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ACCESS TO SANITATION AND SAFE WATER:
GLOBAL PARTNERSHIPS AND LOCAL ACTIONS

All people, all access: WATSAN for disabled people in Mali

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People with physical impairments across the developing world face problems of access and use of water and sanitation (WATSAN) facilities that have not been designed with their needs in mind. Research carried out in 2007 used Accessibility Audits and household interviews (including disabled participants in the research team) in order to identify physical barriers to access and use in two rural locations in Mali. Consultation and observation aimed to provide ideas and the production of adaptations to existing facilities. The research found that transportation and access to facilities can act as a primary barrier in water collection. Simple equipment can aid the use of latrines. However, provisions should not be provided alone - without consideration of factors that make access difficult and unhygienic.

Introduction

This paper presents and discusses the lessons, observations and research methods from an MSc project in rural Mali, July 2007. In collaboration with WaterAid Mali (WAM), two rural locations were visited, including an evaluation of a pilot project where WAM had worked with Sightsavers International to provide WATSAN facilities for people who are blind. The project aimed to identify physical barriers to access and use of WATSAN facilities for people with physical impairments, and through consultation with users, to identify suggestions and ideas for solutions.

Throughout the developing world, the design of WATSAN facilities to include the needs of disabled people, to date has received limited attention. Current documented literature of examples, design guidelines and research into this topic is scarce. Without WATSAN access, disabled people may be forced to use poorer quality facilities, or have the need of relying on someone else for support (Jones and Reed 2005).

Disability and development - Inclusion

In recent decades the understanding of disability has moved away from the medical approach of providing individual assistance, to the social model of recognising the physical, attitudinal and institutional barriers that prevent people with impairments accessing and using mainstream services (Stone 1999). Incorporating disability in mainstream development work does not have to be expensive, where simple ideas and modifications, if given consideration early on in projects, can remain low-cost (Metts 2000). Arguments that disability is a minority, specialist issue is contradicted, where, in Mali for example, given rates of 10-19% incidence of disability is reported (Diawara 2005).

The research process

Accessibility Audits, structured individual interviews that took place in the home, and Focus Group Discussions (FGDs) were used in this study. Accessibility Audits were used to examine the access and use of existing water points in group settings. A range of users, numbering 4-5, were asked to take turns in approaching and using the facility, and to give comments to aspects that both facilitate and hinder access and use. The audit also created the platform for discussing ideas for how the facility could be improved. The individual interview was used to assess the means of both water and sanitation access, incorporating an Accessibility Audit of latrine. FGDs were used on a limited scale. Within the project, disabled participants were involved in carrying out audits and interviews. This approach can arguably create a more open and relaxed discussion, where questions can be worded most appropriately and participants can relate more easily to interviewers. Furthermore, including people from the target group in the research process can build the capacity of us-

ers to assess and identify their own needs in the future. Examples of the tools used can be obtained from WaterAid, UK and WEDC from Hazel Jones.

The research findings

Water

Transporting water

The study found that for many participants, transporting water is a main issue, where transport is difficult or prevents water collection. Wheelchair users commonly rested water containers, on the foot rests of the larger 3 wheeled chairs found in Mali, with the risk of containers falling off over rough terrain. Other users with weakened limbs found transport difficult, unable to follow the local practice of carrying water on the head.

Access issues

Observations of handpumps and standposts highlighted issues that prevent people with impairments sharing the same access as other users. Handpumps were protected by walls and doors with stepped entrances, preventing wheelchair access. The raised edges of standpost aprons and well surrounds prevented wheelchair users from being in a position to access the facility themselves, or made use difficult. Low walled, large open wells gave the risk of users of falling, an increased danger for someone who is blind.

Factors that assist access and use

In both field locations, **wells with raised walls** provided users with a form of all round support, giving protection against falling and physical support when raising water. Picture 1 shows an example built by WAM, where an additional surround of gravel provides blind users clear guidance for orientation. However, not all users found walled wells easiest to use. A wheelchair user for example, dismounted to crouch next to a small open well. The user was able to raise, grasp and rotate round the raised water to empty into a second container without difficulty. The new well in picture 1 shows a lower section of wall that would be more suited to wheelchair users, or children.

The ease with which **pulleys** could be used by participants depended on the quality and positioning of the pulley, where at the new well in picture 1, the rope would easily come off the pulley rung. Users with weakened arms found that a pulley alone can be difficult to use, including weight pulling rope back from the user and difficulty in transferring water across out of the well, to a second container.

Sanitation

Accessibility Issues

The following factors that made access difficult and unhygienic for disabled users were identified. The evaluation at Tienfala showed that the provision of raised seats alone could still leave access problems.

- Steps and slopes: formed by changes of material from inside concrete slabs to outside earth paths. Slabs raised above floor level resulted in steep slopes
- Slippery surfaces: Stone and gravel paths were more stable than earth. Lack of clear drainage or paths that directed wastewater to latrine entrances created unstable environments.

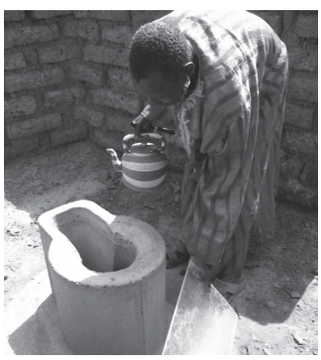
Picture 1. New well design for people who are blind

(Source: Author)

- No access for wheelchair users: Narrow, concealed entrances, steps and small latrine rooms meant majority of wheelchair users were required to dismount and crawl across latrine floors.
- Squatting difficult and painful for users with weakened limbs.
- Wheelchair users, if unable to support themselves, needed to rest over the latrine hole, which is unhygienic and painful when the stone surround is hot, as a result of direct sunlight in unroofed latrines.
- Users who are blind would locate the latrine hole using hands, with resulting risk of direct faecal contamination.

