



The Case for Investment in Accessible and Inclusive WASH

SUMMARY

Globally, more than a billion people, including up to 10 per cent of all children, are estimated to have a disability. More than 110 million persons with disabilities may be at risk of having poor access to water, sanitation and hygiene (WASH) facilities. Access to WASH provides direct benefits to health, social inclusion and dignity, and is fundamental to achieve human rights and development goals.

Using current evidence and testimony from more than 60 WASH experts and actors, including people with disabilities through disabled persons organizations (DPOs) in 30 countries, this technical paper highlights evidence from current practice and published literature, to argue that accessible and inclusive WASH is achievable at low cost, by using universal design, community-driven change, and existing knowledge, expertise and methods. The benefits of accessible and inclusive WASH can be enjoyed by everyone in the community. Prioritizing accessible and inclusive WASH can be a key strategy to address persistent barriers to improved WASH coverage, and is essential for all WASH stakeholders.

This paper reveals promising starting points to understand the impact of and case for accessible and inclusive WASH. It calls for new emphasis on understanding and measuring impacts, to address the current evidence gaps and to advocate for change towards *accessible and inclusive WASH for all*.

Introduction

More than 1 billion people are estimated to have a disability. This includes up to 10 per cent¹ of children worldwide. Children in low- and middle-income countries are more likely to have disabilities than children in higher-income countries.^{2,3} Disability is both a cause and consequence of poverty. Persons with disabilities experience inequities in accessing water, sanitation and hygiene (WASH) services, including drinking water, safe and clean sanitation facilities and good information and facilities for hygiene. Access to WASH is both an important goal and a critical mediator of other human rights and development outcomes.

- In many low-income countries, children with disabilities are up to 10 times less likely to attend school and more likely to experience illness,⁴ further compounding economic distress and poverty.
- Women and girls with disabilities are more likely to experience barriers^{5,6} and violence⁷ in low-income countries.
- The onset of menstruation can cause girls with disability to leave school early if they face barriers to dignified menstrual hygiene management.⁶
- Overall coverage of WASH services has improved rapidly, but those gains have not been enjoyed equitably by everyone.

The right to accessible and inclusive WASH

Clean drinking water and sanitation are recognized as a human right, and fundamental to the attainment of other rights⁸ by the United Nations General Assembly.

- For persons with disabilities, the right to water and sanitation is reinforced in the United Nations Convention on the Rights of Persons with Disabilities (CRPD),⁹ which 174 countries have ratified since 2008.

However, more than 10 years after the CRPD entered into force, persons with disabilities still experience profound inequities, discrimination and exclusion.

Equal access to services, facilities and information is recognized under Article 9 of the CRPD, and Article 28 specifically addresses clean water services. Similarly, Article 24 of the United Nations Convention on the Rights of the Child upholds the rights to clean and safe water, and information about sanitation through *reasonable accommodation*, which means making modifications that enable equitable access.

Accessible WASH is also essential to the realization of many other rights. For children, accessible WASH can help children access and stay in school,¹⁰ stay safe in their homes and community, and participate equitably in recreational and social activities.

Persons with disabilities are among the most marginalized and vulnerable people in any community, and are often overlooked in development. However, there are many good examples of disability inclusive practices in WASH. Recent actions of UNICEF and other WASH stakeholders have shown how accessible and inclusive WASH services transform the lives of persons with disabilities and other members of the community. Examples have been captured in the 2015 UNICEF report *Good Practices in the*

Provision of Accessible and Inclusive WASH Services UNICEF Country Offices and summarized in the accompanying *Inclusive and Accessible WASH in UNICEF: Good practice by country*.

Disability and ill health are directly linked to poor access to WASH.

- In 2012, at least 780 million total deaths were attributable to diarrhoeal disease arising from inadequate access to safe drinking water and sanitation. This includes at least 360,000 children under 5 years of age.¹¹

These are staggering statistics, highlighting the fundamental importance of WASH in development. Recent evidence shows reduced communicable disease in children worldwide,¹² which is attributable – at least in part – to better WASH access. Unfortunately, there are no comparable data for children with disabilities.

Ensuring health gains are enjoyed by all children means including children with disabilities in WASH interventions. Methods for meaningful and fair inclusion of children with disabilities in WASH already exist, but there are sometimes barriers to implementing them. Clear guidance is needed on which strategies are most effective in different contexts, and how to change attitudes about the costs and challenges of ensuring WASH for all.

- A scoping review and consultations revealed that current data on inclusion in WASH emphasize what has been done, and how it has influenced inclusion.
- There is less evidence about the impact or the costs of interventions.

Accordingly, the purpose of this technical paper is to outline potential strategic starting points to raise awareness of the need and potential impacts of greater investment in inclusive WASH programmes. There are also clear recommendations for how the sector can address

gaps in data and inform future cost-effectiveness analyses.

Recognizing the current limitations in evidence, this paper draws from current WASH literature, new and emerging policies and guidelines that strengthen the agenda for better inclusion in WASH, and consultations with WASH stakeholders to provide real-world examples of inclusive WASH in action.

Outline

This paper is divided into three main sections.

Part 1. Why invest in accessible and inclusive WASH? – page 4

Part 1 positions WASH as a central intervention in ensuring that fundamental human rights are realized, and outlines persistent inequities for children (and adults) with disabilities.

Using existing literature and knowledge from consultations with WASH stakeholders, part 1:

- Outlines reasons for investing in inclusive and accessible WASH, highlighting potential or actual direct and indirect benefits to individuals and communities.
- Explores the current situation, analysing existing literature and findings from global consultations, emphasizing both good practice and barriers.
- Presents current good practices in inclusive WASH, which demonstrate effective and practical implementation solutions.

