Synopsis

As many as one in five of the world's poorest people are disabled. For the majority who live in developing countries, access to the basics of life, such as food, shelter, water and sanitation are a daily struggle.

An analysis of available information and opinion has found that disabled people in low-income communities are routinely excluded by water and sanitation projects, due primarily to external barriers – in the environment, infrastructure and institutional practices, rather than to disabled people's own limitations. There is a lack of awareness and understanding about disability among the majority of service providers, which is compounded by an absence of appropriate and available information that would enable them to take practical steps to improve access for disabled people.

These findings are based on an initial situation analysis, including literature review, e-conference and a questionnaire circulated globally. Examples from Bangladesh have been used as illustration.

Water and sanitation service providers have a key role to play in reducing barriers to disabled people's participation in daily activities, and thus relieving their poverty and isolation. Planners and service providers therefore need to consult and include disabled people at all stages of the project cycle.
1. **Background**

There are over 500 million disabled people in the world, two thirds of whom live in low-income communities of the South (Miles, 1999). These numbers are on the increase, due to factors such as an ageing population, and the impact of violent conflict (World Bank, 2001). Disabled people are disproportionately numerous among the poor, because poverty is both a cause and a consequence of disability. Inadequate diet, dangerous living and working conditions, reduced access to health care, and lack of education all contribute to a higher risk of impairment. Furthermore, there is strong evidence that their problems are compounded by discrimination and exclusion from mainstream services and development programmes (Seeley, 2001; Singleton et al., 2001; UN, 2002).

The exclusion of disabled people has an impact on their families and communities, in both human and financial terms. Poverty is exacerbated by placing an added strain on already fragile economies. It is estimated that amongst the poorest of the poor, as many as one in five people may be disabled (World Bank, 2001). It is clear that if the Millennium Development Goals are to have any chance of meeting their objectives, all infrastructure and development programmes must include disabled people.

A recent speech by the President of the World Bank stressed the imperative of improving access in all infrastructure projects:

‘... donors and development agencies finance substantial infrastructure projects in developing countries, such as schools and hospitals, streets and paths, and transportation and power systems. They should encourage design features that improve access for all with limited mobility, including disabled people, pregnant women, people carrying baggage, the elderly and others. Without infrastructure standards and the enforcement of those standards, inaccessible environments are re-created or maintained. For instance, in the massive reconstruction efforts in Honduras after Hurricane Mitch, not one foreign donor stipulated that accessibility codes be applied, although this would have required little or no additional cost. As a result, whole towns, including schools, were rebuilt with barriers to disabled people. Encouraging appropriate design standards is essential to reducing, and eventually eliminating, poverty in developing countries.’ (Wolfenson, 2002)

An increasing number of governments, non-governmental organisations (NGOs) and donor agencies now recognise that an effective disability strategy has to include addressing the needs and rights of disabled people in all mainstream development and infrastructure programmes, e.g. DFID (DFID, 2000) and USAID (1997). The fact remains, however, that even where disability legislation and policy is in place, it is often not formulated into the policy and
strategy of relevant sectors, which leaves a wide gulf between theory and im-
plementation.

A research project currently undertaken by the Water Engineering and Devel-
opment Centre at Loughborough University (R8059), aims to identify, docu-
ment and disseminate information and knowledge about aids, structures and 
methodologies to assist disabled people in maximising their access to water 
and sanitation facilities in low-income communities, in order to ultimately im-
prove their well-being and that of their families.

The project will produce guidelines and a manual to assist water and sanita-
tion providers, and organisations that work with disabled people and their 
families, to select the most appropriate means of maximising access to water 
and sanitation facilities.

This paper describes the project activities carried out during phase one of the 
research, and some of the key issues to have emerged. A primary intention of 
this paper is to raise the profile of the issue of disabled access to facilities, 
through increased awareness and discussion. The implications of these find-
ings for engineers are then described.

