Cutting Disability Research Programme
CLTS	Community-Led Total Sanitation
CRPD	Convention on the Rights of Persons with Disability
DAPP	Development Aid from People to People
DFID	Department for International Development
FGDs	Focus Group Discussions
INESOR	Institute for Social and Economic Research (University of Zambia)
LCDIDC	Leonard Cheshire Disability and Inclusive Development Centre
LSHTM	London School of Hygiene and Tropical Medicine
PHAST	Participatory Hygiene and Sanitation Transformation
SHARE	Sanitation and Hygiene Applied Research for Equity
MDG	Millennium Development Goals
MHM	Menstrual Hygiene Management
MTR	Mid-term review
UCL	University College London
UN	United Nations
WASH	Water, Sanitation and Hygiene
WAU	WaterAid Uganda
WAZ	WaterAid Zambia
WEDC	Water, Engineering and Development Centre

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Glossary

Standard explanation of terms and technologies

Term/technology	Explanation
Access	People are described as having access to a water or sanitation service if they can use a functioning facility within a reasonable distance of their home, and without exclusion because of race, tribe, religion, disability, age, illness, gender or other cause.
CLTS	Community-led total sanitation is an approach to the promotion of sanitation which brings about a collective community decision to reject open defecation. Communities strive to achieve Open Defecation Free (ODF) status. CLTS in its pure form does not recommend or subsidise specific sanitation technologies.
Coverage	The proportion or percentage of the population who have an 'improved' water or sanitation service, as defined by the WHO/UNICEF Joint Monitoring Programme (JMP).
Hardware	The 'hard' or physical infrastructure (e.g. pumps, pipes, taps and toilets) which make WASH services possible.
Hygiene	Personal and household practices such as handwashing, bathing and management of stored water in the home which aim to preserve cleanliness and health.
Menstrual Hygiene Management (MHM)	Women and adolescent girls use a clean material to absorb or collect menstrual blood, and this material can be changed in privacy as often as necessary for the duration of the menstrual period. MHM includes soap and water for washing the body as required, and having access to facilities to dispose of used menstrual management materials.
Infrastructure	The basic physical and organisational structures needed for a society or enterprise to function. In this paper we refer to the 'hard' or physical infrastructure (e.g. pumps, pipes, taps and toilets) and the 'soft' infrastructure (especially community-level

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	management structures).
Sanitation	In the narrow sense, the safe disposal or re-use of human excreta. In the broad sense, excreta management together with solid waste and storm water management.
Sector	The arena in which the collective endeavours of governments, donors, the private sector and civil society collaborate to improve WASH services.
Software	Activities which mobilise households and communities and establish the 'soft' infrastructure (especially community-level management structures) which is necessary for the functioning of WASH services.
Sustainability	Sustainability is about whether or not WASH services and good hygiene practices continue to work and deliver benefits over time. No time limit is set on those continued services, behaviour changes and outcomes. In other words, sustainability is about permanent beneficial change in WASH services and hygiene practices
Tippy tap	A low-cost water dispenser for handwashing, usually made from a plastic container
WASH sector	The arena in which the collective endeavours of governments, donors, the private sector and civil society collaborate to improve water and sanitation services
Water technologies	Boreholes, handpumps and borehole apron
Borehole/tubewell	A cylindrical hole (usually greater than 20m deep and less than 0.5m in diameter) constructed to allow groundwater to be abstracted from an aquifer.
Rehabilitated borehole	Rehabilitation is the action taken to repair a borehole whose productivity has declined or that has failed through lack of monitoring and maintenance of the pump or well structure
Installed borehole	In the narrow sense in relation to this study, this refers to a

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	borehole that has been driven, bored or drilled, with the purpose of reaching groundwater supplies within a community.
Inclusive design	Infrastructure design that takes into account the needs of women and men who have difficulties using standard infrastructure because of disability, age, chronic illness or other factors
Unprotected source	A source likely to provide water that is unsafe for drinking, e.g. an unprotected spring or hand-dug well, a street vendor or tanker.
Surface water	Term used to describe rainwater that runs over land (i.e. does not infiltrate the ground). Surface water, unlike groundwater, is generally note safe for consumption as it accumulates pathogens, metals, nutrients and chemicals as it flows across contaminated surfaces.
Handpump	Devices which raise underground water to the surface and are operated by hand. They are available in a variety of types (e.g. Afridev, India, Nira).
Tapstand	A distribution system of small diameter medium-density polyethylene pipes, laid in trenches, feeds tapstands. A tapstand is a concrete post supporting a 15mm mild steel riser pipe from the pipeline to a bibcock.
Water-borne toilet	Household or public toilet that disposes of human liquid and solid waste, by using water to flush it through a drainpipe to another location for disposal (Ministry of Health Uganda).
Ventilated Improved Pit Latrine (VIP)	This is a dry pit latrine ventilated by a pipe that extends above the latrine roof. The open end of the vent pipe is covered with gauze mesh or fly-proof netting and the inside of the superstructure is kept dark.
Traditional Pit Latrine with concrete sanplat	The sanplat is the cheapest and most basic pit latrine. It is a small concrete platform (usually 60x60cm or smaller), laid on top of logs or other supporting material traditionally used to cover the pit. The purpose of the sanplat is to provide a sanitary (san) platform (plat) which can be easily cleaned to limit the presence

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	of helminths such as hookworm.
Pit latrine with slab	This is a dry pit latrine whereby the pit is fully covered by a slab or platform that is fitted either with a squatting hole or seat. The platform is solid and can be made of any type of material (concrete, logs with earth or mud, cement, etc.) as long as it adequately covers the pit without exposing the pit content other than through the squatting hole or seat
Traditional Pit Latrine without slab	This uses a hole in the ground for excreta collection and does not have a squatting slab, platform or seat. An open pit is a rudimentary hole.
Open defecation	Defecation in fields, forests, bushes, bodies of water or other open spaces.
Open Defecation Free	Open Defecation Free – an aspiration in most total sanitation approaches.

Sources:

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Executive summary

Background

The Undoing Inequity study seeks to build an evidence base on common environmental, attitudinal and institutional barriers to accessing water, sanitation and hygiene (WASH) faced by vulnerable individuals.

This mid-term review (MTR) was undertaken in the Mwanza West Ward, Monze (Southern Province) of Zambia from June to July 2014, to assess the early impacts of the intervention and to test and refine the baseline data-collection tools for the project evaluation in 2016.

The review was led by a researcher from the International Centre for Evidence in Disability based at the LSHTM on behalf of WaterAid UK in collaboration with project collaborators including WEDC at Loughborough University, WAZ and DAPP and local government. This research was funded by SHARE through funding received by UK aid from DFID.

The initial baseline data collection for the study was conducted in 2012 by LCDIDC.

The intervention comprised three components, namely water technologies involving the construction of new and rehabilitated boreholes in schools and communities, sanitation in the form of latrine promotion, and hygiene approaches.

Sanitation and hygiene approaches included community mobilisers structuring discussions around a 'barrier analysis'[1] to raise awareness of the different range of barriers to access faced by different community members. Information about latrine design options including seats (static and moveable) was also made available. In schools, latrines were made accessible to provide privacy for girls to wash their bodies, stained clothing and any re-usable pads for MHM. Various latrine designs for households were publicised through demonstration toilets. Information was developed in accessible formats and using appropriate language so that everyone could access the relevant information.

The intervention was delivered by DAPP and local government. Within the context of this study, INESOR (University of Zambia) were the main in-country research partners at baseline and mid-term. The Institute is a research wing of the University of Zambia. In line with the University of Zambia, INESOR's goal is to undertake research which combines excellence with relevance.

Responding to inequity and inequality, inclusive WASH, an important new concept in international development, seeks to understand and address the varying needs of people and local contexts, rather than promoting a 'one size fits all' approach.

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For the purposes of this study, we include in the group 'vulnerable people' those who live with a disability, people with chronic illness and older people – groups that are consistently found to have difficulty accessing WASH services see box 2.1 for an explanation. Specifically, we sought to understand what barriers exist to the equitable use of WASH services, and how experiences of vulnerable individuals may differ from those of non-vulnerable individuals in the same households and communities.

Methodology

This study used a 'mixed methods' approach which used both quantitative and qualitative methods, including questionnaires, interviews, focus groups, surveys and structured observational tools. Information was collected from:

- Vulnerable individuals and heads of their households
- Members of their communities
- Community leaders
- Teachers
- Officials within ministries and local government
- Experts and advocates in civil society working both in the WASH sector and in groups representing people with disabilities, those who live with chronic illness and older adults

The mid-term sample re-visited 53 households in areas varying in degree in how the intervention had been delivered, to assess the early impacts of the intervention on the target communities. The baseline tools were redesigned and refined, with new additional areas and new questions to assess the early mid-term impacts to ascertain whether there had been any changes. All households in each area were re-visited and all tools from baseline were re-administered as part of this review.

Key findings

Among our key findings are:

Access to new water technologies

- 27 (51%) of the 53 households at mid-term reported that they were now using boreholes (hereafter referred to as new water technologies) that had been constructed, installed or rehabilitated in their community within the past two years since baseline.
- Of the households reporting that they were using new water technologies, 16 (59%) were households in which a vulnerable member is present and over 90% of the surveyed households reported now exclusively using the new/rehabilitated facility during both the rainy and dry seasons.

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- At baseline, 50% of vulnerable individuals reported that they experienced difficulty in collecting water. This had reduced to 44% at mid-term.
- Just over 45% of household heads reported being involved in the design of the new water technology. This compares to 29% of vulnerable people.
- The percentage of vulnerable people reporting difficulties fetching water dropped from 50% at baseline to 44% at mid-term.
- The distance to the waterpoint and the ability to carry water independently remain a significant barrier, especially for older and physically disabled people

Access to new sanitation technologies

- 31 (58%) of the 53 households at mid-term had constructed, installed or rehabilitated a new or existing latrine within the past two years. Of those, over 90% were now using this new or rehabilitated latrine as their main or only toilet.
- Over 60% of the households that had installed a latrine were households in which a vulnerable member was present.
- In the vast majority of cases, the time taken to reach the new latrine facility was less than five minutes. The figure among vulnerable individuals increased from baseline, from 65% to 78%.
- More than 80% of vulnerable individuals indicated that they primarily used the same toilet facility as other household members. This was similar to baseline where 88% of vulnerable individuals reported using the same facility.
- The practice of open defecation was uncommon. There appears to have been a substantial reduction in the practice of open defecation since baseline, from 24% to 3% at mid-term. However, 100% of the households practicing open defecation included a vulnerable member.
- Only 7% of latrines had support structures such as handrails to assist the user with entry, manoeuvring, sitting or squatting inside.
- Older people continued to experience difficulty accessing the latrine, especially at night because of poor lighting and difficulty balancing.

MHM

- At the household level, 13 (81%) of 16 women and girls reported that they were able to bathe or wash themselves throughout the month. The main materials mentioned included soap, water and pieces of cloth.
- Access to a system to discretely dispose of sanitary protection waste was moderate, with 50% of women and girls reporting that they had such access.

Physical safety and security

- The results on feelings of physical safety in relation to using WASH facilities were mixed. In terms of access to water, some respondents reported feeling safe and

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others expressed the distance to the waterpoint to be an issue. Other concerns raised included falling into the wells when collecting water.

- In relation to using the latrine, the general results indicated that household members and vulnerable individuals felt safe to use the latrine. A few respondents reported a lack of privacy to be an issue.

Access to hygiene

- At the household level, the majority of household heads reported that they were able to bathe or wash themselves every day, with 90% of household heads reporting that they are able to do so.
- Among vulnerable individuals, 62% reported that they were able to wash or bathe themselves every day at baseline compared to 93% at mid-term. This indicates a substantial increase in the frequency of bathing among vulnerable individuals.
- Access to a handwashing facility near the latrine or dwelling was reported to be moderate, with 42% of household heads reporting that they had access to a handwashing facility within the latrine or dwelling area.

Policy and institutional arrangements

There are strong working relationships between organisations working in the WASH, disability, HIV and aging sectors.

1 Recommendations

The recommendations emerging as a result of this MTR are presented to follow the format of the results. These recommendations are based on the findings emerging from the MTR and observation of the delivery of the intervention in target communities.

1.1 Recommendations for WAZ

1.1.1 Access to water

- Long distances to waterpoints continues to be a problem for many older people and people with severe disabilities. Further exploration is required to assess whether alternative options at the home, e.g. rainwater harvesting, can be made available to those most in need.
- A Compendium of Accessible WASH technologies has been produced as part of this project. It includes a section on transporting water for use by all users, including people with limited strength, or difficulty balancing or grasping a container. WAZ and DAPP should promote those options to all community members to help address these barriers.

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- As there appears to be little change in the number of vulnerable people able to access potable water in the household from the baseline, WAZ and DAPP should promote the Compendium of Accessible WASH technologies. This includes a section on accessing stored water for people with mobility devices, or poor balance or strength.

1.1.2 Access to hygiene and sanitation

- Accessibility and safety audits should be routinely conducted when siting the construction of new school WASH facilities and after the constructions of such facilities as part of the quality control and sign off process.
- Project implementers providing information on accessible latrine options should emphasise the benefits to all users of user-friendly designs. Staff should also emphasise the labour-saving benefits and consult vulnerable groups, not only people with disabilities, but also groups including older people and those who are chronically ill.[2]
- An emphasis should also be placed on effective monitoring of community mobilisation and information dissemination about sanitation and hygiene, and subsequent changes implemented by households and communities.

1.2 Recommendations for the endline

1.2.1 Continued investment

The current status of the intervention was not as advanced as had been expected at the time of the mid-term (see table 4.1). Continued investment and emphasis on carrying out the inclusive WASH approach within the 50 villages included in the baseline survey is vital so that outcomes and potential impacts can be measured at endline.

1.2.2 Access to water

- Implementing partners must keep accurate records of the number of new or rehabilitated water technologies installed in each of the target communities. Lack of records made it very difficult to verify the number of new or rehabilitated water technologies at mid-term, apart from through self-reported questions and waterpoint observation.
- At endline an assessment of community member's awareness of the installation of such technologies formed part of the intervention and reasons why new technologies were not constructed.
- The total number of vulnerable households using alternative water technologies e.g. rainwater harvesting systems would be important to know to assess the reach of the intervention.

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- For households not accessing new water technologies, the reasons why new technologies were not constructed in their communities should be explored.
- At endline, assess why particular households continue to use unprotected water sources even though protected water sources are within distance of their households. This was observed at mid-term.
- The waterpoint observation tool might need adjusting at endline, to capture information about inclusive design modifications (e.g. increased space, ramps, container stands etc).
- At endline, the results of the process monitoring during the project cycle should be analysed to provide background and context to the results.
- The development of a set of key indicators on water will enable the refinement of data-collection tools and monitoring of the objectives of the project.

1.2.3 Access to sanitation

- The degree to which households are accessing new latrines should be assessed at endline through the incorporation of the same questions used at mid-term to assess how many households have installed or constructed latrines. This should also include the development of a set of key indicators for use at endline so that questions can be further refined.
- The reasons why households are continuing to practise open defecation should be explored. Further exploration of why this practice is more common among vulnerable households should also be explored.
- All households at endline should have a household latrine observation checklist administered to assess their latrine facilities. For households with a vulnerable member who have not made specific changes to their latrine facilities, the reasons why should be explored further in in-depth interviews.
- At endline, it will be important to understand whether any activities have been conducted in the areas where no intervention has been identified at mid-term.

1.2.4 Access to hygiene

- Further questions should be incorporated at endline to assess whether changes or adaptations have been made to access hygiene facilities at the household level, and the information received on such options.
- Further exploration of the low presence of handwashing facilities should be explored at endline, and the reasons why this is the case.
- MHM at the household level requires more detailed exploration, as this was an area reported to be low at mid-term. It would be worthwhile to explore opportunities for integrating messages to improve MHM at the household level and initiatives to train women (e.g. to make low-cost sanitary pads) with appropriate messaging and linkages to income generation.

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- Ensure data on MHM separates vulnerable and non-vulnerable people so that a comparison between the samples can be made.

1.2.5 School WASH

- At endline, it would be useful to visit all of the schools included at baseline, including the three included at mid-term, to assess the status of the intervention. A comparison of enrolment rates in schools of children with and without disabilities where there has not been an inclusive WASH focus in the community or school with schools where there has been an inclusive WASH approach would also be useful in examining the intervention's role and impact.
- To assess the impact of the intervention on children with disabilities and girls in terms of MHM, in-depth interviews could be undertaken with children.
- Interviews with local ministry officials to discuss the impact of WASH facilities in schools should be included at endline.

1.2.6 Caregivers

The role of caregivers in providing assistance to vulnerable household members could be examined in greater depth and suggestions given of how their role could be supported or reduced from an inclusive WASH approach perspective.

1.2.7 Levels of participation and empowerment

Investment in and emphasis on improving levels of meaningful participation and empowerment of vulnerable groups should continue until the endline. Any changes resulting from continued focus should be assessed across all target communities at the endline.

1.2.8 Evaluation of data-collection tools for endline

- Development of a set of key indicators at endline in relation to the objectives of the research should be completed.
- All tools should be re-administered, but the quantitative tools need to be substantially refined, to reduce the time burden on respondents and data collectors but also to ensure that only relevant information is collected. Sets of key indicators will enable this refinement.
- The MTR established that many more vulnerable individuals were identified through having a detailed roster and screening questions than were in the original sample identified. It would be useful to explore and possibly understand the impact of the intervention also on these groups.
- Further questions should be included in the individual questionnaire (Tool 2) in the section on access to sanitation facilities which capture the type of toilet facility used for vulnerable individuals who do not use the same toilet facility as

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other members of their households. The purpose of such a question would be to ascertain whether vulnerable individuals are using inferior facilities compared with other members of their households.