Part 1 frames the case for investment in inclusive WASH as one of the most strategic areas for investment within WASH interventions because it addresses some of the most persistent inequities with long-term, high-cost implications.

Part 2. The case for investing in disability inclusive WASH – page 14

Part 2 presents the case for accessible and inclusive WASH. Drawing from evidence and good practices, it emphasizes known or potential economic, social or other benefits, noting where there are current limitations in data and evidence. The case is presented as a model that can be adapted to a range of WASH strategies and working contexts.

Part 3. A call to action – page 20

Part 3 is a *call to action* concerning continued strengthening of accessible and inclusive WASH, addressing the current evidence gaps, and on using current good practice and evidence examples to advocate for renewed emphasis on persons with disabilities in WASH programming. It includes brief recommendations on:

- next steps on strengthening disability inclusion in WASH
- next steps for building the evidence base for effectiveness and impact of accessible and inclusive WASH.

Accompanying summary document

This document is accompanied by a summary of the case for investment in accessible and inclusive WASH. The summary is intended to be a practical reference, useful for quickly highlighting and sharing some of the most important reasons for including persons with disabilities in WASH services.

The summary will be useful for:

- advocacy
- communicating with audiences without disability and WASH expertise
- as a quick reference guide
- sharing directly with colleagues and partners when advocating for investment in inclusive and accessible WASH.

Part 1. Why invest in accessible and inclusive WASH?

Water, sanitation and hygiene (WASH) interventions are critical development measures. WASH dividends include social and economic gains,¹³ improved health, disease prevention^{14, 15} and child development.¹⁶

- The monetary cost of a lack of access to WASH is estimated to be rising and to have cost the global economy in excess of US\$229.9 billion in 2015.¹⁷
- Estimated returns on investing in WASH vary, with some suggesting gains of US\$5¹⁸ and US\$9¹⁹ in increased productivity for every dollar invested in WASH.
- Despite global gains in access to WASH, as many as 11 per cent of the global population still lack access to improved* sanitation facilities.²⁰

If 11 per cent of the estimated 1 billion persons with disability worldwide do not have access to improved WASH, it means more than 110 million persons with disabilities are affected.

The 2030 Agenda commitment to *leave no one behind* has sharpened focus on the need to better understand who is missing out on development and why. Sustainable Development (SDG) Goal 6 is “Ensure availability and sustainable management of water and sanitation for all.” Targets specifically call for paying attention to the needs of people who are vulnerable, and to ensure that progress benefits *all*, but estimates of unmet needs for persons with disabilities are currently limited.

* Limited, basic or safely managed.

Drawing from recent estimates of the global disability prevalence and overall unmet needs for WASH, we can assume that more than 110 million persons with disabilities are not able to access improved WASH services. This is likely to be an underestimate. Persons with disabilities are known to have more difficulty accessing WASH services, and poorer countries have both restricted WASH access and greater disability prevalence.

Despite new emphasis on understanding and achieving inclusion in WASH, there are limitations in current evidence and programme data. Few countries have sufficient disaggregation in WASH-related datasets²⁰ to understand inequities and barriers to accessing WASH actions at a national or sub-national level.

While estimates of overall coverage and progress in WASH targets for persons with disabilities are currently unclear, we can draw important inferences from knowledge of the economic and social situation of persons with disabilities and overall trends in access to WASH. Household poverty, living in low-income countries, remote and rural settings, and having less education are all associated both with greater disability prevalence and less access to WASH. As such, persons with disabilities experience compounded and multiple risk.

Current evidence

This case for accessible and inclusive WASH presented here was informed by both:

- a review of literature relating to disability inclusion in WASH, emphasizing potential direct and indirect economic benefits, and
- based on the review, a supporting online survey and follow-up consultation with a sample of key stakeholders.[†]

[†] Details of the search methods used in the review and the accompanying survey are provided in Annex 1.

The review revealed that while there are promising areas of research into the relationships between disability and access to WASH services, they tend to be limited to one or two WASH intervention types, specific geographical contexts (countries or urban/rural differences) or operating contexts (like schools, hospitals, communities). There is even less evidence about the impact on the lives of persons with disabilities. This gap in evidence limits clear policy recommendations to suit a range of diverse operating conditions and stakeholders. In summary:

- There is compelling evidence that persons with disabilities are excluded from WASH. Common causes of such exclusion are described in the literature.
- There is good evidence that WASH can be made more accessible and inclusive using simple measures.
- There is limited literature relating to the *impact* or *outcomes* of disability inclusion in WASH, including potential direct or indirect economic benefit.
- To address this gap, direct consultations with global WASH stakeholders revealed an emerging practice of inclusive WASH and increased awareness and efforts to ensure that WASH reaches all.

Addressing the evidence gap in inclusive WASH requires understanding the design of different intervention strategies, how they can be deployed to reach persons with disabilities, as well as learning about potential impacts on both individuals and populations.

Impacts of WASH for persons with disabilities may be direct or indirect:

- Through accessible latrines or ensuring that women and girls with disabilities have access to menstrual hygiene products, direct impacts may include a decrease in open defecation or improved

menstrual hygiene management, and better coverage of WASH overall.

- By strengthening disability inclusion in WASH, indirect impacts may be reflected in progressive gains in population health, improved retention in school or better livelihood opportunities.

The starting point for arguing for accessible and inclusive WASH is understanding what works, how practice can be improved, and how doing so aligns with human rights principles and supports inclusive development practice.