Full details of the research project can be found on the project website:
www.lboro.ac.uk/wedc/projects/auwsfpdp/ .
2. **Project Implementation**

2.1 **Methodology**

The purpose of phase one has been to gain an overview of the current situation facing disabled people in accessing water and sanitation globally, including the kind of obstacles they face, and to identify current good practice in overcoming those obstacles. An extensive literature review has been produced (Jones et al., 2002), which compiled both published and unpublished literature, using searches of electronic databases of libraries, web-based journals and information networks. In addition, a questionnaire was circulated globally, via networks of water and sanitation agencies, NGO networks, UN agencies and disabled people’s organisations (DPOs).

An e-conference was also undertaken during 2002, involving 40 participants from 17 countries, of which the highest representation was from Bangladesh, with 10 participants. The conference was divided into three themed areas:

1. Barriers to accessible water and sanitation facilities.
2. Strategies to improve access to water and sanitation facilities (examples of good practice).
3. Tools to support improved access to water and sanitation facilities (strategies for the future).

The discussions raised many important points and described several examples of good practice. Contributors, the majority of whom were disabled, drew on their personal experience. A synthesis report of the e-conference (Lewis et al., 2002) can also be accessed on the website.

In 2003 the project has undertaken field visits in Uganda, Bangladesh and Cambodia, to review, analyse and disseminate examples of good practice. Reports of field-work in Uganda and Bangladesh are available on the website.

2.2 **Definitions**

Project definitions have been identified as follows:
2.2.1 Domestic water cycle

This is deemed to include: drawing and transporting water for domestic use from point sources such as springs, wells (Figure 1), rivers, streams and ponds, hand-pumps (Figure 2), tap-stands (both public and private), and rainwater catchment tanks.

It also includes domestic water storage, i.e. placing water into and taking it from a secondary source, such as a clay jar or jerry-can. Further, it includes use of water in activities such as preparing water for drinking, washing clothes, food and dishes, household cleaning and grey water disposal. Sanitation includes urination and defecation in both toilets - pedestal and squat, water-seal and non water-seal, and in the nature; household solid waste and excreta disposal. Communal facilities may be included where domestic facilities may not be available, e.g. in informal settlements such as peri-urban slums.

2.2.2 Physical disabilities

For the purposes of this research, children and adults are included who for whatever reason:

a) cannot walk, and who may crawl, or use a mobility device, e.g. wheelchair or trolley.

b) can walk with difficulty, and need support from e.g. crutches, hand rail, or another person to lean on.

c) can walk, but experience other physical weakness or lack of co-ordination, such as weak or erratic grip, or limited arm/hand movements.
3. **Key Findings**

Findings from this preliminary phase of the project have highlighted several areas of concern.

3.1 **Lack of relevant information**

The literature review emphasised the fact that information relevant to disabled people in low-income communities is scarce. The little information found tended to focus on the difficulties faced by disabled people, with only a few examples that illustrated good practice. The most useful information in this respect has been gleaned from practitioners in the field, including through the e-conference. This highlights the need to document and collate accounts of good practice for wider dissemination to practitioners and to policy makers.

3.2 **Barriers to access**

Barriers to disabled people’s access to and use of facilities arise not only from an individual’s limitations – for example, lack of mobility – but equally from external factors, including obstacles in both the built and natural environments, institutional factors and social/attitudinal barriers. Examples of barriers to access and participation include:

**Individual limitations:** ‘Physical weakness means that disabled people have to rely on stronger household members to collect water for them, or to wash themselves, their children, clothes, dishes, etc. at communal water places.’ (Van der Kroft, 2002).

**Obstacles in the built environment:** An account from Zambia describes a village where a community project was carried out to build latrines. ‘Persons with disabilities did not benefit, they could not use them for they did not have a sitting pan and doors were too narrow for a wheelchair to enter. The same toilets were used as bathrooms … I was talking to a woman with disability, who told me she bathed only at night and used the bushes as a toilet.’ (Sachelo, 2002).

**Social barriers:** ‘In Bangladesh, because many community members believe that impairments are contagious or a punishment, disabled people may for example be prevented from sharing latrine facilities, which forces families to use unhygienic sanitation practices.’ (CRP, 2002).