Raised concrete seat

WAM introduced raised concrete seats fixed to reinforced domed slabs for blind users within a pilot project. Users found the seats easy to locate, easy to keep clean and comfortable, giving strong support. However, the height of the seat made full use by younger children difficult, and as latrines had no roofs, the surface of the seat became very hot and painful, with a number of makeshift covers used in the field (Picture 2).



Picture 2. Raised seat

(Source: Author)

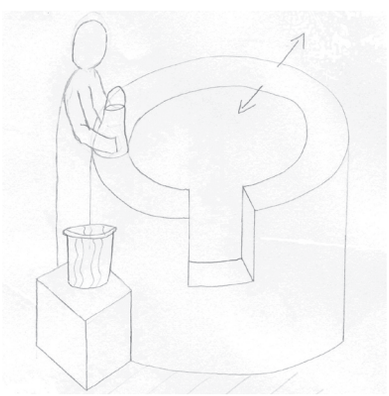
Recommendations

In discussion with participants a number of ideas for both adaptation to existing facilities and ideas for new facilities arose. Within the fieldwork period, only adaptations for sanitation were tried in practice, due to the relative ease of construction compared to water facilities.

Water

Transportation ideas

An elasticised band or rope, fixed at one end, could be attached to the frame of wheelchairs to either hold containers in place or provide a resting place under seats. A common desire from participants was for a form of cart. One option would be to develop a low-cost Hippo Water Roller, as used in South Africa, to incorporate common, local water containers.



Picture 3. Adapted well idea

(Source: Author)

Adaptations to wells and locking mechanisms

In discussion with users, the idea of an adapted well, as shown in picture 3, was produced. A wider ledge allows users to rest containers once raised (see arrows). A raised block next to the well would make transferring water to a second container easier. Users also suggested the use of a windlass, which would allow users to raise water with one hand, and allow raised water to be held in position, leaving both hands free to transfer water to a second container.

A system to lock rope in place would allow users access to raised water with both, or one hand. A simple cleat or two turns around a pole could be appropriate. Self-locking devices, such as a ratchet and pawl, would give security to users when raising water, reducing effort where weight pulls against the user.

Once water is raised and held in position, the user must be able to reach and pull the raised water out from the well for transfer to a second container. There would be a need for the user to have sufficient slack of rope to move raised water. A combination of locking devices, extendable lengths of looped rope or a hook, could allow users sufficient range of movement.

Sanitation

- Support bars: to aid getting into position and use of latrine. One user made request for ladder type support to be placed in front of squat hole. Support bars need to be firmly fixed to the ground. A vertical support was made in the field, with rubber handholds for prevention against heat. A vertical support appears to give support at each stage of squatting, and interference with other users is limited.
- Non-slip surfaces: includes gravel paths, roughened concrete/cement, adding a new layer.
- Improved drainage: clear separate drainage paths so insides & entrances to latrines remain dry and clean.
- Separate water supply: inside latrine, where transport of water for bathing/anal cleansing difficult.
- Access for wheelchair inside latrine – using local dimensions
- Protection for hands and limbs: including wooden walkers and sandal type protection made from old tyre material (Jones and Reed 2005)
- Portable raised seats: wooden seats were produced in the field as individual adaptations to existing facilities. Wheelchair users often preferred a low seat. Portability gave the advantage of dual use for bathing and less interference with other users. In design, seats need to fit the existing latrine environment and be symmetrical for blind users. PVC tubes, that could be cleaned, were attached to hang below the seat to direct faeces for hygienic use. However, access for anal cleansing may remain an issue. It is important that seats provided are tested and evaluated before wider production. Varnished finish allows for protection from the elements and ease of cleaning. Markings at the latrine hole aids orientation for blind users.

The research process

The research found that it is important to allow sufficient time for piloting new tools. Accessibility Audits within both group and individual settings proved to be a suitable tool for identifying needs and creating discussion for adaptations and improvements. The research found that FGDs with small groups who shared the same issues were more effective than larger groups with a wide range of different needs. The use of physical aids and examples appeared a suitable way to demonstrate ideas and adaptation options for participants to gain understanding and the ability to choose the final form and arrangement of design. This approach should be built upon in future projects, and could even include the use demonstration latrines to encourage innovation, in a country where adaptations and solutions made by users themselves appears low (also found during research carried out by Messiah College, in 2007).

Conclusion

In review, this research project was able to back up and support observations and findings of past literature, giving strength to the limited body of information that exists. The research found that for many users with physical impairments, transportation and access to water facilities act as primary barriers in collecting water. It appeared that simple adaptations to existing facilities could serve to make facilities accessible. The research found that attention to details in providing an accessible sanitation environment is required in addition to stand-alone provision of equipment.

Future research has the scope to develop, experiment, test and evaluate ideas recorded in this study. It is important to produce more examples of accessible design, so that future development work can incorporate

this learning in their mainstream activities. Lastly, there is a great danger in over-engineering solutions, that eventually users would be unable to afford. The most appropriate solutions should be able to be reproduced and maintained by the users themselves.

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