Reasons for investing in inclusive WASH

WASH disrupts the poverty-disability cycle

Access to WASH may break the link between poverty, ill health, social exclusion and disability. The following examples illustrate potential points of entry where access to WASH could contribute to increased social inclusion and access to other essential services:

- In Namibia, difficulties in using toilet facilities were among the main challenges in accessing healthcare for persons with disabilities.²¹
- Similarly, poor access to WASH services in general is a major barrier to health services for persons with disabilities.^{4, 22}
- Having a disability can prevent children from accessing or completing school.^{4, 22, 23}

What happens when people are excluded from WASH?

Accessible WASH facilitates social inclusion and participation. Conversely, social exclusion and poverty can result from poor access to safe drinking water, inadequate sanitation facilities and high-risk hygiene practices, due to:

- more frequent and serious disease,²⁴⁻²⁷
- poorer participation in education,^{4, 22, 23} and
- reduced opportunities for livelihoods.²⁸

The link between inadequate or inappropriate WASH to ill health can be direct or indirect. Poor access to WASH is linked to multiple health conditions through a range of risk exposure mechanisms, many linked to poverty.²⁹ Health implications of poor access to WASH may occur through exposure to pathogens, or occur over a long time through exposure to water toxicities. Poor health and disease can be disabling, or may lead to short- or long-term impairments, and further exclude persons with disabilities from WASH and other services.

Some WASH interventions need to reach everyone (100 per cent coverage in a particular context) to be effective. For example, if open defecation is not eliminated for everyone in a household or community, even people who can access improved sanitation facilities are at risk.

As poor access to WASH can be a barrier to accessing education, livelihoods and social inclusion, limited access also has indirect consequences for the health of persons with disabilities. Poor health affects health-related costs, and can reduce income through lost work.

WASH is a human right, and a facilitator of access to other rights and development goals

- WASH is both an end in itself, and a driver of SDG progress.²⁰

Article 9 of the CRPD addresses *accessibility* and the importance of independence and full participation in all aspects of life. Accessibility on an equal basis with others includes to the physical environment, information and facilities and services in both rural and urban areas. The importance of ensuring development programmes are accessible and inclusive of persons with disabilities is covered by Article 32 on *international cooperation*. Article 25 provides further considerations relevant to WASH in the context of public *health* programmes.

More specifically, Article 28 concerns *adequate standard of living and social protection* and commits:

“To ensure equal access by persons with disabilities to clean water services, and to ensure access to appropriate and affordable services, devices and other assistance for disability-related needs.”

Art. 28. Para 2.a

Human rights principles are strongly reflected in the 2030 Agenda, and the SDG targets direct efforts to translating rights-based commitments into action across sectors and throughout the life cycle. Goal 6 of the SDGs aims to achieve universal and equitable access to safe and affordable drinking water. The WHO/UNICEF Joint Monitoring Programme (JMP) proposes that Goal 6 implies the “reduction and elimination of inequalities between population subgroups.”^{20, 30}

The rights of children to access clean and safe water and information about sanitation is described in Article 24 of the Convention on the Rights of the Child. For children, accessible WASH can help children access and stay in school,¹⁰ stay safe in their homes and community, and participate equitably in recreational and social activities.

UNICEF has issued an Executive Directive, *Accessibility in UNICEF’s Programme-Related Construction*, which requires accessibility and universal design to be applied in all new programme-construction activities, including WASH, in which UNICEF is involved. The directive states that:

“Accessibility helps children and adults with disabilities to enjoy their rights as outlined in Human Rights instruments and development frameworks. Accessibility is a precondition for children and adults to live independently and participate fully and equally in society.”³¹

Disability inclusion addresses persistent barriers to improving WASH coverage

The number of persons with disabilities is increasing both in absolute terms and as a

proportion of total populations.² This adds an urgency to implementing strategies to ensure that persons with disabilities can access WASH.

Consultations revealed that:

- across multiple countries, there are strong examples of effective measures for inclusion of persons with disabilities and other potentially marginalized people.
- Inclusion is viewed in terms of both the number of people accessing WASH and the quality of that access.

Access for persons with disabilities is a way of targeting persistent barriers to coverage. It creates both direct positive impact and can create long-term benefits associated with better WASH coverage.

Inclusion strategies have many indirect but tangible benefits, including new collaborations and greater willingness of communities to consider the needs of persons with disabilities in their WASH activities, and can help persons with disabilities know more about their own rights.

Access to WASH increases social participation

Improving access and inclusion in WASH has powerful social impacts. There are many ways that WASH can directly and indirectly lead to social changes for individuals and communities. Drawing from consultations with global WASH stakeholders and review of operational documentation, the following section provides examples of such benefits.

“I find the new toilet very comfortable as it has a raised seat so that I don’t have to bend my legs, which is very difficult to do. It also has a rail to support me to get up for dressing. In the past, I sometimes went to the hospital just to use the toilet. Now that time has passed and a better day has come.” – WaterAid project beneficiary³²

For children, targeting sanitation and hygiene in schools may be an effective means of encouraging retention at school. Evidence suggests that:

- Difficulty accessing safe and clean toilets causes children to leave school^{3,17} and that, conversely, providing inclusive WASH facilities can contribute to reducing dropout rates and increasing retention. Efforts to ensure comfort and well-being have added positive impact for children with disabilities who may be subject to daily stigma.

Wide-ranging social impacts of improved WASH are reported that relate to disability and removing barriers to participation in social life.

- Improved access to toilets and hygiene facilities, such as handwashing, facilitate increased independence and reduced need for support from family members, improved health status, reduced sense of shame and enhanced self-worth and dignity.
- There is a lack of research about the social impacts of inclusion in WASH. However, we can infer from studies of exclusion^{4, 33-35} that improving inclusion in WASH has positive and diverse social benefits.