**Institutional factors:** The U.S. Agency for International Development (USAID) is committed to the inclusion of people with disabilities ... from the design and implementation of USAID programming to advocacy for and outreach to people with disabilities (USAID, 1997). However, a study of more
than 165 US-based relief and development NGOs found that organisational strategic objectives make no reference to disabled people, most do not collect data on participation of disabled people in their programmes, and so cannot monitor the extent of their participation. Many respondents acknowledged that they think few or none do participate. (from Singleton et al., 2001).

If this range of barriers is not addressed holistically, any proposed improvement to access may prove ineffective. A comprehensive approach is thus advocated as the most sustainable.

Some simple structural considerations to improve access to water and sanitation facilities for disabled people could include:

- A level, flat and non-slip floor surface
- Adequate space for manoeuvring with disability aids (e.g. Figure 3)
- Support handles
- Sufficient light
- Manageable handles and taps

These suggestions were amongst those given by a group of disabled women in Bangladesh, who identified poor structural facilities as their primary problem.  (Theme 1 Discussion, Lewis et al., 2002)

As well as basic structural improvements for safer access to facilities, some additional areas of concern have been raised: of collecting and storing water, the design of appropriate water vessels, water purification, and other devices to assist with specific impairments.  (Theme 2 discussion, Lewis et al., 2002).

Such improvements do not necessarily need high levels of technical expertise or funding, but an investment of effort in networking and sharing of knowledge to develop cheap and locally appropriate solutions.

3.3 Economics

There is ample evidence to indicate that it is more cost-effective to incorporate accessible design features from the outset, rather than making (usually more expensive) changes as an after-thought (Metts, 2000). Accessible design benefits not only disabled people but can meet a variety of differing needs among the wider community, e.g. elderly people, heavily pregnant women, young children, etc. The more accessible the facilities are, the less individual disabled people have to depend on support from family members or individual
assistive devices, and the more they are able to contribute to their family and community.

3.4 Gap between policy and practice

The literature review and e-conference revealed that many governments and international agencies are aware of disability rights, and many have laws and policies to reflect this. However, despite often excellent legislation, the review suggests that in many countries few practical improvements for disabled people have yet materialised. There are a number of reasons for this, including institutional discrimination and local cultural perceptions, but a major factor was suggested to be lack of information and understanding on good practice. For example, there is often a lack of information about how to put into practice the rhetoric of ‘access’ or ‘accessibility, whether in terms of building codes, transport, or water and sanitation guidelines.

An example of this gap in South Africa was provided during the e-conference: ‘Low income housing was created by the new government in an attempt to redress the imbalance of the past neglect of the majority African people. However, the toilets and bathing rooms are uncomfortable for people with disabilities because of their structure. The housing is very small and the bathing room is inaccessible for people using wheelchairs to enter. They have to crawl, then pick themselves up to the bathroom basin.’ (Mndawe in Lewis et al., 2002).

Mainstream infrastructure and development implementers are often simply unaware of the need, and uncertain as to how to include a disability perspective in their work. User-friendly, easily obtainable guidance documents are needed, effectively disseminated through existing networks, DPOs, community consultation mechanisms and other routes.

3.5 Key role of disabled people

The sustainability of all community-based initiatives stands or falls on the level of participation of the beneficiaries. Recent related research confirms that, for an appropriate and successful outcome, excluded groups such as women, the elderly or disabled people, need not only practical changes but also involvement in the decision-making process (Deverill et al., 2002). Any projects that are developing water and sanitation facilities must therefore ensure the active participation of disabled people from the initial consultation stages, to ensure the resulting solutions are practical, usable and effective. ‘Nothing about us, without us’ is the slogan of the international disability movement (Yeo, 2002).
One example of a successful disabled people’s organisation is the Bangladesh Protibandhi Kallyan Somity (BPKS), a self-help organisation of persons with disabilities in Bangladesh. BPKS has taken some initiatives to ensure accessible tube well (Figure 4 and Figure 5) and sanitary latrine facilities for rural disabled persons, children and pregnant women (Ashraf, in Lewis et al., 2002). A disabled beneficiary of the project describes the impact it has had on himself, his family and community:

“Although other members of my family use a bamboo made latrine, I used to respond to my natural call at a bush of bamboo beside my house due to inaccessible latrine. Without help of other family member, I was not able to drink safe water. Now I have safe water ... I use the tube-wells for drinking, bathing and washing clothes. Without anyone’s help, I can also use the latrine, as it is now accessible for my wheelchair… My neighbours have also got facilities to use safe water and latrine. I think that I can keep my health sound and lead my life by myself as well as the community members too.” (One Family International, 1998).