- The individual level questionnaire (Tool 2) should also include an additional question on the level of difficulty experienced by vulnerable individuals reporting that they could use the toilet facility without assistance from another person. The current question only captures whether assistance is needed and not the level of difficultly that the individual might experience.
- The waterpoint observation checklist would be improved at endline by adding questions to capture the specific design changes made from the previous standard installation of water technologies. The purpose of this would be to assess what specific modifications have been made to improve accessibility. This would involve discussions with the project implementers on pre-intervention designs and the specific designs included as part of the intervention. The current focus of the checklist is on general barriers to accessing waterpoints, so inclusion on the specific design changes made would be important to ascertain at endline.

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2 Undoing Inequity research

This was a mid-term review (MTR) of the Undoing Inequity project. Before presenting the MTR, this section provides an overview of the approach and background of the research project, the inclusive WASH approach and the WASH intervention component of the project.

2.1 Approach and background

The Undoing Inequity project is an action research project implemented in the Monze district of Southern Zambia. The baseline and MTR are key components of the project.

An initial pre-intervention baseline study for the Undoing Inequity project was conducted in 2012 in Zambia and Uganda, led by LCDIDC in collaboration with WaterAid UK, WAU, WaterAid Zambia (WAZ), WEDC and other implementing partners, to gather quantitative and qualitative baseline data. This report focuses on the MTR of the Undoing Inequity project in Zambia only. The research was funded by SHARE through funding received by UK Aid from DFID.

This body of research has its origins and foundations in a roundtable meeting initiated by WaterAid in 2011 alongside the SHARE consortium and LCCDRP, with the participation of researchers and policy makers with expertise in WASH, equity, inclusion and disability. From this roundtable meeting a briefing note was developed: "Including disabled people in Sanitation and Hygiene Services",[3] which outlined existing knowledge and practices on WASH for people with disabilities, and chronically ill and older people (referred to as 'vulnerable' in the protocol because of potential challenges they might face when accessing standard WASH facilities), current evidence gaps and key research priorities. The roundtable meeting laid the foundation for the *Undoing Inequity: inclusive sanitation and hygiene programmes that deliver for all* research project.

Key suggested priorities and actions were to assess interventions designed to benefit disabled people within mainstream sanitation approaches such as CLTS and to undertake in-depth quantitative and qualitative research with disabled people, their families and communities in two countries. There was also an aim develop guidelines regarding baseline questions, indicators and outputs for other organisations to replicate and scale up.

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2.2 Research aim and questions

2.2.1 Research aim

The aim of the Undoing Inequity research is to develop and test an approach that aimed to improve access to WASH for all, and thereby provide equal access to people who are marginalised and vulnerable.

2.2.2 Specific research questions

The specific research questions of the overall Undoing Inequity project[4] are:

1 What are the problems and opportunities currently experienced by vulnerable people and their households in accessing and using WASH facilities?
2 What solutions and approaches improve access to WASH for all within a community WASH intervention?
3 What are the benefits of improved access to WASH for vulnerable individuals and their families?
4 What are the additional programme costs to undertake an inclusive WASH approach?
5 What tools can be used in future research and in the programme cycle to support WASH programming that reduces intra-household disadvantage, and measure the impact of an inclusive approach to WASH?

2.2.3 Research methodology

The Undoing Inequity research is a straightforward action-research design, carried out in three phases (see Figure 2.1).

The Phase 1 pre-intervention baseline data collection was designed to answer the first research question. This was led by LLCDIDC as part of the DFID funded CCDRP, in partnership with WaterAid and WEDC. Data collection was carried out from January to August 2012.

Both quantitative and qualitative methods were used to gather evidence. This included quantitative surveys of households and communities, and qualitative in-depth individual interviews and focus group discussions to complement the quantitative data.

Phase 2 of the study involved developing, implementing and testing an inclusive WASH programme to address barriers faced. On the basis of the analysis of the baseline data, a set of actions was designed and implemented to make the subsequent WASH intervention more inclusive and accessible. This phase ran from March 2013 to April 2014. The MTR followed the development and testing of an inclusive WASH approach and forms part of the second phase.

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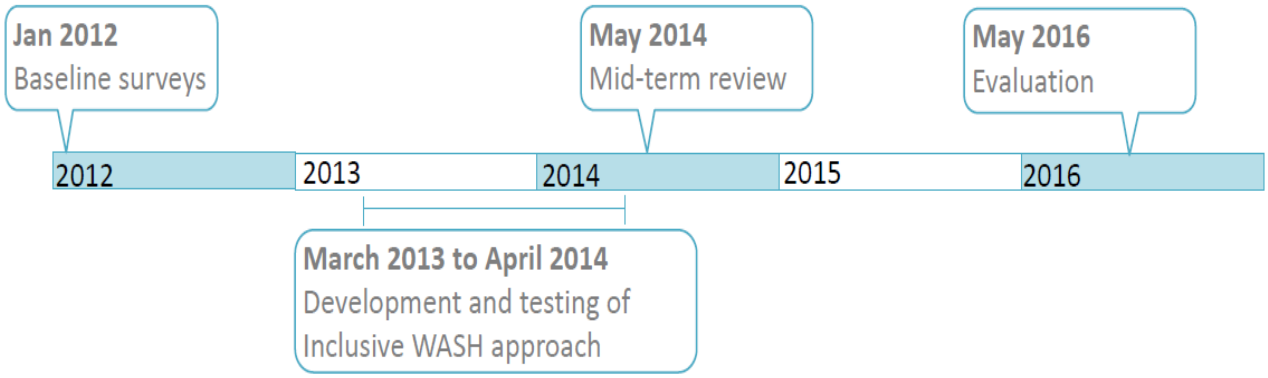

Figure 2.1: The Project Cycle

2.3 The inclusive WASH approach

WaterAid advocates that to be inclusive, a WASH intervention/programme should respond to the varying needs and requirements of people and the local context, rather than promoting a 'one size fits all' approach. One of the key features of the Undoing Inequity project was to learn what an inclusive WASH approach looks like, the possibility of such an approach, together with effectiveness of such an approach and whether such an approach was realistic, doable and scalable. Box 2.1 provides an adapted list of suggestions of what such a programme could consist of.

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Box 2.1: The inclusive WASH approach

Inclusive policies and guidelines: a policy framework that ensures that plans, budgets, guidelines, implementation of programmes and performance monitoring take into account the different needs and aspirations of vulnerable groups and those in hard to reach locations.[5]

An inclusive approach means that:

1 The **capacity of practitioners** to design an inclusive WASH intervention to address barriers faced by vulnerable people **is developed over several stages**. Mechanisms include awareness raising, technical training and participatory barrier analysis.
2 **Baseline study** conducted in the target population to understand the barriers faced by vulnerable people when accessing standard WASH facilities in low-income and middle-income countries.
3 Baseline study **findings analysed**, and ways to address the issues identified through the WASH intervention developed with key stakeholders (communities, implementing agencies, I/NGOs, district and national governments).
4 **Community mobilisation** uses participatory approaches that enable different groups to take part, including those with less power.
5 **Information about sanitation and hygiene** includes facts about menstrual hygiene, disability and impairments and communicable diseases. It challenges stigma and discrimination and reinforces the need to provide access to all.
6 **Information is provided in local languages and accessible formats with** pictures for people who cannot read, and audio for people who cannot see. Everyone has access to relevant information about WASH technology options.
7 **WASH facilities that provide privacy** for women to wash their bodies, stained clothing and any cloths used for menstrual hygiene management.
8 **Public water sources** are located and installed in a way that makes them as accessible and user-friendly as possible for everyone.
9 **Public or institutional latrines** in markets, schools health centres have separate and accessible facilities for males and females. Water is provided inside the women's cubicles for MHM.
10 There are arrangements for the **disposal of sanitary napkins**.
11 **Water user committees** include women and members of other marginalised groups, such as people with disability. Meetings are facilitated to ensure meaningful participation.
12 **Tariffs include options** for the poorest and people who cannot pay.

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2.4 Study setting

The baseline study (Phase 1) was conducted in 62 selected villages across five zones in the Monze district.

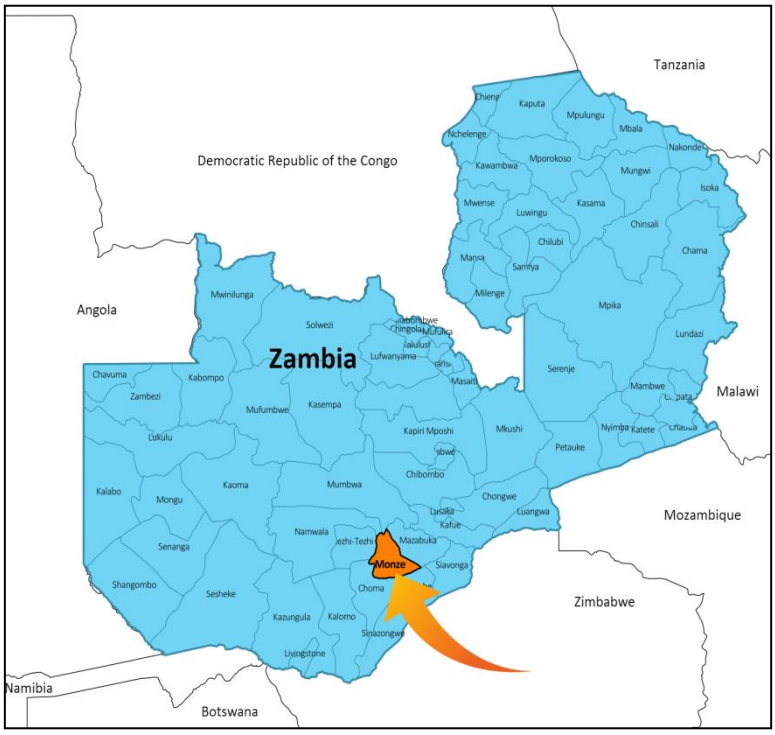

Figure 2.2: Map of Zambia showing districts

2.5 The WASH intervention

The implementation component of the project ran from March 2013 to April 2014 (see Figure 2.1). WAZ partner DAPP have been implementing WASH programmes in the Monze district since 1994.

One of the key drivers of the Undoing Inequity project was to improve meaningful participation of vulnerable groups. Mechanisms to encourage this include the sensitisation of communities to issues around rights and inclusion, along with a mobilisation process that seeks to identify vulnerable individuals living in the target communities. Work then focuses on ensuring that meetings, training sessions and planning forums involve these individuals, and that they have the opportunity to express their needs and contribute to decision-making. Lastly, different accessible WASH facilities are discussed and developed, with monitoring and support provided as people learn how to create and maintain new designs.[6]

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2.6 Intervention delivery

The implementation phase of this project was undertaken by DAPP.

Box 2.2 provides a general overview of DAPP's implementation activities within the Monze district. This includes Mwanza west, Hatontalo, Bbombo and Moomba wards so this includes villages both within and outside the study areas.

Box 2.2 General summary of overall project deliverables – DAPP[7]

Access to water

- Rehabilitated 21 boreholes by replacing the pipes, cylinders, pedestals and head pumps. Seven of these rehabilitated boreholes were accessible by installing a water-lifting stand, a ramp and drainage, which was extended from three to ten metres. Five new boreholes were drilled.
- Trained 20 waterpoint committees on operation and maintenance of the facility after the repairs.

Access to sanitation and hygiene

- 920 household latrines were constructed after awareness raising.
- Seven hygiene-awareness meetings were conducted. Content included the importance of constructing a household toilet, handwash facility, refuse pit, dish rack, clean surroundings, water storage and bath shelter.
- 56 of the targeted 132 villages were declared open defecation free.
- Training on how to construct accessible toilets was provided to masons (25 men including four disabled men; 12 women including one woman with a disability).

In Zambia, everyone in the project communities was invited to participate, but specific efforts were made to involve vulnerable people and ensure that they effectively participated in all phases of the project cycle. The intervention comprised the following three components:

2.6.1 Water technologies

Boreholes were rehabilitated in communities to make them more accessible. The location of waterpoints was determined through facilitated community participation. The water infrastructure was designed to reduce physical barriers to access: access ramps leading up to the handpump apron, a water resting stand installed, entrances widened and circulation space around the handpump.

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2.6.2 Sanitation and hygiene approaches

The project followed CLTS stages (i.e. triggering, developing community action plans and training hygiene promoters), but community mobilisers structured discussions around a' barrier analysis'[1] to raise awareness of the differing access requirements. Dialogue included facts about menstrual hygiene, disability, and communicable disease. This reinforced the need to provide access to all, and challenged false beliefs that result in discrimination against vulnerable people. Information about latrine design options included seats (static or movable), handrails and access ramps. Institutional latrines in schools were installed and made accessible for children with disabilities through the addition of handrails to provide support and separate washrooms for girls to provide privacy to wash their bodies, stained clothing and any cloths used for MHM. The various low technology designs for households were publicised – e.g. wooden handrails versus galvanised iron handrails in a latrine.

Information was developed with pictures for people who could not read, audio for people who cannot see and in appropriate language(s) so that everyone was able to access the relevant information.

3 The mid-term review – methodology

The mid-term review ran from June to July 2014. Its main objectives were to learn how the project had impacted on the lives of the target groups to date, to learn what interventions have been effective, to enable them to be applied in other contexts, and to test and improve the endline data-collection tools for application across the intervention areas in Zambia in 2016 as part of an external evaluation.

3.1 Study setting

The MTR study was conducted in ten selected villages in the Mwanza West Ward, Monze district, where WAZ partner DAPP implemented the intervention phase of the Undoing Inequity research (see Section 1.40). At baseline, 50 villages were included in the sample.

Monze is a small town (estimated population of close to 200,000 clustered in 22 wards) in the southern province of Zambia, and is about 180km southwest of Lusaka. The town is named after Chief Monze, widely acknowledged as the spiritual leader of the Tonga people who inhabit the district. The palace, located near a place called Gonde south of town, hosts an annual ceremony called Lwindi, which attracts people from around the country.

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The main industry in the district is agriculture, with maize being the most important crop. In the past the district used to contribute 25% of Zambia's maize crop and was referred to as home of Zambia's granary. This status has declined over the years, leaving behind the grain silos as the most prominent features to the north of town.

Poor farming methods have depreciated the land, causing low water tables and droughts in most parts. These effects have adversely affected the local people.

3.2 Data-collection tool development

The MTR used the same mixed-methods approach as the baseline data collection. The nine data-collection tools developed and administered at baseline were refined and redeveloped for the mid-term review. The overall entirety of the data-collection tools was kept for comparisons to be made between baseline, mid-term and endline. The purpose of refining and redeveloping the tools was to simplify the initial baseline tools and add additional areas to assess during mid-term. Adjustments were mainly to the head of household questionnaire (Tool 1) and the questionnaire for the individual identified as vulnerable (Tool 2).

Tools were refined and redeveloped following feedback from LCDIDC, WaterAid and WEDC. Minor changes were made to the tools to improve the quality of data; however, any changes took into consideration the need for comparisons between baseline and endline to ensure the validity of the data collected.

The additional areas included:

- Access to new water and sanitation technologies
- Reasons as to why changes or adaptations had been made
- Sources of information on latrine design options and funding
- Gender-based violence and physical safety
- Inclusive WASH participation and awareness
- MHM for women and girls (including those with a disability)
- Meaningful participation in the programme cycle

The re-developed tools were sent for review and feedback and finalised before the main data collection. Further feedback on the tools was obtained during training of field staff and during pilot data collection in selected villages before the main data collection. Relevant changes were made where necessary before the tools were finalised.

Table 2.1 summarises the nine tools and gives a description of the purpose of the tool and the method.

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Table 2.1: Summary of data-collection tools

Tool	Description	Type	Purpose and method	MTR target sample size
1	Head of household questionnaire	Quantitative	Gather demographic data from heads of households with a vulnerable member and a matched cohort of heads of households without a vulnerable member in the same community. This allowed for comparisons between 'vulnerable' and non-vulnerable households.	60
2	Vulnerable individuals questionnaire	Quantitative	Tool 2 was administered in conjunction with Tool 1. In households with a vulnerable member, tool 2 was administered to the vulnerable individuals. Questions mirrored those in Tool 1: access to drinking water, hygiene and sanitation, but tool 2 included additional questions about barriers faced by the vulnerable individuals, and their perceptions and opinions of current WASH practices.	30
3	Semi-structured key informant interviews – ministry officials	Qualitative	To understand how vulnerable individuals fare within the community from a policy and practice perspective.	(Approx 3–6)
4	Focus Group Discussion: community members, disabled or older people, chronically ill	Qualitative	Supplemented Tools 1 and 2, by further exploring perceptions, pursuing issues related to household and community access to WASH for vulnerable individuals.	2 FGDs (6–8 participants each – four vulnerable and four non-vulnerable individuals in two

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	people			villages)
5	Semi-structured interviews: local officials and community leaders	Qualitative		Local official – dependent on each area. Community leaders – in each community.
6	Schools questionnaire and observation checklist of WASH facilities	Quantitative	To assess levels of accessibility of local school WASH facilities	4
7	Semi-structured in-depth interviews with selected vulnerable respondents	Qualitative	For a greater understanding of the barriers that vulnerable people face.	8–12
8	Household latrines – structured observation checklist	Quantitative	Structured Observational Checklist of household latrines.	All households
9	Waterpoint inspection tool	Quantitative	Water Source Observational Inspection of communal water sources, to provide information about the nature, state of repair and accessibility of existing water sources.	In each community

3.3 Sampling

The initial sampling approach of study participants for the original baseline survey was a systematic sampling of 175 households with a vulnerable member and 175 control

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households (i.e. households in the same geographical area not including a vulnerable household member).

These individuals were identified using village-level lists of households maintained by the government. Following the initial baseline in both countries and data cleaning and analysis by LCDIDC in 2014, the current validated numbers are 128 households identified as vulnerable and 116 households identified as non-vulnerable. The total sample was therefore 244. This was due to an inconsistency in identifying and ascertaining vulnerable individuals among the study tools, namely the head of household questionnaire (Tool 1) and the individual level questionnaire for the identified vulnerable individual (Tool 2). This resulted in several households being excluded.