WASH is a key disease-prevention strategy

Disease prevention is a core focus of WASH interventions^{16, 36, 37} and is known to be highly effective.^{14, 15, 38-40} However, reporting on disability inclusive WASH tends to focus on equity of access and social outcomes rather than on disease prevention.

- Persons with disabilities experience both greater risk of ill health and more severe consequences of ill health.^{37, 41}

As such, the disease-prevention benefits of access to WASH for persons with disabilities is an important and under-examined area.

Added value: Other benefits of inclusive WASH

Inclusive WASH strategies can provide opportunities to exchange information about other services and rights for persons with disabilities. These include:

- livelihood activities,
- healthcare,
- supporting children of adults with disabilities, who are often called on to take on additional family responsibilities,⁴²
- leading to better peer interaction through links between persons with disabilities and disabled persons organizations (DPOs),
- leading to broader networks and strengthened social capital that, in turn, contributes to resilience.⁴³

The 2030 Agenda commitments call for good cross-sectoral collaboration. The full benefits of inclusive WASH are not realized unless combined with other activities. Conversely, benefits of other interventions are constrained without consideration of WASH and the inclusion of persons with disabilities.

For example, inclusive WASH in schools should be linked with inclusive education practice, and inclusive education should include consideration

of WASH. Both disability inclusion and WASH are best considered as cross-cutting concerns across varied stakeholder groups.

- Recognizing that education is a fundamental right and the most powerful tool for economic participation and poverty alleviation, and that poor access to WASH in schools is a common barrier to education for children with disabilities, UNICEF works on strengthening access and inclusion in WASH services in many contexts, emphasizing schools.
- Recognizing that poor access to WASH can prevent people from accessing healthcare, WaterAID works to ensure health facilities have accessible WASH infrastructure.

Disability and WASH – A snapshot of the current global scenario

Exclusion in WASH action

“During my periods, it is very difficult to go out. I have to change sanitary napkins. And because toilets are not disability friendly, I get a lot of problems. And because of this I have to stay at home for four or five days during my period.”
– Woman with a disability, Nepal⁴⁴

Despite recent policy imperatives, and growing capabilities and evidence for effective inclusion strategies, the needs of persons with disabilities are not yet equitably addressed in the actions of government, non-government or United Nations agencies. This has resulted in persons with disabilities:

- being excluded from human development processes, and poorer access to education, health and decent work,^{4, 42}
- experiencing poorer health outcomes, increased economic burden on households,¹¹

- encountering disproportionate burden of disease within populations, and
- having limited opportunities due to inequitable economic participation.^{28, 45}

Until recently, evidence of exclusion of persons with disabilities was scarce in monitoring and evaluation data, since disability questions in monitoring tools were poor or absent.

However, there is strong evidence that persons with disabilities do not access services, including WASH, on an equal basis with persons without disabilities. For many people, access to WASH is a direct, daily challenge,⁶ and poor access to WASH is in turn a barrier to accessing other services. Inadequate access to WASH can be thought of as a type of structural violence or “social structures that contribute to poverty.”⁴⁶ The following examples from Africa are illustrative:

- A snapshot of inclusive sanitation practices reported that children in Mozambique miss out on appropriate education due to a lack of accessible sanitation facilities.⁴²
- Without adequate menstrual hygiene management (MHM), girls in Malawi are more likely to miss time at school or leave school early.⁶
- While 97 per cent of Malawian children attend primary school, access for children with disabilities is relatively low, which is attributable mostly to poor physical accessibility of schools,⁴⁷ including to WASH facilities.
- In rural Namibia, persons with disabilities report that as well as distance to the healthcare facility, costs and lack of transport, poor access to toilets is a barrier to accessing healthcare.²¹
- In Zimbabwe, access to water can involve walking 20 km a day, or relying on salty water. Challenges are compounded for families with children with disabilities,⁴⁶ mostly due to additional care requirements.

- Long walks to collect water can compromise the skin of people with leprosy or lymphatic filariasis (LF), adding to risks of infection.³⁷

Alongside individual household poverty, it is also important to consider poverty levels in the wider community. Studies show that levels of access to WASH are almost certainly context-dependent: For example:

- In Cambodia, poverty compounds challenges in accessing services including WASH for people who experience psychosocial disability, and persons with disabilities are less likely to have access to financial means for improving household WASH facilities.²⁷
- In the Philippines²³ and Bangladesh,⁴⁸ persons with and without disabilities reported similar levels of unmet needs for safe drinking water, but unmet needs were strongly associated with household poverty.

Higher disposable income might be protective, allowing more choice and adaptations in accessing WASH services. Conversely, poverty can increase the risk of exclusion from WASH.

Persons with disabilities may have fewer options to address unmet needs for WASH, and poor access to WASH might have greater consequences than for persons without disabilities.

Finally, it is important to carefully understand access and inclusion in different aspects of WASH. For example, there may be different levels of access and unmet need for drinking water compared with sanitation and hygiene practices, where there is strong evidence of exclusion.^{4, 6, 27}

UNICEF's good practice in disability inclusive WASH study

UNICEF has reviewed good practices of accessible and inclusive WASH from UNICEF country offices in its 2015 publication *Good Practices in the*

Provision of Accessible and Inclusive WASH Services UNICEF Country Offices. The recommended good practices include promoting a rights-based approach, the central role of representative organizations of persons with disabilities (such as DPOs) and the need for disability data. The study notes the importance of three related priority areas:⁴⁹

- Work to ensure ‘enabling environments’, including upstream policy, standards, reducing stigma and providing accessible information.
- Use community-based and participatory consultative processes with children with disabilities and DPOs.
- Consider disability and inclusion in a comprehensive manner by addressing physical, institutional and attitudinal barriers in concert.