Solutions do not have to be high cost or highly technical. Choices of designs and technologies need to be adapted to suit local circumstances, and the needs of the disabled person and their family. In rural areas, bamboo is often available for free or no cost, and can provide simple but effective adaptations (e.g. Figure 6). In low-income urban areas, different problems arise, so different solutions may be required, especially where other members of the community use the same facilities (e.g. Figure 7).

Whatever the circumstances, the concerns of users need to be taken into consideration, as individual disabled people may give greater priority to comfort, or improved quality of life than to self-reliance, for example. Carers should also be consulted, as they may have a different perspective of the impact of a proposed intervention (Mulholland et al., 1998). A meaningful involvement in
the decision-making is likely to result in more appropriate design, greater user satisfaction, and hence improved and more sustainable outcomes.

3.6 Gender

One sad but predictable finding from the review and e-conference, is the double or even triple discrimination that disabled women can face — being not only poor and female, but disabled as well, makes them often the weakest and most vulnerable members of any society. Disabled women suffer from social stigma, neglect, isolation and abuse (Seeley, 2001). It is estimated by the UN that less than 5% of disabled women worldwide are literate (Lindquist, quoted in Singleton et al, 2001), and many DPOs were found to be dominated by disabled men, whilst disabled women and children had little or no voice. Their specific needs are very often marginalized or even completely overlooked in such circumstances, and particular effort should be made to include women, particularly disabled women, in any consultative process.

Figure 6. Bamboo support poles in a rural latrine in Gobindapur (CRP community project)

Figure 7. Child with a weak leg holds a rope for support in a communal latrine in a Dhaka slum (CSID project)
4. Implications for water and sanitation providers

It is clear from the review findings that there is much that can be done to assist water and sanitation service providers in their key role of reducing barriers to disabled people’s participation in daily activities, and thereby relieving their poverty and isolation.

Emphasis has been placed here on ‘hard’, structural solutions, given that an engineer’s primary role is the planning and provision of structures and services. This is not to diminish the significance of social and institutional factors already highlighted, but there may be other personnel better placed to address these issues. For example, engineers may be working as part of a multi-disciplinary team, which may include community/religious leaders, health and education personnel, who often already play an important role in community education and mobilisation.

a) Accessibility should be considered in infrastructure projects from the outset.

Where this has happened, the cost implications have been found to be far lower than ‘adding on’ special disabled access features as an afterthought. Even ‘add-ons’ may not be a feasible option where dimensional constraints already restrict access.

b) Accessible facilities and individual assistive devices both contribute to improving access.

Traditional assistive devices such as wheelchairs, crutches, etc. play an important role for disabled people, but they are only one part of the jigsaw. Acquiring a wheelchair may be fruitless if steps make it impossible to get out of the house in it, or the door to the latrine is too narrow.

c) Consultation with disabled service users.

Ramps are not always the answer. One approach does not suit everyone – the access needs of a wheelchair user will be different from someone who crawls, or of a frail elderly person. Planners and service providers therefore need to consult and include disabled people at all stages in a project cycle, right from the initial stages of situation/needs analysis.
5. Conclusions

Whilst still in the stages of information gathering, this study has already drawn attention to a range of previously neglected issues concerning the access of disabled people to water and sanitation facilities.

Ultimately, this project will provide materials to enable policy to be put into practice on the ground, by presenting the relatively simple changes for improved access that we can all consider making in project designs.

By mainstreaming disability considerations, we can make a huge contribution to reducing poverty, and improving the health, dignity and well-being of a marginalized but ever more vocal social group.

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