3.3.1 Study population

The MTR used the same study definition of 'vulnerability' as that defined during the baseline, with only a slight change in definition, which was related to the category for older people, which was reclassified as 50 years and older, rather than 65 as stated in the original baseline. This is due to the definition of 'older' in the context of the country following discussions with LCDIDC, and feedback following baseline data collection. The study definition is featured in Box 3.1.

Box 3.1 Study definition of 'vulnerable'

For the purposes of this study, those who are included in the group that is considered to have difficulty in accessing WASH are: older people (50+), chronically ill people, people with a physical, sensory or intellectual disability and people with mental health problems. These people will have different challenges in accessing WASH; however, the definitions do not cover everyone who experience difficulties in accessing WASH. These groups are herein referred to as 'vulnerable individuals' or 'vulnerable people'.

3.3.2 MTR sample

The mid-term sample size was not designed to assess statistically significant differences. The target sample size was 60 households in the Monze district, Mwanza West Ward. The households were selected from a census list compiled from the baseline data. The 60 households comprised a similar number of non-vulnerable and vulnerable households and individuals were selected from across the pre-selected and study districts or villages after discussion with study partners and assessment of the level of intervention delivery across the study districts. The target household sample was set at 30 non-vulnerable and 30 vulnerable households.

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Participants were representative by gender, age, socio-economic characteristics and level of severity of disability. These households or individuals were then selected from the finalised verified list of vulnerable and non-vulnerable households provided from the initial baseline survey analysed by LCDIDC. Before the data collection, participants were informed that a survey team would be visiting the area.

The intervention areas were chosen following discussion and consultation with the project partner, DAPP, on the basis of the delivery and rollout of the intervention and level of need of the areas. The re-developed tools from baseline were re-administered within the selected households in the selected villages. This included the head of household questionnaire (Tool 1), individual questionnaire for the identified vulnerable person (Tool 2), community focus groups (Tool 3), key informant tool with local officials and community leaders (Tool 5), in-depth semi-structured interviews with vulnerable individuals (Tool 7), latrine observation checklist (Tool 8) and the water source observation tool (Tool 9).

For the other study components, the same key informants or other identified informants from national government including health, water and environment, education and gender, labour and social development ministries, and those that represent people with disability and/or older or chronically ill people were interviewed. This was to understand policies and regulations surrounding vulnerable groups including older people, people with disabilities and chronically ill people.

3.3.3 Ethics

Ethical approval for the study was sought and gained from LSHTM. The in-country ethical approval was gained via INESOR, the in-country research lead who were involved in the initial baseline data collection in 2012.

4 Findings

This section presents the findings from MTR data collection conducted in Monze district. First a general overview of the characteristics of the study sample and the vulnerable individuals identified are presented, followed by a more detailed analysis of the findings. The findings in relation to WASH are set out as follows:

- Access to water
- Access to sanitation
- Access to hygiene

The barriers to accessing facilities, adaptations to improve accessibility and the costs of making adaptations in relation to WASH are also addressed in each section. The

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environmental, attitudinal and institutional barriers are discussed in relation to WASH, together with an analysis of the level of participation and empowerment.

The qualitative findings are used to support the quantitative findings from the focus group discussions, interviews with community leaders and expert interviews. The findings from school WASH are also presented.

4.1 Current status of the intervention

The current status of the intervention was ascertained through discussion with the project partner DAPP. A traffic light system (Table 4.1) was used to rank the 50 villages, selected from a finalized list provided by LCDIDC, according to the degree to which they had received the intervention.

Summary of colour coding

Green = 'more intervention' – villages that had been sensitised on equity and inclusion issues (see section 1.6.2), and had new or rehabilitated waterpoints installed.

Amber = 'little intervention' – villages that received little to no hardware component, but had received some follow up. The definition 'little', is however, rather arbitrary, and requires cautious interpretation. These were areas where, according to project implementers, the main form of intervention was sensitisation of several villages on equity and inclusion, and some installation and rehabilitation of waterpoints.

Red = 'no intervention' – villages in which no intervention had been implemented even though the intervention was proposed in those areas.

Table 4.1: Summary of intervention status of target villages

Summary village ranking	Colour code	Village ranking	Number included in MTR 2014
More intervention		32	7
Little intervention		11	3
No intervention		0	0
Not stated		7	0
Total		50	10

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The MTR review included 10 villages from four areas (Mujika, Nkaba, Muntemba and Ntambo) from the 50 identified and ranked according to the level of intervention received. The villages selected for the MTR included those that had received 'little' or 'more' intervention.

The purpose of selecting villages that had received different levels of intervention was to assess and document the early impacts and extent of the intervention. The villages included in the MTR sample were DAPP study implementation villages. Table 4.2 shows the level of intervention received in DAPP target study villages included in the MTR sample.

Table 4.2: Summary of level of intervention received in the selected ten DAPP MTR implementation villages

District	Village	Implementer	Status
Mujika	Sikaambo	DAPP	
Mujika	Malamo	DAPP	
Mujika	Sintambo	DAPP	
Mujika	Nkabika	DAPP	
Nkaba	Nkaba A	DAPP	
Nkaba	Nkaba B	DAPP	
Muntemba	Kamwaya	DAPP	
Mujika	Bulimo	DAPP	
Ntambo	Hakoonze	DAPP	
Mujika	Cheepa	DAPP	

4.1.1 Data-collection activities

The MTR data-collection activities are summarised in Table 4.3. The following sections present the findings from the data collection instruments.

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Table 4.3: Summary of MTR data-collection activities

Tool		No.
1	Head of household questionnaire	53
2	Individual questionnaire	35
3	Ministry level interviews	1
4	Focus group discussions	2
5	Semi-structured interviews with local officials or community leaders	7
6	School questionnaire and observation checklist of WASH facilities	2
7	Semi-structured in-depth interviews with selected vulnerable respondents	8
8	Household latrine structured observation checklist	51
9	Waterpoint inspection tool	19

4.2 Characteristics of the study sample

The final sample for the mid-term review was 53 households in the Monze district.35 households had a vulnerable member and 18 did not have a vulnerable member. Ten villages were visited. The households were selected from a finalised list provided by LCDIDC and a range of villages were included and selected based on the extent to which they have received the intervention as described in the previous section.

Because of inconsistencies between data tools from the initial baseline sample, several households had to be excluded from the finalised sample. This led to an imbalance between vulnerable and non-vulnerable households available for the mid-term review sample. Therefore, the decision was taken to include all households within selected villages so the full impact of the intervention on all households could be established.

The quantitative data from the Head of Household tool (tool 1) and Individual questionnaire to the vulnerable individual (tool 2) have a minor discrepancy in terms of the numbers assessed. 35 vulnerable individuals were identified for tool 1, but the results presented for tool 2 report information for 34 vulnerable individuals only. This was because for one individual there was a discrepancy between the identification number written on the MTR questionnaire and that listed in the original baseline data, so this individual's identification could not be verified. A direct comparison therefore could not be made between baseline and mid-term.

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4.2.1 Sample demographics

A total of 424 individuals including both vulnerable and non-vulnerable household members were enumerated in the 53 households that formed the sample for the MTR. The enumerated sample with full demographic data available included 201 (48%) males and 221 (52%) females. The mean age of participants was 23 years.

Marital status information was collected for individuals aged 15 years and older. Data were available for 230 individuals, with 31% married or living together, 7% divorced or separated, 11% widowed, 50% never married and never lived together.

Data on education status was also collected for individuals aged five years and older. Of the 378 individuals with available data, 21% had no education, 45% had some primary, 9% had completed primary, 19% had some secondary, 5% had completed secondary school and 0.5% (n=2) had been to college.

The main source of income was agriculture, followed by other activities and manual labouring and trading work. Table 4.4 shows the main source of income at the household level.

Table 4.4: Main source of income

	N	Percent (%)
Agriculture/livestock	42	82.4
Trader (food/non-food)	1	1.9
Craftsman	-	
Small business/shop owner	-	
Manual labourer	1	1.9
Other	7	13.7
Total	51	
Missing	2	
Overall total	53	

4.2.2 Types of vulnerability

The type of vulnerability was ascertained through a self-report question directly to the 35 individuals identified as vulnerable at baseline regarding the nature of their condition that causes their limitation. Disability was the main reported condition to

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cause the limitation (n=9), followed by chronic pain (n=4), other (n=4) and epilepsy (n=3).

Information about the level of severity of the impairment was collected as per the baseline using the Washington Group Short set of six core questions.[8] The six core domains were seeing, hearing, mobility, cognition, self-care and communication. The results for this question are presented in Table 4.5. The results show that the main core domains in which individuals experience a lot of difficulty or inability were self-care, mobility, hearing and cognition. Vision was the domain with slightly higher scores of inability.

Table 4.5: Level of severity using the Washington Group Short set[8]

	No difficulty	Some difficulty	A lot of difficulty	Unable to do	Total no. of vulnerable individuals
Vision	19	6	4	2	31
Hearing	21	4	7	0	32
Mobility	17	6	8	1	32
Cognition	20	2	7	1	30
Self-care	16	6	9	1	32
Communication	25	3	4	1	33

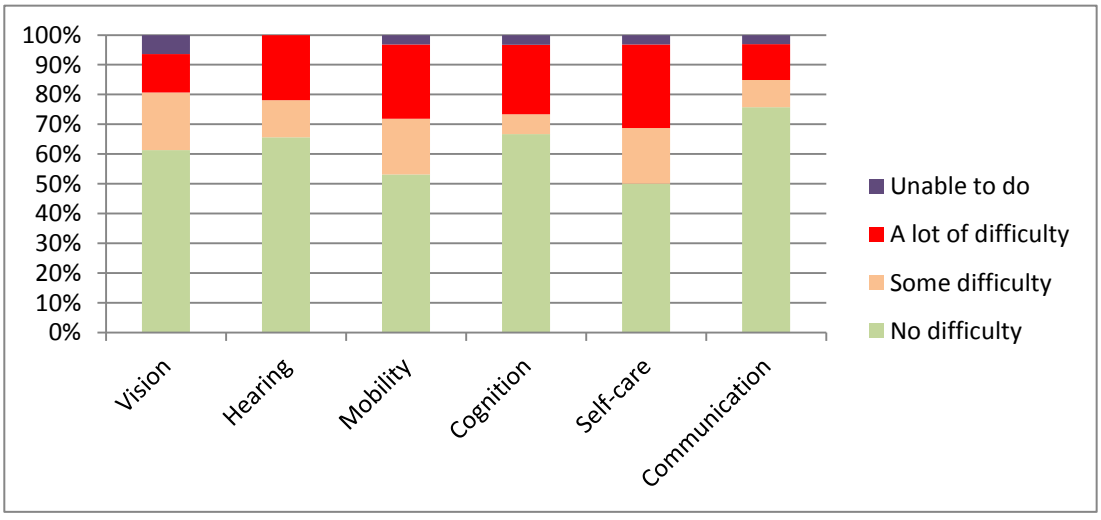

Figure 4.1: Reported level of severity by Washington Group core functional domain, vulnerable individuals only

The main forms of assistive devices used include a cane (n=6) and someone's assistance (n=4).

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Figure 4.2: A member of the MTR team undertaking an interview

One important finding emerging from the mid-term review is the identification of additional individuals or households that identified themselves as vulnerable as per the study definition of vulnerable in the baseline survey. However, for the purpose of the MTR, the status as ascertained at baseline i.e. individuals or households initially identified as vulnerable and non-vulnerable were the ones used at mid-term. Therefore, any households reporting differently at mid-term were identified by their status at baseline. Among the 53 households in the MTR, ten individuals were identified as vulnerable in addition to the 35 identified at baseline.

4.3 Access to water

This section presents findings about access to, and use of, drinking water from the overall baseline findings and from the MTR from the main head of household questionnaire and from the vulnerable individual. Information on household access to water was obtained for all households included in the MTR sample, including non-vulnerable and vulnerable, and for the specific individual identified as vulnerable at baseline.

4.3.1 Evidence of impact of access to new and rehabilitated water technologies

The main objective of the MTR was to establish the early impacts of the project on the target groups, and to test the endline data-collection tools for application across the intervention areas. In order to ascertain whether households were using new or existing water sources since the pre-intervention baseline study in 2012, a series of new

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questions on access to new or rehabilitated water technologies (e.g.) were asked to all households (both vulnerable and non-vulnerable) included in the MTR sample. The questions were asked at two levels: to the head of household using Tool 1, and directly to the vulnerable individual (Tool 2), to ascertain use at the household and individual level.

The purpose of questions on access to new and rehabilitated water technologies was to assess if community waterpoints were constructed as set out in the intervention plan.

4.3.2 Intervention – water technologies

The original proposed intervention implemented by DAPP is described in section 2.1.4. The results presented in this section show the extent to which households included in the MTR sample are using new or rehabilitated waterpoints constructed or rehabilitated in their communities in the past two years. The findings in this section report the results of the new questions.

Table 4.6: Summary of key indicators – household access to new water technologies

Indicator	Level	Timepoint
% of households reporting that new water technologies have been constructed, installed or rehabilitated (waterpoints) in the past two years	Household	MTR 2014
% of households using new or rehabilitated waterpoints	Household	MTR 2014
% of time spent collecting water at new or rehabilitated waterpoints	Household	MTR 2014
% of households using new water technologies that report treating their drinking water	Household	MTR 2014
% of households reporting the construction of alternative water technologies, e.g. rainwater harvesting	Household	MTR 2014

4.3.3 Household-level access and use of new water technologies

These results present the households-level findings for households using new or rehabilitated waterpoints in the past two years since the baseline in 2012 (herein referred to as 'new water technologies') and general findings from baseline. The findings at the individual level are presented later within this section.

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The findings are structured as follows:

- Access to new water technologies
- Use of new water technologies
- Time taken to get to the waterpoint
- Household water treatment

Box 4.1 Summary of main findings on household access to new water technologies

- Over **half** of the households included in the MTR are accessing new or rehabilitated waterpoints. 59% of households using these waterpoints included a vulnerable person.
- Over **90%** of households use this new or rehabilitated source as their main source during both the rainy and dry season.
- Women (aged 15 years and above) and female children (younger than 15 years) are primarily responsible for collecting water.
- For **nearly half** of the households, the time taken to reach the waterpoint was **less than 15 minutes**, the remainder of households took 15–30 minutes to collect water.

Of the total 53 households included in the MTR, 27 (51%) reported that new water technologies had been constructed in their communities within the past two years. Of the 27 households using these new water technologies, 16 (59%) were identified to have a vulnerable person and the remaining 11 (41%) did not.

Among the MTR sample, more households with a vulnerable person reported that new water technologies have been constructed, installed or rehabilitated in their communities than did non-vulnerable households. This does not necessarily mean that the vulnerable person is accessing the waterpoint, but it can be asserted that they are likely to be benefiting from it.

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A rehabilitated waterpoint with an accessible ramp and water container resting stand.

4.3.4 Main sources of drinking water at the household level

Over 90% (n =24) of the 26 households that were using new water technologies reported that they now exclusively use this facility for drinking water during both the rainy and dry seasons. One household reported not using the facility at all. The review was not able to establish what source was being used as further questions were not asked. The remaining one household specified 'other' and reported that the new water technology was not used because other households members fetch water and bring it back to the household. This question was answered by 26 of the 27 households reporting accessing new water technologies at mid-term.

4.3.5 Collection of drinking water at the household level

The collection of water was mainly the responsibility of adult women (aged 15 years and older) and female children, for households using new water technologies.

The head of household questionnaire featured a question for respondents who reported that there was someone who is older, has a disability or is sick (i.e. a vulnerable individual) as to whether the person helps to carry drinking water. 35 heads of households responded to the question, of whom 20 (57%) reported that the vulnerable individual does not help to carry water and 15 (43%) reported that they do.

4.3.6 Time taken to collect water at the household level

The results in Table 4.7 show the time taken to collect drinking water (return journey) for households using new water technologies. Overall, the results show that the majority of

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households were spending less than 15 minutes to collect water, the second most common amount being 15–30 minutes. The results also indicate that households with a vulnerable member spend more time collecting water than do households without a vulnerable member.

Table 4.7: Time taken to collect water (for those using new water technologies) (n=27)

	Overall (n)	Overall (%)	Vulnerable (n)	Vulnerable (%)	Non-vulnerable (n)	Non-vulnerable (%)
‹15 mins	12	48.0	7	50.0	5	45.4
15–30 mins	10	40.0	6	42.9	4	36.4
30–mins to 1 hour	3	12.0	1	7.1	2	18.2
›1 hour	0	0	0	-	0	-
Total	25		14		11	
Missing	2					
Overall total	27					

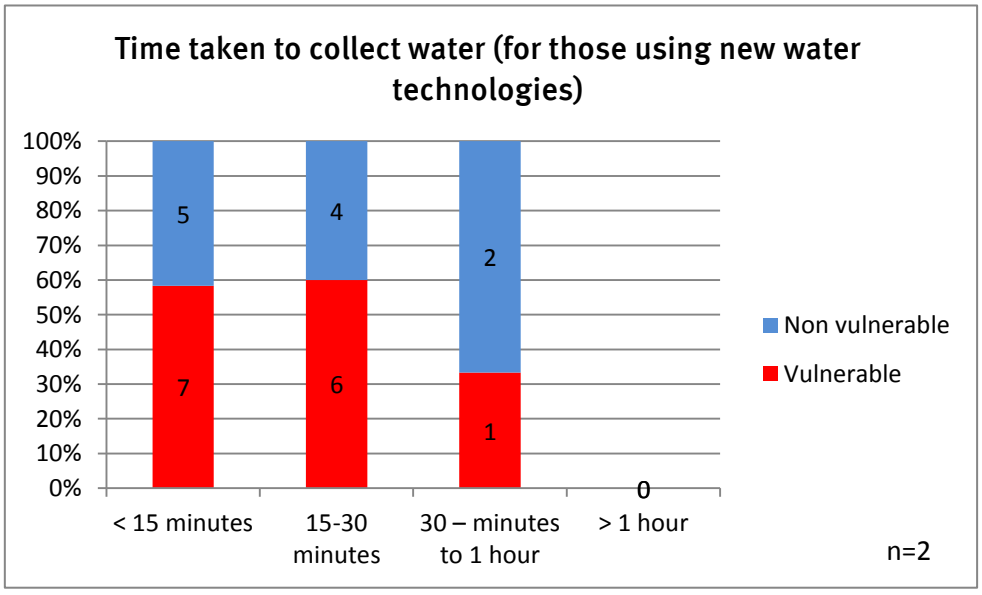

Figure 4.3: Comparison between households with and without vulnerable members using new water technologies in the time spent collecting water at mid-term, 2014

A comparison of the baseline results with the mid-term results with respect to the time taken to collect water found mixed results.