Good practices are outlined in an accompanying matrix by country and the above three domains.⁵⁰ These good practices highlight that low-cost participatory interventions are used in practice, and support UNICEF’s overall *Strategy for Water, Sanitation and Hygiene, 2016–2030*.⁵¹

However, good practices are often isolated examples and are not seen as routine or common. They may also not be part of *mainstream* action, but included in programmes with a specific disability inclusion dimension.

Good practice: What we learned from stakeholder consultations

Evidence from our consultations highlights several illustrative examples of good practice that might have direct or indirect economic benefits or reduce the cost of ensuring that WASH is accessible and inclusive:

- Many stakeholders in multiple countries report successful introduction of ‘minimum standards’ of practice for WASH interventions, which have been accepted and introduced at either

national level or by specific stakeholder groups. Both disability-specific and overall WASH practice standards with a disability inclusion component are used. While the uptake of standards and the impact on persons with disabilities is less clear, drawing from existing ‘normative frameworks’ has been a successful way of ensuring that disability inclusion is on the WASH agenda.

- Standards and frameworks for practice have been introduced for overall WASH programmes, and in specific operating contexts including schools, healthcare facilities, small-town infrastructure (like public waterpoints, sanitary blocks), and in emergency/humanitarian settings.
- Short-term impacts of the growing emphasis on disability inclusion in policy include reports of more frequent and more effective ‘mainstreaming’ of disability in WASH action.
- Long-term impacts are harder to determine, but a strengthened regulatory and governance environment ensuring minimum standards of disability inclusion in WASH services is itself an important impact, and is likely to lead to long-term changes beyond projects or specific interventions.

Community-based and participatory consultative processes are a regular feature of inclusive WASH programming, with promising results. These approaches lever existing resources and adapt existing technologies in appropriate ways – reducing costs, increasing community ownership and achieving practical results. This can be as simple as adding accessibility features to existing latrines, or using behaviour change methodologies to understand barriers and agree on effective solutions directly at local level.

A practical, strategic and cost-saving feature of many WASH programmes is working together with local stakeholders to provide appropriate solutions at local level. This includes working with

artisans to make simple adjustments to typical designs to meet basic accessibility standards at low cost. But the benefits are not only economic; with additional skills and knowledge, artisans might be able to replicate new designs elsewhere.

- When health volunteers were trained to help build awareness of the need for consideration of disability in WASH practices, and participate in community dialogues in Ethiopia, it led to the community voluntarily constructing new accessible latrines.

“[By including persons with disabilities] Interaction between persons with and without disabilities increased. The community members voluntarily constructed accessible latrines for [persons with disabilities]. Care and support of the community went beyond [our expectations]” – Informant, Ethiopia

Linked with low-cost behavior change methodologies, these community-driven solutions have multiple benefits, both direct and indirect.

- In Mozambique, persons with disabilities and artisans talk to each other to understand different technological options that can be produced locally, to think about and decide on solutions to accommodate their specific disabilities at home. To ensure benefits are realized in institutional sanitation, Sanitation Groups including Government, Civil Society and persons with disabilities develop locally appropriate, targeted solutions.

These measures can be implemented at low cost, through good community engagement, to address the profound unmet needs still evidenced by global WASH monitoring and disability-specific literature. Rather than being

new interventions, they are ‘mainstreamed’ into existing WASH practice.

“We don’t start from ground zero, but from revision of existing designs and adding features for children with disability” – UNICEF Vietnam

Working together with persons with disabilities and the local community can help target resource allocation. Persons with disabilities themselves, along with their families and communities, are best able to describe what will meet their needs. Day-to-day strategies to overcome barriers can be improved, shared, and incorporated into new designs.

While universal access is the target, incremental gains can be achieved in the short term through selective investments, listening to persons with disabilities about their priorities.

Working alongside persons with disabilities will reveal the resourcefulness and practical measures taken, and is the best place to start listening and learning about what works.

- In Jordan, people who are most at risk of exclusion, such as those who live farthest from waterpoints or who cannot carry water, are prioritized for upgrading household WASH facilities to minimum standards.

Targeting children and adults with disabilities as a priority group

Accessible and inclusive WASH is more than a necessary next step in WASH programming. *Access for all* is a strategic starting point for WASH actions.

While targeting marginalized or hard-to reach groups has always been an important part of WASH action, the SDG targets have raised the profile of current barriers to inclusion and the need to ensure inequities are addressed in development.

- If the needs of persons with disabilities – some 15 per cent of the population overall and up to 10 per cent¹ of children – are not a core component of development action and systematically addressed, WASH coverage targets including those under the SDGs and others will not be realized.

Specific WASH needs for women

Women and men have different WASH requirements. In particular, menstruation and pregnancy need specific WASH programming to ensure that the needs of women are met. Accessible and inclusive WASH is required to advance gender equality targets, as well as disability inclusion.

- Persons with disabilities, and especially women with disabilities, experience more serious and frequent violence compared with persons without disabilities, including when accessing WASH.⁵²

New measures for understanding disability inclusion

In development practice, disaggregating monitoring data to understand disability has been challenging because of different definitions of disability and challenges in interpreting complex datasets. New methods have the potential to strengthen the evidence base for inclusive and accessible WASH practices.

- Tools such as the Washington Group Questions[‡] and the Module on Child Functioning[§] are now used regularly to disaggregate monitoring data or in programme evaluation, but also in high-level monitoring of WASH progress.

[‡] The Washington Group Module are a set of questions, tools and guides to help different stakeholders understand disability in different populations. They have been developed for adults through very wide consultation and validation processes, and are increasingly used in national

Quantitative data are often accompanied with qualitative data and testimony. Case studies, testimony and user stories are used to learn more about impacts on people’s lives. Some examples include systematic approaches to talk to people about the barriers they face and how their access and inclusion could be improved, and using tools to highlight limited compliance with standards.

Using different types of data and information from multiple projects and programmes can be complex. Disability disaggregation is not always prominent in standard WASH measures, so evidence of combined impact of different WASH actions is scarce. A lack of disaggregation by disability within mainstream WASH projects, and the use of a range of reporting methods for disability-specific projects, makes estimating the total number of global beneficiaries difficult.

Greater emphasis of marginalized populations in Joint Monitoring efforts, aligned with Sustainable Development Goal targets, is an opportunity to develop new and more accurate estimates of the impact of disability inclusion on coverage targets.

The UNICEF/Washington Group Module on Child Functioning can be used in surveys like Multiple Indicator Cluster Surveys (MICS) to disaggregate WASH data by disability and understand the differences between girls and boys with disabilities access to WASH compared to children without disabilities.

Accessible and inclusive WASH to achieve human rights and development targets

In recent years, the case for inclusive WASH has been based largely on human rights principles. While there has been an increase in inclusive practice, there is modest evidence of the

Census studies. See www.washingtongroup-disability.com.

[§] The UNICEF/Washington Group Module on Child Functioning is a set of questions to identify children aged 2–17 years with functional difficulties. See www.washingtongroup-disability.com/washington-group-question-sets/child-disability.

aggregate impact of inclusive WASH investments. However, there is compelling evidence for potential economic returns of WASH overall. *Leaving no one behind* is now a major emphasis in development policies and frameworks, and reforms are mandated through development commitments and conventions.

The time has never been better to strengthen the focus on disability inclusion.

High-level frameworks such as the SDGs and specific WASH targets have influenced national policies and strategic targets. Combined with the moral and rights imperatives for accessible and inclusive WASH, emerging policy will require prioritization and implementation of effective strategies for disability inclusion in WASH services.

Inclusive WASH facilitates access to other human rights and social participation

Alongside ensuring rights are fulfilled, strengthening access to WASH improves access to education opportunities and decent work. Exclusion from WASH increases insecurity and disease and places a burden on both households and public services, including health systems.

The benefits to accessing WASH for general populations are well understood, and there is strong evidence that at-risk groups are excluded. WASH and disability inclusion literature shows potential positive or actual returns on investing in inclusion. Not only are the socio-economic returns to investing in inclusion favorable, the economic costs of inaction are high. Inclusive economies draw on and benefit from all available resources through increased productivity, output, household income and tax revenue.

Inclusive economies benefit everyone; inclusive WASH has an important role in ensuring that all can contribute, whether by ensuring young people complete school or by ensuring a healthy work force. Inclusive WASH, therefore, has the potential to pay direct and indirect dividends to individuals, communities and duty-bearers alike.

Disability inclusive WASH can be achieved at low cost, and inclusion strategies benefit everyone.

- The direct economic cost of disability inclusion in infrastructure improvement is a modest proportion of the total investment.⁵³

Recognizing that access to WASH services is a human right, the cost of inclusion should be considered from an efficiency perspective: how can we uphold and demonstrate fundamental rights in the most cost-effective ways? Importantly, however, evidence shows the direct economic cost of disability inclusion in infrastructure improvement is a modest proportion of the total investment.⁵³

- Taking school latrines as an example, WEDC estimated the additional cost of inclusion as between 1 per cent and 3 per cent of the total.⁵⁴ Savings are far higher when the potential costs of exclusion, and downstream benefits to inclusion, are taken into consideration.

Inclusion standards and good practice can be implemented at low cost with modest adaptations to existing features. Further, targeting persons with disabilities is a logical starting point to address persistent challenges in WASH coverage, and benefits to targeted persons can be enjoyed by all members of the household throughout their life course.

WASH programming benefits from methods and frameworks already in place to facilitate inclusion. Good practice principles of enabling environments, participatory consultative processes and ensuring accessibility across all WASH implementation approaches already form the basis of UNICEF and other stakeholder actions through Good Practice Guidelines.⁵⁰ Ensuring inclusion in WASH services requires adaptation and improvement of existing practices and procedures, and is simply an integral part of ongoing institutional change and programme development.

Part 2 – The case for investing in disability inclusive WASH

A model of investment benefits for inclusion in WASH

The lack of available data and literature on disability inclusion in WASH is a concern, and more research and analysis is needed. Incorporating simple disability disaggregation and outcome measures in WASH programme monitoring would help address the lack of evidence through providing real-world data. However, potential high-impact benefits of disability inclusive WASH can be inferred from the evidence in WASH services and disability, respectively.

To help with conceptualizing and considering the benefits of inclusive WASH, a simplified model is a useful starting point upon which to build evidence and good practice examples. A model is presented in Figure 1, with explanatory notes and illustrative examples from the field for key components. The model sets out contributing factors to achieving inclusive WASH and potential impacts.



In South Sudan, sisters (left-right) Eva Philip, 10, who has a disability, and Catherine Philip, 8, make their way home with jerrycans filled with water they collected at the Nile River, in Juba. They trek two hours every day to get drinking water.