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At baseline, of the 27 of the 34 vulnerable individuals with available information, 67% (n=18/27) took less than 15 minutes to collect water, took 15–30 minutes, 11% (n=3) took more than 30 minutes and 1% took more than one hour (n=3, 11%).

The general results show that the time taken to collect water for vulnerable individuals decreased at mid-term for those taking 15 minutes or less. A decrease of 11.7% was observed from baseline, from 66.7% to 55%. An increase in the time taken to collect water was observed among vulnerable individuals taking 15–30 minutes. This increased from 11% at baseline to 40% at mid-term. This might be because of the way in which the question was formulated in 2012, where it was not explicit that the time taken was for the return journey to collect water. Therefore respondents might have reported the time to go one way to collect water and not also coming back.

This result might also be explained by an increase in the number of new waterpoints constructed that could have been constructed further away from these homes, thus increasing the time taken to collect water.

Table 4.8: Time spent collecting water from old and new water technologies by vulnerable individuals (comparing baseline with mid-term; all waterpoints)

	Overall baseline (2012) n=128		**Baseline (2012) n=34**		**Mid-term (2014) n=34**	
	N	%	N	%	N	%
‹15 minutes	54	56.3	18	66.7	11	55.0
15–30 minutes	20	20.8	3	11.1	8	40.0
30 minutes–1 hour	6	6.3	3	11.1	0	-
›1 hour	16	16.7	3	11.1	1	5.0
Total	96		27		20	
Missing/NA	32		7		14	
Overall total	128		34		34	

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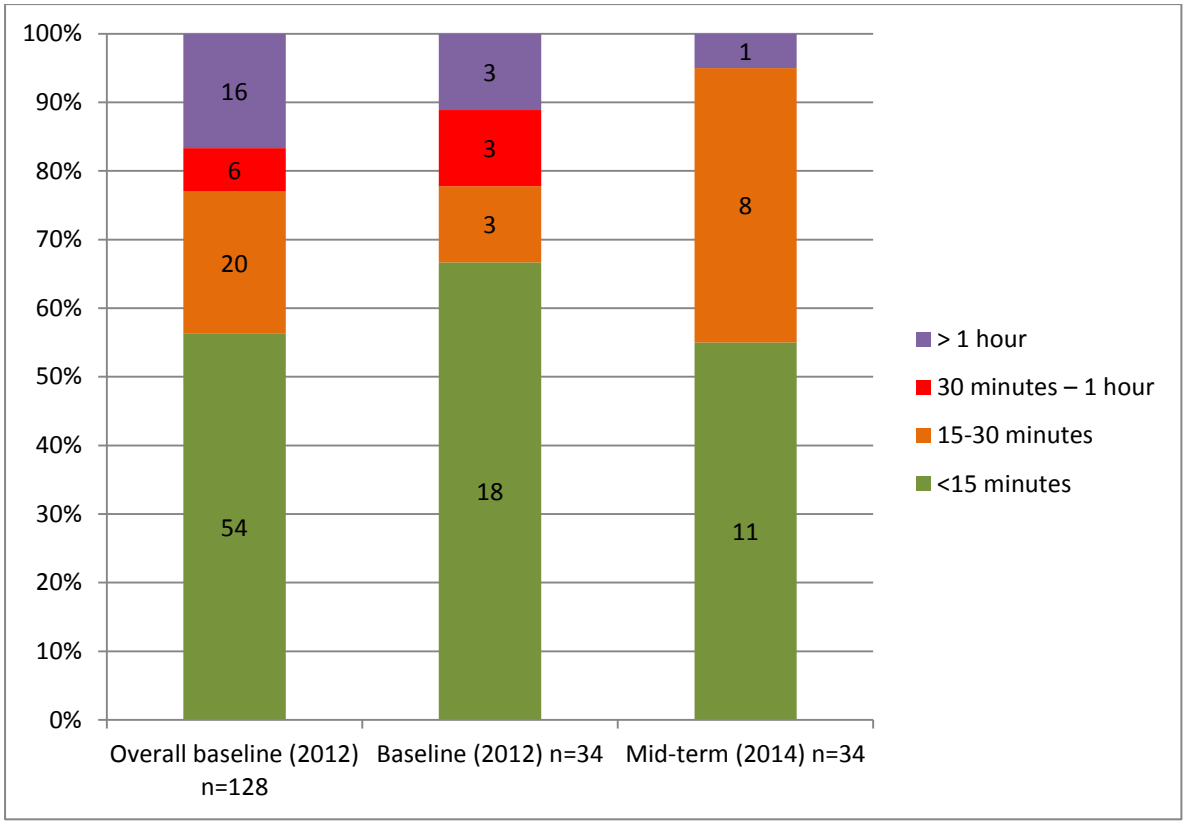

Figure 4.4: Reported time spent collecting water by vulnerable individuals only, at baseline and mid-term

4.3.7 Household water treatment

Questions on household water treatment were asked to all heads of household, whatever the source of drinking water used.

Eight of the 24 households using new water technologies that answered the question (33%) reported that they did something to make their water safer to drink. The main methods reported included adding bleach, chlorine or aqua tablets, boiling and letting the water stand and settle. Three households did not answer the question.

4.3.8 Households using existing water sources (i.e. households not using new water technologies)

26 households (49%) reported that new water technologies had not been installed, constructed or rehabilitated in their community or village within the past two years. The information received from the project implementers did not specify the exact communities in which new water technologies were installed, therefore it was difficult to triangulate what was reported during the household interviews with what was actually installed within the community. This is an area that requires further exploration.

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Of the 26 households not using new waterpoints, 25 answered the questions on their main source of drinking water. The main source of drinking water in the rainy season reported for members of these households was from an unprotected source (well with rope and bucket), with 36% (n=9) reporting that they used this source and 28% (n=7) reporting that they use a protected source (borehole), 24% (n=6) reporting that they use an unprotected source (well with rope and pulley), 8% reporting other (n=2) and one (4%) reporting an unprotected source (surface water).

The main source reported in the dry season was similar to the sources reported in the rainy season. The predominant source was an unprotected source (well with rope and bucket), with 38.5% (n=10) of households reporting that they used this source followed by 34.6% (n= 9) reporting that they use a protected source (borehole), 19.2% (n=5) reporting that they use an unprotected source (well with rope and pulley and 7.7% (n=2) reporting that they use other sources. This question was answered by all households.

Household water treatment among the households not using new or rehabilitated water technologies was low. 25 responded to a question on whether they did anything to make their water safer to drink. Of these, seven (28%) reported that they did something to make their water safer to drink. The main methods reported were adding bleach or chlorine or aqua tablets and boiling.

4.4 Access and use of new water technologies by vulnerable people

A series of questions on individual level water use and access were also asked to the individual identified as vulnerable at baseline. These included whether the individual had enough drinking water, the source used and whether it was different from other household members, time taken to collect water and come back, and water user committee involvement and levels of awareness of the needs of people with disabilities and other vulnerable groups.

Additional questions were also asked about whether everyone in the household had access to enough drinking water every day, use of water sources and general water consumption by the vulnerable household member(s) and whether the vulnerable household member(s) assisted with carrying drinking water.

Box 4.2 provides a summary of the key findings in relation to access and use of new water technologies by vulnerable people. In brief, we can conclude that these findings indicate that simply increasing the number of waterpoints, placing in them key locations thereby increasing availability, and to some degree reducing the distance travelled to collect water among households where access to water was previously an issue are areas which have been addressed to a substantial degree by the installation and rehabilitation of new water technologies.

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Box 4.2: Summary of main findings on access to new water technologies by vulnerable people

- Over 40% of vulnerable individuals reported that they were accessing new water technologies. This was slightly lower than what was reported at the household level.
- Over 90% reported exclusively using this new water technology during both the rainy and dry seasons.
- Over 80% of vulnerable individuals were aware of why the facility was constructed.
- Just over 60% reported that any changes or adaptations had been made to the waterpoint to make it easier to use.
- Just over 45% of household heads reported being involved in the design of the new water technology, compared to 29% of vulnerable people.
- The main changes reported were a widened path, visible landmarks, a slope or ramp and widened entrance at the waterpoint.

4.4.1 Access to new water technologies by vulnerable people

In response to Tool 2, 15 of the 32 vulnerable individuals who answered the question (47%) reported that new water technologies had been constructed, installed or rehabilitated in their community in the past two years. This was slightly lower than what was reported at the household level, where over 50% of household heads reported that new water technologies had been installed in their communities.

93.3% (n=14) of vulnerable individuals reported that they exclusively used this new water technology during both the rainy and dry seasons.

88.5% of household heads (23/26) using new water technologies reported that they were aware of why the facility was constructed, and, when asked to describe why it was constructed, the most commonly cited reasons were to provide safe and clean water and to improve access to drinking water for the community. One person mentioned that it was to accommodate people with disabilities.

A similarly high percentage, 85% (17 of the 20 of vulnerable individuals who answered the question), reported that they were aware of why the facility was constructed.

At the household level, slightly over 60% of household heads reported that there had been changes or adaptation to the design to make the waterpoint easier to use, and

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47.5% (n=9/19) reported that they had been involved in the design of these facilities. The main changes reported were widened path (n=4), visible landmarks (clear surface texture, landmarks or guiderail [n=4]), slope/ramp (n=3) and widened entrance at the waterpoint (n=2).

At the level of the vulnerable individual themselves, 23 individuals responded to a question asking whether there had been any changes to the waterpoint. 39.1% (n=9) reported that changes or adaptations had been made to the waterpoint. Of a total 21 vulnerable respondents, six (28.6%) reported that they had been consulted in designing them. There is no comparison with baseline as the questions on access to new water technologies was only featured at mid-term.

4.4.2 Accessibility of the waterpoint

The accessibility of the waterpoint was assessed through Tool 9, the Water Source Inspection Tool. A summary of the key findings is shown in Box 4.3.

Box 4.3 Summary of key findings – accessibility of waterpoints

- In over 40% (n=9) of the 19 waterpoints assessed there were no barriers identified with respect to the path surface, obstacles or trip hazards and steepness of the path
- Major barriers were observed at one of the 19 waterpoints (i.e. path surface and obstacles or trip hazards).
- The operation of the handpump was generally assessed to be easy for all to use, with 12 of the 14 (86%) waterpoints with available data being easy for all to use.
- The percentage of vulnerable people reporting difficulties fetching water dropped from 50% at baseline to 44% at mid-term.
- The distance to the water point and the ability to carry water independently remain a significant barrier, especially for older and physically disabled people.

19 waterpoints were assessed in the villages included in the MTR sample. A scaling system was used to determine whether barriers existed in terms of the path to the waterpoint, whether there were obstacles or trip hazards and the steepness of the path.

A direct comparison of waterpoints between baseline and mid-term was difficult as there was no unique identification of waterpoints at baseline, and they were assessed in different geographic areas. At mid-term, where available, unique information, e.g. the identification number or the date of installation, was taken to enable comparison at endline.

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A waterpoint showing ramp and raised pedestal for water containers.

Nine (47.4%) of the waterpoints assessed there were no barriers with respect to the path surface, obstacles or trip hazards and steepness of the path. However, in the other waterpoints, both minor and obvious such barriers were observed. At four waterpoints the path was observed to be quite a bit up and down. For one waterpoint there were major barriers with respect to the path surface and obstacles or trip hazards.

Path surface		**Obstacles or trip hazards, e.g. rocks, vegetation, rubbish, etc**		**Steepness of path**	
	N (%)		N (%)		N (%)
0 = no barriers	9 (47.4)	0 = no barriers	7 (36.8)	0 = flat	2 (11.8)
1 = minor barriers/obstacles	8 (42.1)	1 = minor barriers/obstacles	10 (52.6)	1 = reasonably level	9 (52.9)
2 =obvious barriers	1 (5.3)	2 =obvious barriers	1 (5.3)	2 = quite a bit up and down	4 (23.5)
3 = major barriers	1 (5.3)	3 = major barriers	1 (5.3)	3 = very steep	2 (11.8)
Total	19		19		17
Missing	-		-		

Table 4.9: Accessibility of paths to waterpoints (n=19)

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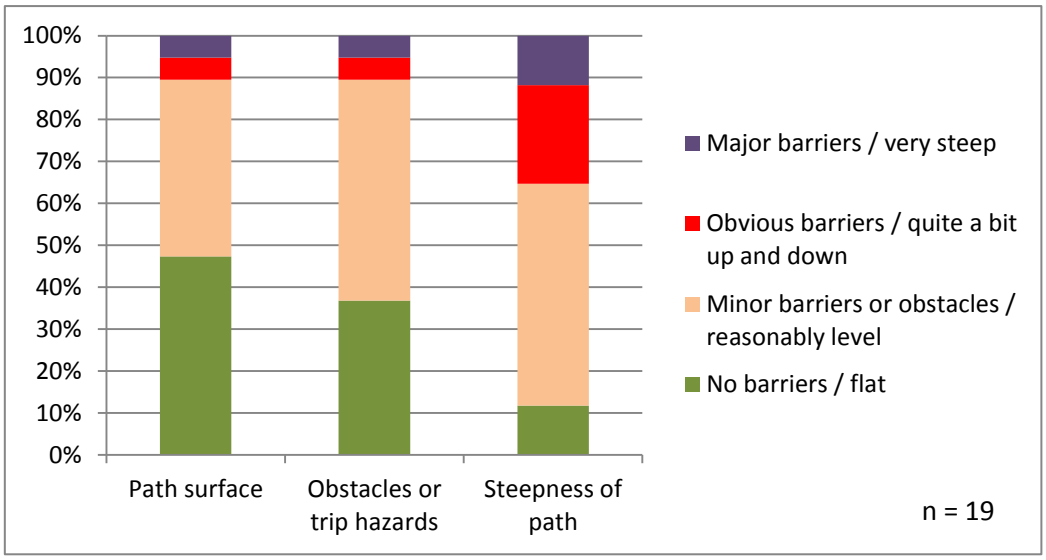

Figure 4.5: Accessibility of paths to the waterpoint

The operation of the handpump was also assessed. Information was available for 14 waterpoints at mid-term. In general, 12 of the 14 handpumps were assessed as easy for all to operate (see Table 4.10).

	N	%
Easy for all to operate	12	85.7
Ok, for most, but not for children under five or frail older people	0	-
Tiring – only the strongest and fittest can operate (difficult for pregnant women and people with a disability	1	7.1
Requires more than one person to operate the handpump	1	7.1

Table 4.10: Operation of handpump

4.4.3 Collection of drinking water by vulnerable people

At baseline, the general findings indicated that 59% (n=20/34) of vulnerable individuals reported fetching water. At mid-term however, (17/34), 50% of the vulnerable individuals who were included in this sample reported that they collected water themselves.

Of the 17 respondents who reported fetching water themselves at mid-term, 16 of the sample answered a question on whether they experienced difficulties doing so. 44% (7/16) reported that they experienced difficulties doing so. In comparison, the findings at baseline indicated that 50% (n=10/20) of vulnerable individuals (n=20) who reported fetching water reported that they experienced difficulty in collecting water. The results at

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mid-term indicate that the number of vulnerable individuals experiencing difficulties fetching water has reduced from 50% at baseline to 44% at mid-term.

A question was asked to heads of household with a vulnerable family member about whether or not the vulnerable person used the same water source as other household members. Of the 33 households that answered the question, 94% (n=31) reported that the vulnerable person used the same water source as other household members, and in two (6%) they used another source.

At baseline, the findings were that all vulnerable individuals (n=34) reported that they used the same drinking water source as other members of the household. The results at mid-term were the same, with all vulnerable individuals reporting that they use the same source as other members of their household.

In general, when asked about the level of water usage of the vulnerable person, 29 of the 35 household heads (83%) at mid-term reported that the individual used the same amount of water and six (17%) reported that the person used less water.

The qualitative findings from focus group discussions indicated that older women in particular were reported to experience difficulty drawing water, and those with a disability, including those with visual impairment during the FGDs. The main difficulties reported included drawing the water itself and carrying water, e.g. using a water container, and travelling long distances to collect water, which were both reported to be important issues for older people and people with disabilities.

Distance to the water source was therefore an important barrier raised during FGDs with regards to access to water. Further probing during the focus group discussions as to reducing the distance to the water source to enable vulnerable people to access water identified that challenges would still exist for those groups because they were physically unable to get to the water source and faced limitations in terms of carrying water, therefore would still require assistance or another person to collect water for them. This was also evident from the in-depth interviews with vulnerable members.

Two participants with physical disabilities highlighted the difficulties faced in collecting water and needing to rely on family members and local children to collect water. One of the respondents reported that, when the person collecting water was ill, there was limited access to water.

"Others don't manage because they can't manage to walk whilst carrying a container on their heads …Yes… They only manage to go to the toilet because it's nearby, but to draw water they don't manage because they've to carry bucket." – FGD participant.