© UNICEF/UN0160925/Meyer

Up to 110 million people with disabilities have poor access to WASH facilities⁵

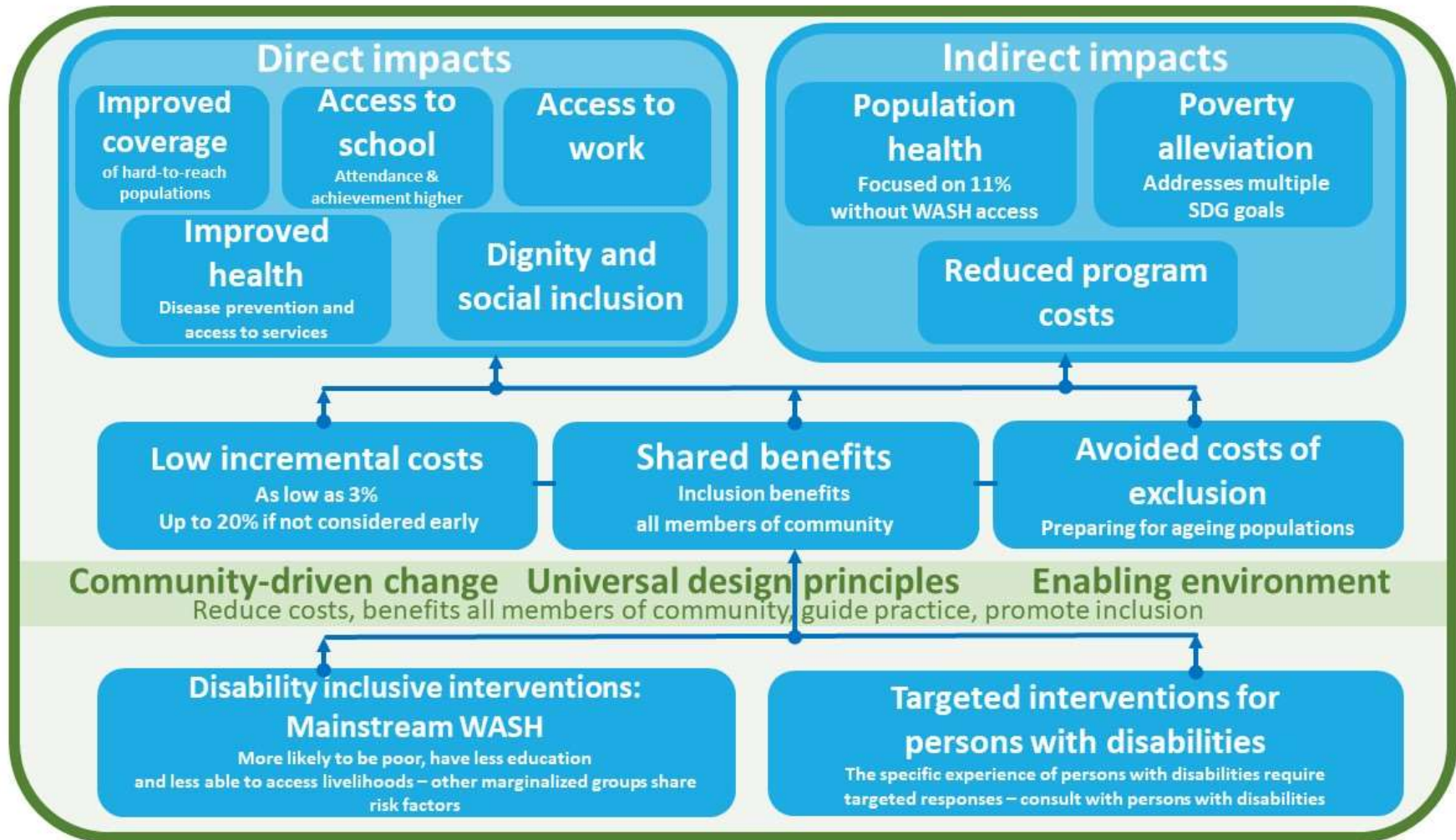


Figure 1 - Multiple pathways to impact: towards an investment case for disability inclusive and accessible WASH

⁵ Based on estimates of 11% unmet WASH needs and 15% disability prevalence.

Addressing multiple inequities through inclusive WASH

“... most households have limited financial resources to meet basic needs. The problem is more pronounced in people with disabilities due to social exclusion and mobility conditions.” – WASH technical adviser, Mozambique

Strengthening access to WASH is a powerful measure to address barriers for accessing other services, like health, education, economic participation, livelihoods and other community participation.

Risk factors for unmet needs for WASH and the consequences of disability are closely linked. Persons with disabilities are more likely to be poor, live in rural settings and have poorer access to social services. These factors closely intersect with known barriers for WASH coverage.

People are excluded from WASH services for a variety of reasons. Some of the risk factors for exclusion are shared between the general population, persons with disabilities and other vulnerable people. Tackling disability inclusion through improving the enabling environment and through comprehensive accessibility methods is likely to benefit many other people.

- Targeting barriers experienced by persons with disabilities can help tackle persistent challenges in improving overall WASH coverage in communities.

While disability considerations should be considered in all mainstream WASH interventions, disability-specific interventions are also necessary.

- A ‘twin-track’ approach – considering mainstream and specific interventions – is core to inclusive development strategies.

Specific strategies are varied and are highly dependent on individuals, but include specific learning support to children with disabilities,

strengthening individual capabilities, addressing human rights and justice for persons with disabilities, locally appropriate rehabilitation and assistive technology options.

Community-driven interventions for real change

Community-based participatory methods are common in WASH interventions. These approaches can help reduce potential costs of achieving minimum standards of disability inclusion by emphasizing local solutions, adaptations and use of locally available resources. This approach also facilitates the establishment of new working partnerships and collaborations that increase both inclusion and potentially available resources. Strategies and approaches are in place that can be drawn on and that can limit costs and add benefits.