"I wanted to contribute that, like this one armed (referring to a person with one arm) seated with, doesn't manage as well going to draw water and working on others chores like collecting

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firewood. Unless it's nearby around home, for there others unless being assisted." – FGD participant.

There were particular difficulties among those participants that used assistive devices in terms of carrying water. For example, one respondent reported difficulty carrying a water container while using a walking stick unless the water container is small.

"What makes me not manage to get water, I...there's is no way I can carry with this walking stick unless a small container, that is like this...Yes...If it's a big container, I can't at all, because of the walking stick. If you pick it, it just drops." – FGD participant.

"Yes there are those who have difficulties most especially the old to draw water." – FGD participant.

"I get very tired like I was overworking myself. What scares me with drawing water is that when I start feeling pain whatever am holding would drop, it drops." – FGD participant.

The issue of distance to the waterpoint (i.e. boreholes) was also raised in relation to the use of unprotected sources. One FGD participant described using unprotected sources as the borehole was far.

"We draw from these wells we dig for ourselves.....as the pumps are very far." – FGD participant.

A question on whether there had been any change in the need for water was asked to vulnerable individuals who need help at present, but who prior to the onset of their condition (disability/age/illness or pain) they did not require any help. 24 individuals answered the question, of whom 79% (19/24) reported that their need had remained the same, one (4%) reported that it had increased and three (13%) reported that it had decreased. The findings at baseline among the same sub-sample indicate that, of the 34 individuals asked, 32 (94%) reported that their need remained the same and 6% (n=2) reported that their need had increased. Comparing the findings at baseline with those at mid-term indicates that there has been a reduction in the numbers of vulnerable individuals reporting that their need has stayed the same.

4.4.4 Uses of alternative sources of water and adaptations

The head of household questionnaire also featured a section on whether other water-collection facilities had been constructed in the community, e.g. rainwater-harvesting jars. These questions were asked in the section on new water technologies. Of the 27 household heads reporting that they were accessing new water technologies, 16 answered a question on uses of alternative water collection facilities. A quarter (4/16) reported that other water collection facilities had been constructed in their community. Three households reported that they used the facility. The changes reported were a widened path (n=4).

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4.5 Barriers to water collection

This section discusses the general barriers faced at both the household and individual level with respect to water collection.

At baseline, a series of environmental barriers to water collection were identified. This included paths that were slippery and steep, or which had uneven surfaces making it difficult or impossible for some vulnerable individuals to collect water, and water sources which were too far from the homestead.

A probing question to ascertain the issues faced by vulnerable individuals (22 who do not fetch water and 11 who experience difficulties doing so) and why they did not fetch water themselves or experienced difficulty found that the main reasons were being weak or having a disability. This demonstrates that these people still consider vulnerable people's physical limitations to be the main barriers to WASH access, i.e. the 'problem' lies in the individual, rather than recognising that particular environmental, attitudinal or institutional barriers might prevent vulnerable individuals from being able to collect water themselves.

4.5.1 Adaptations to improve accessibility to water

Focus group discussion participants were able to directly mention changes to water technologies, including the addition of hand pumps to waterpoints.

"They rehabilitated here in the old woman's, putting rails that were not there…..They demolish it and they made it that even with a wheelchair you can go to pump water…They put a handle for holding like this so that even if you're seated you can pump…" – FGD participant.

Participants were able to recall being actively involved in discussions regarding the location of facilities.

"They consulted us just as the headman had mentioned that they would bring the pump. Now, truly enough it was found that where there was a lot of people is across that side and that's where they had to install the pump. So we know very well that this pump came about this way." – FGD participant.

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4.5.2 Access to stored drinking water in the household

Box 4.4 Access to potable water

- Over 90% of the heads of households reported that everyone in the household had enough water to drink. This has not changed since the baseline.
- The one household that reported not having enough water to drink was a household with a household member who has a disability.
- Over 80% of vulnerable people reported being able to access drinking water in the household independently. This is unchanged from the baseline.

The head of household questionnaire asked whether everyone in the household has enough drinking water every day, and, if not, who in the household does not and why.

At mid-term, of the 47 households responding to the question, 46 (98%) reported that everyone had access to enough drinking water. The one household that reported that not everyone in the household did reported the reason to be that a family member with a disability sometimes refused to draw water.

This indicates no change since the baseline, when 98% (51/52) of the directly comparable households that were also selected at mid-term reported that everyone in the household had enough access to drinking water.

When this question was posed directly to vulnerable individuals (n=32), 84% (27/32) reported that they could access drinking water from the container (i.e. pot, jar or tap) by themselves when they needed it.

At baseline, among the same selected sample of vulnerable individuals, 82% (28/34) reported that they could get drinking water (i.e. from a pot, jar or tap) by themselves when they needed it. The results at mid-term indicate that there has been a slight increase, but it is important to note that two individuals at mid-term did not answer the question, so the results are therefore similar.

4.5.3 Barriers to accessing stored drinking water in the household

The main reasons cited by those who could not access stored drinking water were their own limitations (e.g. the nature of their impairment) and the container being out of reach, or too heavy to lift or tip. The main reasons reported at baseline included the individual's own limitations.

The suggestions made at mid-term by vulnerable individuals for modifications to make it easier for them to access drinking water themselves included bringing the water source nearer. A handpump was also commonly mentioned, as was placing containers in the same place and providing assistance, e.g. a wheelchair.

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Table 4.11: Summary table of comparison of indicators between baseline and mid-term

Indicator	Source	Baseline (n=52)	Mid-term (n=53)	Baseline vulnerable (n=35)	Mid-term vulnerable (n=35)	Baseline non-vulnerable (n=18)	Mid-term non-vulnerable (n=18)
Access to drinking water for all household members	Tool 1	51/52 (98.1%)	46/47 (97.9%)	34/35 (97.1%)	30/31 (96.8%)	17/17 (100%)	16/16 (100%)
Does the older/disabled/sick person in the household use the same water source?	Tool 1	37/37 (100%)	29/35 (82.9%)	34/34 (100%)	27/29 (93%)	3/3 (100%)*	4/17 (24%)
Use of less water by the older/disabled/sick person?	Tool 1	37/40 (92.5%)	6/35 (17.1%)	0 -	6/6 (100%)	0 -	0 -
Vulnerable individuals who fetch water themselves	Tool 2	-	-	22/35 (62.9%)	17/34 (50%)	-	-
Difficulties experienced by vulnerable individuals in fetching water - Yes	Tool 2	-	-	11/22 (50%)	7/16 (43.8%)	-	-
Vulnerable member able to get drinking water from a container by themselves	Tool 2	-	-	29/35 (82.9%)	27/32 (84.4%)	-	-
Vulnerable member told not to touch drinking water	Tool 2	-	-	0 -	3/30 (10%)	-	-
Vulnerable member report of being able to get enough drinking water	Tool 2	-	-	35/35 (100%)	28/32 (87.5%)	-	-
Vulnerable member report of using the same source of drinking water as other household members	Tool 2	-	-	35/35 (100%	32/32 (100%)	-	-

Not all respondents answered this question. *Three people answered this question at baseline compared with 17 at mid-term.

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4.6 Access to sanitation

The findings presented here are from the head of household questionnaire (Tool 1), the individual questionnaire (Tool 2) asked directly to the vulnerable household member, and Tool 8, the Latrine Observation Checklist.

Comparisons with the baseline are made where possible. It is important to note, however, that direct comparisons between baseline and mid-term cannot be made for the Latrine Observation checklist because 20 Latrine Observations were undertaken at baseline, whereas at mid-term 51 households had a Latrine Observation to assess the facility and the extent to which changes had been made.

The main findings are summarised in Box 4.5

Box 4.5 Summary of main findings for household latrines and open defecation

- The main type of toilet was a traditional pit latrine sanplat or sanplat but not ventilated.
- The practice of open defecation was uncommon, with approximately 6% (n=3) of households reporting it. This figure indicates a significant reduction since baseline, where 24% of households reported practising open defecation. However, all households practising open defecation were households in which a vulnerable member was present.

4.6.1 Type of latrine

The Latrine Observation checklist was used to observe the latrines of 51 households. Over 90% (n=45) had access to a latrine. Open defecation was being practised in three households (6%) as they had no access to a latrine, and one household reported using other facilities.

The findings are summarised in Table 4.12. The main type of toilet observed was a traditional pit latrine with concrete sanplat or sanplat not ventilated (69%), followed by a ventilated improved pit latrine (14%). Both of these types of toilet can be categorised as improved sanitation.

This indicates that 84% of the surveyed households were using improved sanitation, 8% using unimproved and 6% defecating in the open.

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Table 4.12: Type of toilet among all households where a Latrine Observation was done

	Frequency	%
TPL with concrete sanplat/san plat not ventilated	34	69.3
Ventilated Improved Pit Latrine	7	14.2
TPL without slab	4	8.1
Open defecation/no toilet	3	6.1
Other	1	2.3
Total	49	
Missing	2	
Total	51	

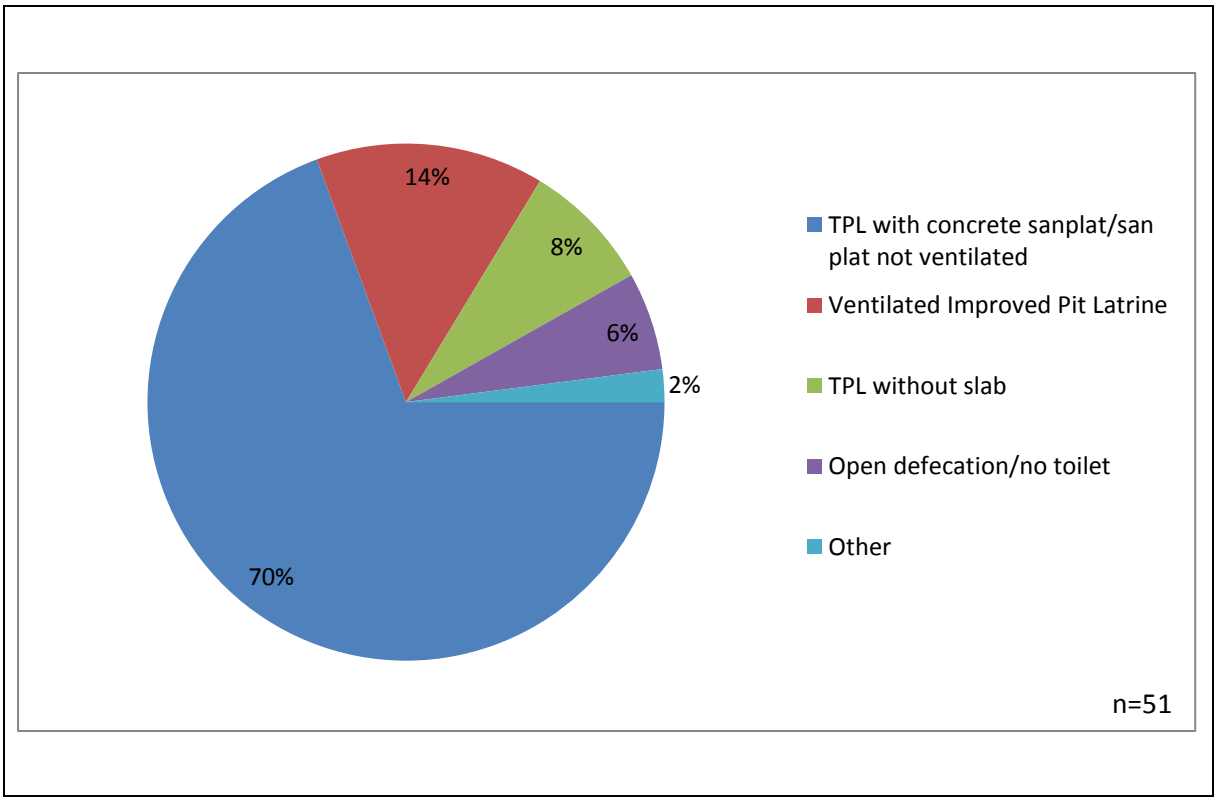

Figure 4.6: Type of toilet facility among all households where a Latrine Observation was conducted

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4.6.2 Open defecation

At mid-term, the pattern of open defecation was low. Among the 22 households not accessing new latrine technologies, 17 were asked about the existing type of toilet facility used. The results of this question found that three households were practising open defecation. All three households had a vulnerable family member.

At baseline, among the same selected sub-sample included in the MTR, open defecation was practised in 12 households (24%) of the 50 households that responded to a question on the type of toilet facility used in the household questionnaire (Tool 1). Of these 12, seven (58%) had a vulnerable family member. A comparison of the baseline and mid-term results indicates that there has been a significant reduction in the practice of open defecation from baseline to mid-term from 24% to 3%.

4.7 Access to new latrines

The MTR sought to establish whether households had constructed, installed or rehabilitated a new or existing latrine within the past two years (herein referred to as 'new latrine'). The head of household questionnaire asked whether the person or their household had had a new latrine since the baseline survey. The main findings are summarised in Box 4.6.

Box 4.6 Summary of key findings on access to new latrines

- Over 58% of households at mid-term had constructed or rehabilitated a latrine facility.
- 97% of the households reporting that they were accessing new latrines reported using the new latrine facility as their main and only toilet facility.
- Over 60% of households using new latrine facilities were households in which a vulnerable member was present.
- The main reason cited as to why the facility was constructed or rehabilitated was to reduce open defecation.
- 13% more vulnerable people could access the latrine in less than five minutes than at the baseline.
- Only 7% of latrines had support structures such as handrails to assist the user with entry, manoeuvring, sitting or squatting inside.
- Older people continued to experience difficulty accessing the latrine, especially at night, because of poor lighting and difficulty balancing.
- There was a reduction in the level of assistance required to use the toilet by vulnerable individuals from 85% at baseline to 79% at mid-term.

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A total of 31 (58.4%) of the 53 study households had new latrines. Of those 31, 30 (96.8%) reported using them. Of the households where reasons were given, the main reasons cited as to why the facility was constructed, installed or rehabilitated was to avoid open defecation, maintain privacy, or to replace an old facility that had collapsed or was no longer functioning.

There was no explicit exploration of whether the facility was constructed to make it more inclusive.

Over 60% (n=19) of the 31 households with a 'new' latrine had a vulnerable member. This is 54% of vulnerable households accessing new latrines, compared with 66% of the non-vulnerable households surveyed - a lower percentage, although not significant given the small study sample.

Five (17.2%) heads of households reported that there was someone in the household who did not use the new facility, all of whom on further questioning were identified to be young children. One household reported that the child was scared of falling into the latrine.

88% (30/34) of vulnerable respondents reported that they use the same facility as other members of their household. The findings at baseline indicated that the same percentage of vulnerable members reported that they were accessing the same facility as other members of the household.

4.7.1 Distance to the latrine

The head of household questionnaire asked about the time taken to get from the main dwelling to the latrine (see Table 3.14).

The vast majority (n=29/30, 96.7%) of the new or rehabilitated latrines were less than five minutes away from the households. There was no difference in the time taken to reach old and new facilities.

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Table 4.13: Time taken to reach the latrine (all households)

	New facilities		Old facilities		All	
	N	(%)	N	%		
‹5 minutes	28	93.3	14	93.3	42	93.3
5–10 minutes	2	6.7	1	6.7	3	6.7
11–15 minutes	0	-	0	-	0	-
›15 minutes	0	-	0	-	0	-
Other	0	-	0	-	0	-
Total	30		15		45	
Missing	1					
Overall total	31					

4.7.2 Time to taken to reach the latrine – vulnerable individual only

Of the 32 vulnerable individuals who answered the question, 78% (n=25) take less than five minutes to reach the latrine. This is a slight increase from 65% at baseline among the same sample (see Table 3.15 and Figure 3.19).

Table 4.14: Time taken to reach the latrine (vulnerable individuals only)

	Overall baseline (2012) (128)		Baseline (2012) n=34		Mid-term (2014) n=34	
	N	%	N	%	N	%
‹5 minutes	77	60.6	22	64.7	25	78.1
5–10 minutes	22	17.3	2	5.9	2	6.3
11–15 minutes	20	15.8	7	20.6	2	6.3
16–30 minutes	7	5.5	3	8.8	3	9.4
›30 minutes	0	-	0	-	0	-
Not stated	1	0.8	0	-	0	-
Total	127		34		32	
Missing	1		0		2	
Overall total	128		34		34	

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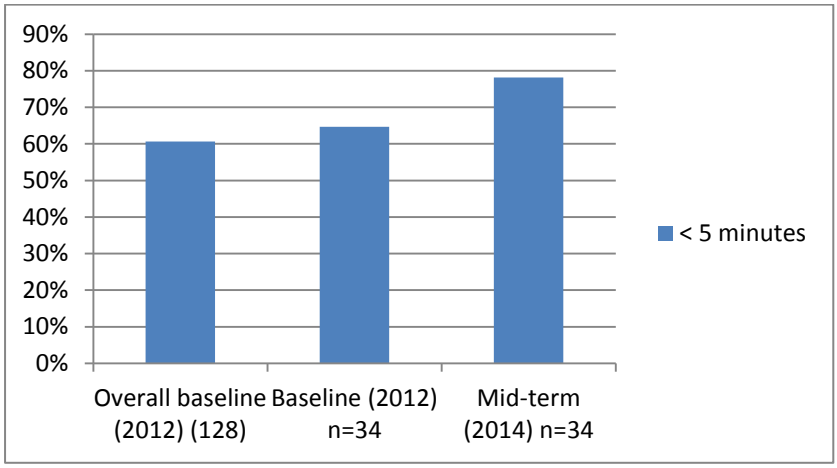
Figure 4.7: Percentage of vulnerable people reaching the latrine in less than five minutes



4.7.3 Accessibility of the latrine

The accessibility of the latrine was observed for 45 facilities, including both new and old.

Reaching the latrine: There were mostly no to minor barriers observed in relation to the surface of the path and obstacles or trip hazards. In relation to the steepness of the paths, these were mainly flat or reasonably level.

Ease of entering: In 62% of facilities, entering was reported as being easy (28/45).

Usability inside the latrine: Only 7% (3/45) of latrines were observed to have any support structures such as handrails to assist the user with entry, manoeuvring, sitting or squatting inside.

Comparison with baseline: Although the results are not directly comparable, the findings at mid-term are mostly consistent with what was observed at baseline, when 20 latrines were observed.

Reaching the latrine: In 70% of the latrines, the path surface was judged partially firm (n=8; 40%) or firm (n=6; 30%). In 55%, the path was flat (35%) or reasonably level (20%). In most instances, accessibility was good, with 35% (n=7) of facilities observed to have good accessibility and 30% (n=6) having no barriers observed.

Ease of entering: Was observed to be easy in 50% of facilities observed at baseline, which increased to 62% at mid-term.

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Usability: Support, e.g. handrails, was observed in five (25%) facilities at baseline.

An accessible latrine with a raised seat and handrails

4.7.4 Anal cleansing

The questionnaire to vulnerable individuals asked whether water or other materials were available for anal cleansing after using the latrine or open defecation place, at a place that is accessible to the person. In total, 14 of the 31 vulnerable individuals (45.2%) who responded to the question reported that such materials were available to them. Three people did not answer the question.

4.7.5 Barriers to accessing household latrines

Four of the 34 vulnerable respondents (11.8%) reported that they do not use the same facility as other members of their household. When asked why they use a different facility, only two respondents answered. One reported that they were not allowed to use the same facility and that people said that they were unclean. The other respondent reported 'other' and reported that was what was available for them to use. It is not clear from the data whether these findings relate to people who have a new latrine or not.

The finding emerging from the focus group discussions was that older people experienced difficulty accessing the toilet, especially at night. This included difficulty locating the toilet facility and maintaining balance.

"I fall and I don't manage at all my son....It's just falling and getting lost that is there." – FGD participant (FGD1).

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One participant reported requiring assistance to access the latrine facility and reported being unable to access the toilet facility at night. The findings from the in-depth interviews illustrated mixed responses.

For example, one respondent reported that going to the toilet had been difficult before construction of a latrine; however, since the construction of the facility, it has become much easier to go to the toilet.

"I used to have difficulties going to the toilet….It has become easy for me because this toilet is nearer now." – In-depth interview participant.

However, the challenges differed for those with different conditions. The caregiver of a child with epilepsy expressed concern about the child using the toilet facility without assistance because the child could have an epileptic seizure. Therefore the child was not allowed to enter the facility alone as there was concern that the child would fall into the latrine.

"We stop him from entering due to his epileptic condition." – In-depth interview participant.

A key barrier emerging from one of the FGDs was the lack of toilet facilities. One participant highlighted the difficulties faced because of the lack of facilities available.

"They have difficulties because toilets are very few……There are not enough toilets they can help themselves at all." – FGD2 participant.

Conversely, later during the discussions another participant described that people within the village have dug latrine pits, but not every household has completed the construction of a latrine. The participant described that the message to build accessible facilities had been communicated but not all households had built facilities.

"They have toilets…let me say they have pits….The pit would be there, for them to build bricks to be completed that is not yet done, but every village has toilets now others don't function and others function, it's only because they are not built yet around …It's laziness of the people themselves…Because the message arrived a long time ago that everyone should have his own toilet." – FGD2 participant.

Another key finding emerging from in-depth interviews was that children with disabilities faced difficulties using toilet facilities even when they are available, therefore the toilet facilities are not used and children defecate out in the open and the toilet facility is used to dispose of the child's faeces.

79% (n=26/33) of vulnerable individuals reported that they were able to use the latrine without assistance from another person at mid-term. Compared with the

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baseline figure where 85% (29/34) of vulnerable individuals reported that they could use the latrine without assistance, this indicates that there has been a reduction in the level of assistance required.

It is not clear from the data whether these findings relate to newly built latrines or existing facilities.

4.7.6 Adaptations to improve accessibility

Of the 31 households that reported having new latrines, 14 (50%) of the 28 household heads that answered the question, reported that changes or adaptations had been made to the latrine. The main changes or adaptations reported to make it easier for anyone to use the latrine included the latrine being moved nearer the house (n=5), the path being improved (e.g. made straight, obstacles removed or made less slippery; n=4), more space being built inside the latrine (n=3), the construction of a seat (n=2) and the addition of grab bars, a handle or a rope (n=1).

These results are supported by responses from vulnerable individuals. When asked whether any changes or adaptations had been made to make it easier to use the latrine, seven (24%) of the 29 vulnerable individuals who answered the question reported that changes or adaptations had been made. The main changes included an improved path (e.g. made straighter, obstacles removed, less slippery), latrine moved nearer the house and the installation of a seat.

The specific changes to the latrine facilities were also discussed, and the reasons for the changes, during the focus group discussions. The changes cited included installation of rails and a slope at the entrance to enable a wheelchair user to access the facility. Further adaptations included the widening of the entrance. One FGD participant described the specific changes made to facilities as illustrated in the quote below.

"They rehabilitated there because the disabled cannot sit on these lower latrines, so they built that one that can be seated above and comfortably…Yes…and around they installed rails, and at the entrance, they put a slope so that even someone on a wheelchair can manage to go inside the toilet. And the entrances are wide enough…The entrance is wide, the toilets for the disabled such that even if you're using crutches you're able to get into the toilet." – FGD2 participant.

This increased awareness of the barriers that disabled people face when accessing latrines might be attributable to awareness-raising activities during intervention. The sensitisation of communities to the needs of vulnerable groups also emerged from the interviews with community leaders.

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4.7.7 Costs of making adaptations

Information on the cost of making changes or adaptations was reported by ten individuals in response to the head of household questionnaire, and in the latrine observation checklist. The cost ranged from nothing, where DAPP were reported to have provided the materials, to 300 kwacha (approximately £28, as of February 2015). This was the initial cost in materials bought from outside – e.g. cement and rebar. The initial cost in locally bought materials ranged from 0 to 510 kwacha, and this included the cost of aggregate, sand, timber, clay and thatch.

63% (n=17/27) of the vulnerable respondents reported that they would consider making changes to their existing latrine arrangement.

4.7.8 MHM

The MTR included new questions on MHM for girls and women aged 15 years and older. Questions were included in the individual questionnaire for the vulnerable person. There is no comparison with baseline as questions on MHM were not included. 16 girls and women responded to this question and 13 reported that they were able to bathe or wash themselves throughout the month. The main materials used included pads and clothes.

Of the eight girls and women who responded to the question, 50% (n=4) had no system or place to discretely dispose of sanitary protection waste, and 50% did have a system in place. A question asking where sanitary protection waste is disposed of indicated that the main place was in the pit latrine or toilet.

Nine people responded to a question on whether they have received any information within the community or school environment on menstruation, sanitation and hygiene. Four (44.4%) respondents reported that they have received such information.

4.7.9 Physical safety and security

A question was posed to the head of household on general feelings of physical safety for members of their household when collecting water, going to the toilet or performing other WASH-related activities.

The response to this question in terms of access to water was mixed, with some respondents reporting that they feel safe and others reporting that distance to the waterpoint was far. Concerns were also raised from those collecting water from wells that there was a possibility of falling in.

In relation to using the latrine it was generally found that members of the household felt safe to use the toilet, and that facilities were reported to be safe and clean. A few

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respondents reported that there was no privacy and one respondent reported household members not feeling safe at night.

In terms of other WASH facilities – e.g. bathing facilities – the general findings were that the facility was safe, private and in good condition. A few respondents reported not having a bathing facility and that there was no privacy.

4.7.10 Responses from vulnerable individuals

Vulnerable individuals were asked about general feelings of safety for themselves and members of their household when collecting water, going to the toilet or performing personal hygiene activities.

The general consensus was a feeling of safety apart from the risk posed by snakes. In most cases, access to water was also mentioned, namely that water was largely accessible and not too far from the household. An interesting finding was that many respondents reported the ease with which they could draw water, particularly in relation to the operation of the pump.

Of the 31 vulnerable individuals who responded to a question on whether women and girls generally felt safe to use the latrine at night, 61.3% (n=19; men and women) reported that they were of the opinion that women and girls feel safe to use the latrine at night. This finding must be interpreted with caution as respondents might have been answering on behalf of another household member.

4.8 Access to hygiene

Box 4.7 Summary of key findings on access to hygiene

- Vulnerable people reported an increase in the frequency of bathing every day from baseline (62%) to mid-term (93%)
- There is a slight decrease in the level of satisfaction with the regularity of bathing among vulnerable individuals

This section reports the results of questions on personal hygiene from the head of household questionnaire (Tool 1) and the questionnaire to the vulnerable individual (Tool 2).

4.8.1 Frequency of bathing

Data from the head of household questionnaire identified that in most households (90%, 47/52) the frequency of bathing was once a day, followed by every other day, 4% (n=2).

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A comparison of 'vulnerable' households with 'non-vulnerable' households indicates that in the 47 households reported to be bathing every day, 30 (63.8%) were 'vulnerable' households and 17 (36.2%) were 'non-vulnerable' households. The other categories could not be compared because of small numbers.

Although not significant, this shows that a lower proportion (86%) of the 35 vulnerable households bathe every day, compared with 94% of the 18 non-vulnerable households.

The findings among vulnerable individuals themselves indicate an increase in the frequency of bathing every day from baseline to mid-term. An increase from 62% to 93% was observed. There was a reduction in those bathing twice a week, a decrease from 8.8% to 3.6%.

Table 4.15: Self-reported frequency of bathing (vulnerable individuals only)

	Overall baseline (2012) (n=128)		**Baseline (2012) n=34**		**Mid-term (2014) n=34**	
	N	%	N	%	N	%
Every day	78	63.4	21	61.8	26	92.9
Every other day	13	10.6	5	14.7	0	-
Twice a week	12	9.8	3	8.8	1	3.6
Once a week or less frequent	9	7.3	1	2.9	0	-
Other	11	8.9	4	11.8	1	3.6
Total	123		34		28	
Missing	5		0		6	
Overall total	128		34		34	

*Please note a slight change in categories – baseline featured a category of 'once every few weeks'.

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Figure 4.8: Self-reported frequency of bathing (vulnerable individuals only)

The data from Tool 2 indicate a slight decrease in the level of satisfaction with the regularity of bathing among vulnerable individuals (Table 4.16). The desire to bathe more regularly might be due to increased expectations as a result of the project, but the reasons were not further explored in the quantitative tools. This should be explored at endline.

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Table 4.16: Level of satisfaction with regularity of bathing and performing personal hygiene activities (vulnerable individuals only)

	Overall baseline (2012) (n=128)		Baseline (2012) n=34		Mid-term (2014) n=34	
	N	%	N	%	N	%
No	14	11.2	1	2.9	4	13.8
Yes	96	76.8	29	85.3	23	79.3
Not as often as I would like (same as other members of the household)	15	12.0	4	11.8	2	6.9
Total	125		34		29	
Missing	3		0		5	
Overall total	128		34		34	

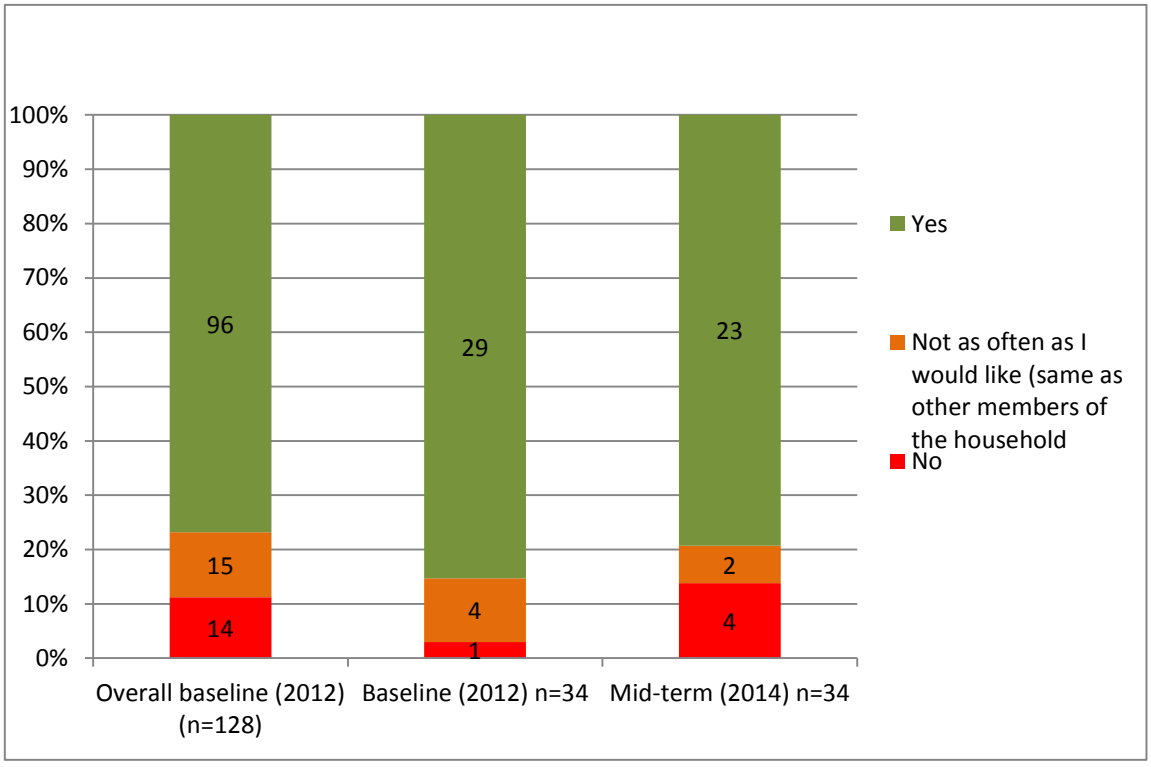

Figure 4.9: Level of satisfaction with regularity of bathing and performing personal hygiene activities (vulnerable individuals only)

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The usual locations in which household members washed themselves were reported to be at home in a closed room (n=23, 45%), at home in an open space or yard (n=22, 43%), at home at a communal well or water source (n=3, 6%) and other (n=3, 6%).

4.8.2 Access to handwashing facilities

Access to a hand washing facility near the latrine or dwelling was reported to be moderate, with 42% (21/50) of heads of household reporting that they had access to a handwashing facility within the latrine or dwelling area (within 5m). At these 21 handwashing facilities, 95% of household heads reported that water was available (n=20/21) and 81% (n=17/21) reported the availability of soap, ash or another locally available cleansing agent near the designated place.

4.8.3 Barriers to accessing hygiene facilities

Only three (6%) of heads of household reported that there were members of their household who were not able to bathe or wash themselves as often as they liked. When asked why this was the case, the main reasons cited were a disability, being young, being old and in pain or that there was insufficient water.

Specific questions were not asked about whether any adaptations or changes had been made to specifically access personal hygiene facilities or the costs of making adaptations to personal hygiene facilities.

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Indicator	Source	Baseline (n=53)	Mid-term (n=53)	Baseline vulnerable (n = 35)	Mid-term vulnerable (n=35)	Baseline non-vulnerable (n = 18)	Mid-term non-vulnerable (n=18)
% of households reporting constructing new sanitation facilities	Tool 1	N/A	31/53 (58.5%)	N/A	19/35 (54.3%)	N/A	12/18 (66.7%)
% of vulnerable individuals reporting using the same toilet facility as other household members	Tool 2	-	-	31/35 (88.6%)	30/34 (88.2%)	-	-
Time to reach the toilet facility (‹five minutes) (vulnerable individuals only)	Tool 2	-	-	22/35 (62.9%)	25/32 (78.1%)	-	-
% of vulnerable individuals reporting being able to use the toilet facility without	Tool 2	-	-	31/35 (88.6%)	26/33 (78.8%)	-	-
Self-reported frequency of bathing – every day (vulnerable individuals only)	Tool 2	-	-	21/34 (61.8%)	26/29 (89.7%)	-	-
Self-reported level of satisfaction with bathing (vulnerable individuals only)	Tool 2	-	-	29/35 (82.9%)	23/29 (79.3%)	-	-

Table 4.17: Summary table of comparison of sanitation and hygiene indicators between baseline and mid-term

* Please note that not all respondents answered the questions.

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4.9 Levels of participation and empowerment

The level of participation and empowerment was assessed through a series of questions within the individual tool for the vulnerable person as to their level of participation in inclusive WASH and awareness.

Of the 28 vulnerable individuals who responded to the question, only five (18%) reported that they had been involved in community meetings, discussions or events to raise awareness about the needs of people with disabilities. Only two (8%) of the 25 vulnerable individuals who responded to the question said they had been assisted in some way to attend local community meetings on WASH-related events or discussions about the needs of vulnerable groups.

28 of the 34 vulnerable individuals answered a question on access to information. Seven individuals (25%) reported that they received information on sanitation and hygiene in their local community in different formats – e.g. in their local language, through pictures or audio tape. No comparison could be made with baseline because questions were not included in the baseline questionnaires.

Box 4.8[6]

Accessibility audits on water technologies, involving the participation of people with disabilities and older people in the surrounding catchment area, were carried out on a small scale, but the effect was profound. They were one of the most powerful tools for changing attitudes and for highlighting the need for practical change.

The experience people gained from observing first-hand how difficult it was to access standard WASH facilities led to immediate calls for change. Subsequent innovations such as installing water jerrycan resting points at the waterpoint, making the surface of the access ramp less smooth to guard against slippage and the reduction in the ramp's gradient helped to improve the design. The accessibility audits also gave vulnerable people an opportunity not only to express their challenges but also to show they had valuable insights to contribute to discussions.[5]

4.10 Addressing issues of service delivery – opportunities for participation and information provision etc

The findings from the in-depth interviews with community leaders identified that communities had received information on improving hygiene and sanitation in their communities.

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4.11 Caregivers

24 caregivers for the 34 identified vulnerable individuals responded to the caregiver questionnaire. 20 caregivers responded to a question on how often they assisted the vulnerable individual. 65% (n=13) reported that they always assisted the vulnerable person, 25% (five) reported sometimes assisting and 10% (two) reported occasionally assisting the vulnerable individual. A question on the frequency of assistance was also asked. 19 caregivers responded to this question with six (31.5%) reporting that they assisted once a day, a further six reporting that they assisted two to three times a day and five (26.3%) reporting that they assisted more than three times a day. Two respondents reported other answers.

The findings at baseline indicated that, of the sample of caregivers of the vulnerable individuals, 70% (16/23) always helped the vulnerable individual, 9% (2/23) sometimes helped and 22% occasionally helped (5/23). A question on the frequency of assistance found most (46%) assisted many times a day, followed by once a day (5/23), other (5/23) and two to three times a day (2/23). These findings indicate that there has been a slight reduction in the level of assistance provided since baseline.

4.12 Stigma and discrimination

The FGDs raised the issue of the way in which vulnerable groups, in particular those with disabilities, are viewed. One participant highlighted that persons with disabilities are viewed negatively in terms of exclusion from using latrine facilities and participation in local meetings as they are perceived to have short tempers which may disrupt meetings.

"Yes, that prevents us to go to meetings because when we go to meetings, while we are there and we feel like urinating and you get into those toilets were they don't want us to be, then others will avoid going to that toilet because a lame person has gone in. They would say he has put dirty. So people abandon that." – FGD participant.

"They just want that disabled people don't come nearby, not even wanting them to be part of the meetings. They don't want them claiming they've bad tempers, and would end up interrupting the meeting." – FGD participant.

There was also the perception particularly that older women practice witchcraft once they get older.

"They talk about it that whenever the old woman gets older, they mostly say "yes this one practice witchcraft" – FGD participant.

One FGD participant with a disability reported that persons with disabilities tended to form their own groups and mixed together as they do not feel appreciated.

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"Yes we tend to separate ourselves and make our own groups instead of mixing together. We tend to feel unappreciated; we do not feel happy at this because we're disabled." – FGD participant.

On the contrary, the findings from the second FGD did not mirror the sentiment expressed in the first. The nature of the disability was better understood in the context that the individual condition was due to genetic or other factors, e.g. having been born with a particular condition or it being a condition that developed over time. Similarly, the nature of potential limitations for older people was also viewed as a function of their age or due to ill health and not as a result of spiritual or other factors.

Among the older people in participating in the FGD, none reported being excluded from using WASH facilities because of their age. Assistance to those with disabilities, particularly older women, was also discussed. This involved assistance to draw water and, within the household, to access water for drinking and personal hygiene activities, e.g. bathing.

4.13 School WASH

At baseline, a total of five schools were visited across the two study districts. A survey tool (Tool 6) comprising a school questionnaire and observational tool was used to better understand how children in need of accessible WASH services are currently served, what adaptations schools had made and what barriers to WASH access still existed. An observation checklist was used to assess accessibility of latrines in each school. The same tool was re-administered at mid-term in two schools where the intervention had been implemented. This included the provision of new latrine facilities including accessible facilities and washrooms for girls.

At the timing of the MTR, the drainage and handwashing facilities were still to be completed in the two schools. The latrines were being used.

Several changes were observed to school latrines, although the facilities had not been fully completed at the time of the MTR. This included the construction of new latrines for children and teachers and the construction of separate washrooms for girls. Specific cubicles – one cubicle per block of five latrines – were also observed to have been built for children with disabilities, with the addition of hand and support rails in cubicles and access ramps leading up to the toilet. Separate facilities were available for boys and girls, and, in some schools, separate facilities were also observed for male and female teachers. Newly constructed handwashing facilities were also observed.

The interviews with teachers corroborated the observation of the construction of new facilities. A question about the reasons why new toilet facilities were constructed found that the decision was taken to construct the facilities in an accessible way and

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to enable easy usage. The specific changes and adaptations to these facilities in both schools included improvements to the path (e.g. made straighter, obstacles removed, or made less slippery), the addition of a ramp, the installation of a seat, and more space inside the facility and washroom for MHM. There was an awareness that the facility was constructed by WaterAid through DAPP in both schools.

A newly installed school latrine block with an incinerator for burning menstrual waste and a handwashing stand in the foreground, Nkaba school.

Table 4.18 summarises the findings in relation to school enrolment, the number of children with disabilities and the type of disability. Data were collected from Nkaba Basic School and Muntempa Basic school in the MTR. However, baseline data were only gathered from Nkaba Basic School, so a comparison could not be made for Muntempa Basic School at the MTR.

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Table 4.18: Comparison of school enrolment between 2012 and 2014

	Nkaba Basic School	Nkaba Basic School	Muntempa Basic School	Muntempa Basic School
	Baseline (2012)	Mid-term (2014)	Baseline (2012)	Mid-term (2014)
Total number of pupils	687	628	-	373
Total number of children with disabilities	10	33	-	18
Visually impaired	1	17	-	4
Deaf/hearing impaired	8	10	-	3
Intellectually impaired	1	4	-	8
Physically disabled	0	2	-	2
Albino	0	0	-	0
Other		0	-	1

The data indicate that there has been a three-times increase in the number of children with disabilities attending Nkaba basic school from 2012 to 2014, particularly among enrolment of children with visual impairment, followed by those with intellectual disabilities. The MTR was unable to ascertain the exact geographical area that the children with disabilities were coming from. This is a question that could be explored at endline. In Muntemba basic school, a key point raised with regard to enrolment is that there had been an increase in the enrolment of girls in the school from 2012 to 2014 from 163 to 194.

It is difficult to tell whether this change in enrolment of children with disabilities and girls can be attributed to the intervention or to other factors, partly because the exact geographical area that the children with disabilities have come from was not collected. This is area subject that should be explored at endline. It is also recommended that the baseline figures for 2012 for Muntemba Basic School are obtained in order to make accurate comparisons with mid-term and endline.

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The interviewers with teachers indicated that a lack of access to toilet facilities is a significant factor in the enrolment of school children, especially those with disabilities, because parents often keep children with disabilities at home. This is due to parents thinking that children with disabilities will not have proper care at school, especially when there are no toilet facilities at the school.

Among the two schools included in the MTR, a teacher from one school, when asked whether a lack of accessible toilets prevents children with disabilities from attending school, reported that it does. The other teacher interviewed did not feel that this was the case. A further question probing why a lack of facilities prevents children with disabilities from attending school identified that this was due to children with disabilities fearing discrimination.

4.14 Testing data-collection tools for use at endline

The MTR also sought to test the re-developed data-collection tools for the endline data, for application across the intervention areas in Zambia in 2016 as part of an external evaluation. The findings in this section focus on the main findings from the MTR.

One of the key challenges posed by the baseline data collection was the number of tools (n=9) and the length of the questionnaires, particularly at the household and individual level. In order to refine the data-collection tools and address areas of concern, at the early stage of development of the MTR tools, discussions were had with LCDIDC, who conducted the baseline, and WaterAid UK, together with feedback and input from WAU, WEDC and SHARE.

One of the key challenges at baseline identified by LCDIDC was the ascertainment of household members and the correct identification of individuals identified to be vulnerable. Because of the way in which the tools were administered, it became apparent that there were several households following the initial data collection at baseline where the tools, in particular tool 1 (the head of household questionnaire) and tool 2 (the individual questionnaire), did not match –e.g., households with a vulnerable member should also have had tool 2 administered to the vulnerable individual. However, in several instances the tool 2 was missing or vice versa, in that there was no tool 1.

Hence the initial sample size of 175 vulnerable households and 175 non-vulnerable households at baseline was not achieved, because of the mismatch of tools and the difficult of correctly ascertaining whether some members identified as vulnerable were actually vulnerable.

Although the household questionnaire at baseline did feature a roster, it was difficult to identify household members specifically because names were not collected for each. Therefore, a key modification at mid-term was to collect information on all

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household members in the form of a household roster together with appropriate line numbers so that tool 2, the individual questionnaire, could be administered directly to the individual identified as vulnerable, or a proxy if they were unable to respond.

Therefore, during the training of data collectors at mid-term, the completion of the household roster and ensuring the correct individual was interviewed were key areas highlighted for research assistants. This addition was beneficial and meant that all household members could be easily identified.

Similarly, at baseline, some of the water and sanitation categories used were not the standard definitions used in Zambia. Standard water and sanitation categories were therefore substituted at mid-term. To aid comparison, the categories used at baseline were mapped against the categories used at mid-term.

The addition of new areas to the questionnaires and reduction of questions following discussions with the study partners ensured new important information could be collected. This included questions on access to new water and sanitation technologies since baseline to ascertain whether households were accessing and using new water and sanitation technologies. This information was key in ascertaining changes since baseline, and the general findings indicate that there have been several improvements.

If the vulnerable individual uses a different toilet or defecation location, it would be useful to find out if this location is lower or higher on the sanitation ladder within Tool 2. Data from the question asking whether the vulnerable individual can use the toilet without assistance indicates an apparently high rate of independent use. This might be giving a misleading impression, because the data does not provide information on the level of difficulty they experience. A follow-up question to ascertain whether they can do so with or without difficulty would be useful.

New areas of physical safety and MHM also provided further information and indicated that these were key areas that needed to be addressed.

At the household level, the latrine observation tool was administered in all households at mid-term. However, at baseline, the observation was undertaken in a selection of households and not all households. This made comparison at baseline and mid-term difficult.

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5 Discussion

The overall results of the MTR found that the early impacts of the intervention on the target communities were substantial, in that the intervention had been delivered and implemented by the partners across several target communities that formed part of the study sample. Nevertheless, there were key areas in relation to the degree to which the intervention was delivered across target communities that are reflected in the findings, and the way in which target communities responded to the intervention.

5.1 Intervention delivery

The status of the intervention at the time of the MTR in June as shown in Table 4.1 on p 45 indicated that, of the 50 target villages that formed the full study sample, the intervention had been delivered across 43, with seven having not been classified at the time of the MTR. Of the 43 villages, 32 were classified, according to the traffic light system of the status of the intervention, as having received more intervention and 11 were classified as having received little intervention.

Before the main data collection, discussions were held with the project partner as to why the intervention had not been delivered in specific target areas or villages.

The general findings are now discussed in relation to the specific areas set out in the findings section.

5.2 Access to water

5.2.1 Access to new water technologies

Of the 53 sampled households at mid-term, over 50% reported that new water technologies had been constructed, installed or rehabilitated in their community in the past two years. Given that the intervention was implemented over a one year period, these findings indicate that access to water technologies has improved and facilities were identified to be present in communities. Of the 27 households reporting that they were now using new water technologies, 59% (16) were households that were identified to have a vulnerable member present. This finding in itself illustrates that households with vulnerable members were reached by the intervention.

5.2.2 Accessibility of waterpoints

Accessibility of waterpoints was identified to have improved since baseline, when a number of barriers were identified and key recommendations were made to improve the accessibility of waterpoints for vulnerable groups. The recommendations are shown in Box 5.1.

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Box 5.1 Recommended changes to waterpoints at baseline

- Making path and steps more accessible
- Pump handles that were lower and easily pumped
- Having tables or raised areas in which people with physical limitations or who are weak could rest heavy cans and jars
- Jars and cans for water collection that could be pulled or wheeled rather than carried
- New protected water sources constructed by either governments or NGOs Addressing community attitudes, particularly the time taken waiting to collecting water in long queues.

Distance to the waterpoint continues to be an issue for both vulnerable and non-vulnerable households, but especially among older people and people with disabilities.

Many of the waterpoints observed were identified to have had specific modifications made to improve accessibility and use. It was also observed, but not recorded, that these waterpoints had been installed or rehabilitated by the project partners, because they were easily identifiable via their logos or the date of rehabilitation or installation. The discrepancy between changes or adaptations reported at the household and individual level and the changes actually seen at the waterpoint requires further exploration at endline.

In over 40% of the waterpoints assessed, no barriers were observed with respect to the path surface, obstacles or the steepness of the path. Major barriers, such as high steps and challenging access, were also observed to have reduced, and in over 80% of cases the operation of the handpump was easy for all to use.

Households with a vulnerable member were still found to take more time to collect water than were households without a vulnerable member, and the ability of the vulnerable household member to participate in collecting drinking water was still identified to be an issue.

5.2.3 General summary

In general, the MTR established that, although accessibility to waterpoints had improved through the construction and rehabilitation of waterpoints, distance to the waterpoint still continued to be an issue raised in some communities, especially during focus group discussions. This was the case for both vulnerable and non-

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vulnerable households. Older and people with physical disabilities also commented on difficulties they faced carrying water independently.

5.3 Access to sanitation

5.3.1 Access to new latrines

Over 50% of the 53 households included in the MTR sample had constructed, installed or rehabilitated a new or existing latrine within the past two years. Of those now using new latrines, over 90% were now using this as their main and only toilet. An important finding was that of the 31 households now using new latrines, over 60% were households in which a vulnerable member was present. A lower percentage of vulnerable households (46%) compared with 66% of non-vulnerable households surveyed are using new latrines.

This indicates that vulnerable groups were in fact being reached by the intervention, because those were households in which such facilities were required, although they were possibly being reached to a lesser extent than we would like. In most cases, the vulnerable individual reported using the same facility as other household members.

Although for the population as a whole there appears to be no reduction in time taken to reach the latrine, for vulnerable individuals there does appear to be. In most cases, the latrine was less than five minutes from the household.

The majority of the facilities observed (60%) were a traditional pit latrine with concrete sanplat or without sanplat (not ventilated). A key finding was that the practice of open defecation was low, which is an encouraging result, and this had decreased substantially since baseline. However, those continuing to defecate in the open were all households with a vulnerable family member. There may be other factors that explain this. It might therefore be worthwhile exploring the nature of the vulnerability to ascertain whether the practice is restricted to particular groups.

5.3.2 Accessibility of latrine facilities

Latrine observations indicated that, with regard to reaching and entering facilities, few barriers were observed. Internally, however, only three (7%) had any support structures such as handrail or seat to make it easier to manoeuvre sit or squat inside.

5.3.3 Barriers

Nearly 90% of the vulnerable individuals reported that they were able to use the latrine without assistance. For the 10% (four people) who were unable to use the latrine without assistance, the main reported barriers were their own condition, or the facility

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being too far away. One important area to highlight is to the low reporting of adaptations to improve accessibility to the latrine.

This is surprising, because targeted subsidies were provided for a cement raised static toilet seat. However, low take-up might be explained by the fact that perhaps no hand rails or seats were needed. However, qualitative data from FGDs and in-depth interviews indicate that some users experienced difficulties using latrines, which were not captured in the individual questionnaire. The users experiencing difficulties included older women, particularly in using the latrine at night, because they were not able to find their way to the latrine and experienced loss of balance. Another group experiencing difficulties included children with disabilities. Caregivers reported that the children required assistance to use the facility because of fear that they would injure themselves if they used the facilities alone.

5.3.4 MHM

The results in relation to MHM were moderate. 16 girls and women responded to this question on MHM and 13 reported that they were able to bathe or wash themselves throughout the month. The main materials used included pads and clothes. However, the key finding was that, at a household level, access to a system to dispose of sanitary waste was moderate. Furthermore, only two respondents reported receiving information within the community or school environment on menstruation. This was supported by findings from school visits – MHM facilities were observed to be built or constructed within the two schools visited.

5.3.5 Anal cleansing

The results in relation to access to anal cleansing materials were found to be moderate: the majority of households had materials available for anal cleansing.

5.3.6 Physical safety when using the latrine or toilet facility

The general findings in relation to physical safety when using the latrine indicated mixed results. Some respondents reported that they felt safe and comfortable while others reported that they felt unsafe because bushes were around or the distance was too far. These findings must be viewed with caution, because respondents might have been answering on behalf of another household member.

In relation to whether women and girls feel safe to use the latrine at night, 73% reported that, in their view, women and girls feel safe at night. Specific questions asked to household heads about their general feeling of physical safety for themselves and members of their households when collecting water, going to the toilet or performing personal hygiene activities found common concerns about physical safety, including the journey to the latrine or water source being too far or dark. There were

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particular concerns raised about using the latrine at night and fear of snakes and animals. Among vulnerable individuals themselves, the general feeling of physical safety reported for them and members of their household included feeling generally safe, and some respondents reported feeling very safe. Many individuals reported that it was easier to draw water, and two mentioned specific difficulties due to the physical location of the waterpoint and the household member collecting the water having a medical condition.

5.3.7 General summary

Overall, the results in relation to access to sanitation indicate that significant improvements had been made at the household level to install or rehabilitate latrines, especially among households with vulnerable members.

Questions still remain, however, about the extent to which latrines are sufficiently adapted to make them accessible and easy to use independently by vulnerable family members. MHM at the household level is still an area that requires attention. The MTR found that MHM in schools had been addressed in the two schools visited, through the provision of washrooms for girls and facilities to dispose of sanitary waste;.however, at the community and household level, more work is required.

5.4 Access to hygiene

The findings in relation to personal hygiene found that there was an increase in the self-reported frequency of bathing from baseline to mid-term among vulnerable individuals. This was particularly in relation to bathing every day. However, the level of satisfaction of bathing and performing personal hygiene activities decreased slightly. The desire to bathe more regularly might be a result of increased expectations as a result of the project. It would be interesting at endline to further explore this.

Access to a handwashing facility near the latrine or dwelling was moderate, with 42% of households reporting that they had such a facility.

The main barriers identified to accessing hygiene facilities, were in relation to the limitation experienced by the vulnerable individual themselves. This included the person being ill or bedridden or not having the strength to perform the activity. At endline, it would be of interest to assess whether any adaptations or changes had been made to specifically access personal hygiene facilities, or the costs of making adaptations to such facilities.

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5.5 Levels of participation and empowerment

The MTR indicated positive findings in relation to levels of participation and empowerment. Of the vulnerable individuals sampled, 25% (8/31) reported that they had participated in local community meetings or events raising awareness about sanitation and hygiene in their community delivered by agencies including WAZ and DAPP.

The process review found that the accessibility audits carried out on the public waterpoints were very effective at improving levels of participation and empowerment.[6] Staff and community members found the process enlightening. It is likely that the innovations to the design and layout of the borehole aprons that resulted from this process made the handpumps and boreholes easier for vulnerable people to use.

One of the components of the intervention was the delivery of information in accessible formats. Therefore the findings that 25% (7/28) of vulnerable individuals reported that they received information on sanitation and hygiene in their local community in different formats – e.g. in their local language, through pictures or audio tape – indicated that information was reaching these communities in formats that are accessible to them.

The wider findings at endline will be of interest to assess the degree to which all target communities have been reached.

5.6 Caregivers

The findings from baseline found that caregivers played a significant role in assisting vulnerable household members. This was still the case at mid-term, but there was a slight reduction in the level of assistance required

5.7 School WASH

The MTR results in relation to School WASH were encouraging at mid-term, with one school with available enrolment data at baseline and mid-term showing a three-times increase in the number of children with disabilities enrolled. Of the two schools visited, all were observed to have had changes to school latrines. This included the construction of new toilets for children and teachers and the construction of separate washrooms for girls. Separate latrine cubicles for children with disabilities were also observed, as were newly constructed handwashing facilities, although not all of the facilities had been completed at the time of the MTR. The MTR did not collect evidence of the effectiveness of the adapted school cubicles – e.g. did not interview children with disabilities, or involve them in the latrine observation, or find out if an accessibility audit involving children with disabilities was carried out by implementers following the installation. This is an area that should be investigated at endline.

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Interviews with teachers were also positive and indicated a general awareness of why new facilities were constructed. In the interviews with teachers, teachers reported that new facilities were constructed to improve accessibility and use for children with disabilities. In both schools visited at mid-term, the teachers interviewed were aware that the facilities were constructed by WaterAid through DAPP.

6 Conclusion

The MTR sought to assess the early impacts of an inclusive WASH intervention on target communities and test and refine data-collection tools for the project evaluation in 2016. The aim of the Undoing Inequity research is to develop and test an approach that aimed to improve access to WASH for all, and thereby provide equal access to people who are marginalised and vulnerable. The results emerging from the MTR can therefore be articulated and discussed in relation to some specific research questions of the overall Undoing Inequity project:

1 What are the problems and opportunities currently experienced by vulnerable people and their households in accessing and using WASH facilities?
2 What solutions and approaches improve access to WASH for all within a community WASH intervention?
3 What are the benefits of improved access to WASH for vulnerable individuals and their families?
4 What are the additional programme costs to undertake an inclusive WASH approach?
5 What tools can be used in future research and in the programme cycle to support WASH programming that reduces intra-household disadvantage, and measure the impact of an inclusive approach to WASH?

The MTR does not need to answer question 1, as this was the purpose of the baseline – to establish the key problems and opportunities experienced by vulnerable people in accessing and using WASH facilities. Therefore, the MTR can be discussed in the context of the second, third, fourth and fifth research questions.

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6.1 Research question 2: What solutions and approaches improve access to WASH for all within a community WASH intervention?

This question can be best answered by addressing the following questions:

6.1.1 Point 1 – Has the inclusive WASH approach resulted in improved services within target communities?

The MTR established that, overall, the inclusive WASH approach has produced encouraging results, especially among households in which a vulnerable member is present. Results from the sampled households indicate that access to water has improved, with over 40% of households reported to be using new water technologies. The vast majority of these were households in which a vulnerable member was present.

The provision of new water technologies was identified to improve access, but it is important to note that distance to these sources still continues to be a major barrier.

This indicates that there is a key need to address the particular constraints and issues faced by those who are unable to access these water sources. Although four households reported using alternative sources of water, the MTR did not actually observe the presence of these facilities. This method of providing water closer to home requires further exploration because of the substantial reduction in the distance to the waterpoint.

At an institutional level, the in-depth interview with local officials and community leaders indicated that some areas were still underserved and communities still had to travel long distances of greater than 30 minutes to obtain water.

To accurately assess the actual number of boreholes that have been installed or rehabilitated as part of this project, it would be important to quantify the exact number in each of the target communities and the estimated population sizes or catchment of those areas. The findings at mid-term are only those reported, so it is important to substantiate these findings with the actual numbers in terms of the infrastructure installed.

With regard to access to sanitation, over 50% of sampled households had installed or rehabilitated a latrine within the past two years. The majority of these households were those with a vulnerable member (over 60%), these results are also encouraging, but it is also important to note that, overall, a lower proportion of vulnerable households are accessing new latrines (54% compared with 66% of non-vulnerable households surveyed). In addition, there also appeared to be a substantial increase in the number of vulnerable individuals taking less than five minutes to reach the toilet. One area that does require attention is to ensure that households are aware of the different low-

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cost latrine design options, including handrails and seats, and the cost of building a latrine. The main reason given for building latrines was to reduce germs and contamination, rather than to meet the needs of the vulnerable household member.

Further work in relation to access to hygiene is required, because the result at mid-term indicated that the hygiene facilities and modifications to hygiene facilities appeared to be lacking. The provision of handwashing facilities near the latrine facility or within the dwelling was low. This is an important area that should be emphasised to households when constructing latrines.

6.1.2 Point 2 – What has the wider impact of the inclusive WASH approach been on vulnerable and non-vulnerable people in these communities?

The wider impact of the inclusive WASH approach on the target communities sampled indicates that, in general, access to water and sanitation has improved since baseline, although there are still significant strides to be made in terms of reducing the distance to waterpoints and the number of households installing new latrines. The practice of open defecation was low at mid-term.

The level of participation and empowerment of vulnerable groups also demonstrated generally positive results, as did the general attitude towards vulnerable groups.

6.1.3 Point 3 – What can be done to improve the inclusive WASH approach so that it is more effective and has a greater impact on the quality of WASH?

To improve the inclusive WASH approach so that it has a greater impact on the quality of WASH, there need to be clear objectives set in terms of the delivery of such an intervention to programme partners and implementers.

The approach needs to be adopted as part of an organisation's wider programme objectives so it is apparent throughout the whole project cycle and not just the implementation phase. Wider communication with those at national level regarding the additional programme costs of delivering such an intervention should be actively communicated and the findings of such projects widely disseminated.

At a community level, it is important that target communities are aware of inclusive WASH approaches, especially regarding the design of water and sanitation technologies. The reasons identified and changes to facilities noted were identified to be minimal.

This could be achieved by project implementers actively involving communities in the design and installation of new WASH technologies. This includes specific emphasis on the need and purpose of such facilities – e.g. to benefit all community members, including those with difficulties accessing WASH facilities.

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The importance of addressing the needs in schools and providing inclusive facilities is important. Given the positive findings and increase in school enrolment, after the provision of WASH facilities, it is important that such initiatives are rolled out more widely. Close monitoring of implementation is required during the projects, to ensure such facilities are being provided according to the project schedule.

6.1.4 Point 4 – Technology design

The points in this section relate to whether the new facilities are more user friendly as a result of the inclusive approach, whether these facilities are more satisfactory to the users than are 'standard' designs (in terms of reducing the time taken, the difficulties experienced and the general user experience), and the wider impact on the lives of vulnerable individuals and their household members.

With regard to waterpoints, in most instances, some of the challenges identified at baseline had reduced, such as high steps and challenging access, and the handpumps were easy for all to operate. Changes to the waterpoints were noted by some households and it was apparent during the waterpoint observation that changes had been made. A contributing factor to improved design of waterpoints was accessibility audits. These improved the participation of vulnerable people and ensured that designs were user-friendly for everyone.

The time taken to reach the waterpoint had not reduced from baseline. This might be due to the way in which the question was worded in 2012, which made comparison at mid-term difficult.

With regard to latrines, few households had made specific changes or adaptations to their latrine, although the time taken to reach the latrine had substantially reduced.

More children with disabilities were observed to be enrolled at mid-term in one school. This was apparent through a three-times increase in school enrolment from baseline to mid-term. In the other school there was an increase in the number of girls enrolled between baseline and mid-term; however, exact figures were not available on the enrolment of children with disabilities, therefore it was difficult to make direct comparisons with mid-term. Further investigation is needed to understand the extent to which the increased enrolment of children with disabilities and girls can be attributed to the project and the improved WASH facilities.

6.2 Research question 3 – What are the benefits of improved access to WASH for vulnerable individuals and their families?

Several benefits have been discussed in relation to improved access to WASH for vulnerable individuals and their families, some of which are discussed in relation to Research question 2. The provision of new water and sanitation technologies,

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particularly those accessible to vulnerable individuals, first improves access, but also reduces the time taken to collect water and reach a toilet facility. Although further work is required to reduce the distance travelled to collect water and provide accessible latrine facilities for vulnerable individuals, a notable finding arising from the MTR was the increase in the number of vulnerable individuals taking less than five minutes to reach a toilet facility.

In general, the MTR also established that levels of participation and empowerment had improved and that areas regarding stigma and discrimination had reduced to some degree. This should be explored in greater depth at endline.

6.3 Research question 4 – What are the additional programme costs to undertake an inclusive WASH approach?

The MTR collected the cost of making changes or adaptations to household latrine facilities from ten individuals. The cost of buying construction materials (i.e. cement and rebar) ranged from zero (where DAPP provided materials) to 300 kwacha (approximately £28, as of February 2015). The cost of aggregate, sand, timber, clay and thatch ranged from 0 to 510 kwacha. An assessment of the cost of implementing the inclusive WASH approach is included in the Process Monitoring review.[6]

6.4 Research question 5 – What tools can be used in future research and in the programme cycle to support WASH programming that reduces intra-household disadvantage, and to measure the impact of an inclusive approach to WASH?

One of the objectives of the MTR was to test the data-collection tools for use at endline in 2016. At mid-term, all nine tools were re-administered following their redesign and redevelopment.

The areas that appeared to be problematic at baseline were addressed. The suggestions for the data-collection tools at endline include further refinement in terms of reducing the number of questions, particularly in the household and individual level questionnaires. Feedback during data collection indicated that, although the tools had improved, the length was still an issue given the other tools to be administered in the same timeframe.

A focus on the keys areas from baseline, including the provision of new water and sanitation technologies and the development of key indicators to assess at endline, will be helpful in reducing and focusing the tools.

At mid-term, identification of households and ascertaining the vulnerability status of household members increased the amount of time spent in target villages. It is advised that, before planned data collection at endline in 2016 commences, the status of the

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household is ascertained: whether the household is still present or has moved, and the mortality status of the vulnerable member.

The administration of the latrine assessment tool to all households, as at mid-term, is important to verify that the categories used at baseline can be mapped to those used at mid-term.

7 Recommendations

The recommendations emerging as a result of this MTR are presented to follow the format of the results. These recommendations are based on the findings emerging from the MTR and observation of the delivery of the intervention in target communities.

7.1 Recommendations for WAZ

7.1.1 Access to water

- Long distances to waterpoints continue to be a problem for many older people and those with severe disabilities. Further exploration is required to assess whether alternative options – e.g. rainwater harvesting – can be made available to those most in need.
- A Compendium of Accessible WASH technologies has been produced as part of this project. It includes a section on transporting water for use by all users, including people with limited strength or difficulty balancing or grasping a container. WAZ and DAPP should promote those options to all community members to help address these barriers.[9]
- As there appears to be little change in the number of vulnerable people able to access potable water in the household from the baseline, WAZ and DAPP should promote the Compendium of Accessible WASH technologies. This includes a section on accessing stored water for people with mobility devices, poor balance or little strength.

7.1.2 Access to hygiene and sanitation

- Accessibility and safety audits should be routinely conducted after the constructions of new school WASH facilities as part of the quality-control and sign-off process.[10]
- Project implementers providing information on accessible latrine options should emphasise the benefits to all users of user-friendly designs. Staff should also emphasise the labour-saving benefits and consult vulnerable groups, not only people with disabilities but also groups including older people and those who are chronically sick.[9]

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- An emphasis should also be placed on effective monitoring of community mobilisation and information dissemination about sanitation and hygiene, and subsequent changes implemented by households and communities.

7.2 Recommendations for the endline

7.2.1 Continued investment

The current status of the intervention was not as advanced as expected at the time of the mid-term (see table 4.1). Continued investment and emphasis on carrying out the inclusive WASH approach within the 50 villages included in the baseline survey is vital so that outcomes and potential impacts can be measured during the endline.

7.2.2 Access to water

- In order to ascertain the reach of the intervention on target communities, it will be important to determine and understand the number of new or rehabilitated water technologies installed in each of the target communities by the implementing partners. At mid-term, apart from through the self-reported questions asked and waterpoint observation, it was difficult to verify the number of new or rehabilitated water technologies.
- At endline an assessment of community member's awareness of the installation of such technologies formed part of the intervention and reasons why new technologies were not constructed.
- The total number of vulnerable households using alternative water technologies e.g. rainwater harvesting systems would be important to know to also assess the reach of the intervention.
- For households not accessing new water technologies, the reasons as to why new technologies were not constructed in their communities should be explored to ascertain why.
- The total number of vulnerable households using alternative water technologies – e.g. rainwater harvesting systems – would be important to know to also assess the reach of the intervention.
- At endline, it would be interesting to assess why particular households continue to use unprotected water sources even though protected water sources are within distance of their households. This was observed at mid-term.
- The waterpoint observation tool may need adjusting at endline, to capture information about inclusive design modifications (e.g. increased space, ramps, container stands etc).
- At endline, the results of the process monitoring during the project cycle should be analysed to provide background and context to the results.

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- The development of a set of key indicators in relation to water will be important at endline to enable the refinement of data-collection tools and monitor the objectives of the project.

7.2.3 Access to sanitation

- The degree to which households are accessing new latrines should be assessed at endline through the incorporation of the same questions used at mid-term to assess how many households have installed or constructed latrines. This should also include the development of a set of key indicators for use at endline so that questions can be further refined.
- The reasons why households are continuing to practise open defecation should be explored, and the extent to which the triggering and follow up has addressed. Further exploration of why this practice is higher among vulnerable households should also be explored.
- All households at endline should have a household latrine observation checklist administered to assess their latrine facilities.
- For households with a vulnerable member who have not made any specific changes to their latrine facilities, the reasons why should be explored further during in-depth interviews.
- At endline, it will be important to understand whether any activities have been conducted in the areas where there has been no intervention identified at mid-term.

7.2.4 Access to hygiene

- Further questions should be incorporated at endline to assess whether changes or adaptations have been made to access hygiene facilities at the household level and the information received on such options.
- Further exploration of the low presence of handwashing facilities should be explored at endline and the reasons why.
- MHM at the household levels requires more detailed exploration as this was an area reported to be low at mid-term. It would be worthwhile to explore opportunities for integrating messages to improve MHM at the household level and initiatives to train women – e.g. to make low cost sanitary pads – with appropriate messaging and linkages to income generation.
- Ensure data on MHM separates vulnerable and non-vulnerable people so a comparison between the samples can be made.

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7.2.5 School WASH

- At endline, it would be useful to visit all of the schools included at baseline, including the two included at mid-term, to assess the status of the intervention. A comparison of enrolment rates in schools of children with and without disabilities where there has not been an inclusive WASH focus in the community or school with schools where there has been an inclusive WASH approach would also be useful in examining the role and impact of the intervention.
- To assess the impact of the intervention on children with disabilities specifically and girls in terms of MHM, in-depth interviews could be undertaken with children.
- Interviews with local ministry official to discuss the impact of WASH facilities in schools should be included at endline.

7.2.6 Caregivers

- The role of caregivers in providing assistance to vulnerable household members WASH needs could be examined in greater depth and suggestions as to how their role could be supporte or reduced from the perspective of an inclusive WASH approach.

7.2.7 Levels of participation and empowerment

- Investment and emphasis on improving levels of meaningful participation and empowerment of vulnerable groups should continue until the endline. Any changes as a result of this continued focus should be assessed across all target communities at the endline.

8 Evaluation of data-collection tools for endline

- The development of a set of key indicators at endline in relation to the objectives of the research should be completed. Such indicators will then enable the data-collection tools to be refined in accordance with the specified indicators.
- All tools should be re-administered, but there is a need to substantially refine the quantitative tools to reduce the time burden on respondents and data collectors, but also to ensure that only relevant information is collected. Sets of key indicators will enable this refinement.
- The MTR established that a much higher number of vulnerable individuals were identified through having a detailed roster and screening questions than were

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in the original sample identified. It would be useful to explore and possibly understand the impact of the intervention also on these groups.

- Further questions should be included in the individual questionnaire (Tool 2) in the section on access to sanitation facilities that capture the type of toilet facility used for vulnerable individuals that do not use the same toilet facility as other members of their households. The purpose of such a question would be to ascertain whether vulnerable individuals are using inferior facilities compared with other members of their households.
- The individual level questionnaire (Tool 2) should also include an additional question on the level of difficulty experienced for vulnerable individuals reporting that they were able to use the toilet facility without assistance from another person. The current question only captures whether assistance is needed and not the level of difficultly that the individual may experience.
- The waterpoint observation checklist would be improved at endline by adding questions to capture the specific design changes made from the previous standard installation of water technologies. The purpose of this would be to assess what specific modifications have been made to improve accessibility. This would involve discussions with the project implementers about pre-intervention designs and the specific designs included as part of the intervention. The current focus of the checklist is on barriers in general to accessing waterpoints, so inclusion of the specific design changes made would be important to ascertain at endline.

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