- Improving access to WASH for persons with disabilities can be achieved at low cost. This often begins through community engagement and partnerships. In Ethiopia, including persons with disabilities in WASH practices had unexpected positive consequences both on persons with disabilities and on other community members, often through changing attitudes and social norms:

“[... by including persons with disabilities in our work,] interaction between disabled people and other members of the society increased. The community members voluntarily constructed latrines to [persons with disabilities], and costs were shared by community members. Care and support of the community went beyond WASH, such as constructing houses, ploughing farms, etc.” – Disability officer, Ethiopia

Universal design to achieve equitable access with low incremental costs

It is often difficult to estimate the incremental or additional costs of ensuring that WASH facilities are accessible to persons with disabilities after the event. Extrapolating the costs of inclusion measures was not possible from the available data. However, some illustrative estimates are available:

- In Ethiopia, a project that included installation of toilets in both schools and public places estimated that around 15 per cent of the total cost of the toilets could be attributed to inclusion. The public toilet blocks and school toilets cost an average of US\$40,000 and between US\$25,000 and US\$30,000, respectively, so the incremental costs of inclusion can be estimated to be between US\$3,750 and US\$8,000.

The Ethiopia figures represent the higher end of improving WASH accessibility. Through maximizing local resources, costs may be brought down, as the following examples show:

- In Malawi, using local materials, almost all the specific recommendations for accessible WASH facilities to achieve the minimum WHO standards could be achieved for around US\$80 per facility.⁵⁵ About half of the estimated cost related to finding extra space; where space is available, the costs of meeting standards could be much less.
- Jones and colleagues⁵⁶ have previously estimated the incremental cost of improved accessibility for WASH facilities to be 3 per cent of the overall total construction cost, but as WASH methods have changed, updated information about incremental costs of WASH is needed.

Importantly, costs can be lowered, and returns increased, by ensuring that accessibility is

addressed from the start of the design process. Inclusion can also be built into planning and implementation by extending the principles of participatory approaches to all and to benefit from local resources, knowledge and solutions. Ensuring disability inclusion expertise is available to WASH actors, such as through sector coordination mechanisms (like ‘clusters’) in humanitarian crises, can strengthen inclusion across multiple implementers.

- Since the early stages of camp design, the WASH cluster in Azraq refugee camp in Jordan, coordinated by UNICEF, included a disability focal point represented by the NGO Handicap International. As a result, up to 10 per cent of the WASH facilities in the camp were accessible.⁵⁷
- Planning inclusion from the start allowed for bulk purchasing of materials, which reduced estimated costs for accessible toilets from US\$20 to US\$7.⁵⁸

Shared impacts: Benefiting persons with and without disability

In line with known benefits from disability inclusive development more generally, investing in inclusive WASH is likely to have benefits for the wider population. While high-quality evidence is scarce, social capital and maximizing available resources that individuals and households can draw upon is increasingly recognized as a core component of resilience. This is even more important for poor or isolated communities. Strengthening resilience through improved access to WASH can lead to direct and indirect impacts.

Direct impacts might include increasing independence of persons with disabilities, for example, whereas indirect benefits arise through reducing caregiver responsibilities and increasing time and capacity for work.

Additional shared benefits include improved service delivery for people who are ill, injured or elderly. When WASH services are accessible to all, they can be enjoyed by people through the

life cycle. This is particularly relevant given rapidly ageing populations in many countries and the global increase in non-communicable diseases. By designing WASH infrastructure, services or other actions that can be accessed by everyone from the start, benefits of WASH are

UNICEF Mozambique reports the account of Favorito and his father. Favorito is 5 years old and helps his father, Bernardo, who uses a wheelchair for mobility. By working with Ruberto to improve his toilet, he is now able to use it independently without Favorito's help, and Favorito will not have to worry about his father when he goes to school or plays with his friends. UNICEF Mozambique: *Sanitation for All*.

multiplied. Conversely, WASH services that are not designed for all will only bring sub-optimal returns and not realize the full potential impact of the investment.

Avoiding costs of exclusion

The benefits of inclusion in WASH also need to consider the potential costs of ongoing exclusion. The evidence is clear: persons with disabilities are still consistently unable to access WASH on an equal basis with others.

- Poor access to WASH can cause children (especially girls) to leave school early, which compounds difficulties accessing appropriate and timely healthcare.
- Education and health are well-understood determinants of economic and social participation, and access to appropriate WASH underpins both.
- Some families may encounter financial difficulties in improving WASH facilities at home and experience either poor health or economic hardship.

If persons with disabilities and other people in the community continue to be excluded from

WASH interventions, global targets for WASH coverage and other development targets that depend on good access to WASH will not be achieved.

Direct impact: Inclusive WASH as an end in itself

Despite recent gains, 11 per cent of people worldwide are not able to access improved sanitation facilities. While precise estimates of the proportion of persons with disability within those who have unmet WASH needs are currently not available, we know that persons with disabilities are among those most at risk of exclusion. Considering the needs of every person with disability requires consideration and planning. However, new guidelines, good practice experiences and strengthened capability in mainstream WASH actors including local service providers and artisans ensures that the scope to intervene at scale is improving.

- UNICEF's *Guidance Note on Disability Inclusive WASH Practices*⁵⁹ summarizes practical measures for UNICEF's own WASH actions. It describes strategies and entry points for including persons with disabilities throughout the programme cycle in WASH projects, programmes and policies. These recommendations could be adapted to other contexts and stakeholders, and the document contains updated reference to other technical guidance.
- Recognizing that accessible and inclusive WASH in humanitarian action requires specific interventions and methods, UNICEF has also developed a guidance note on *Including Children with Disabilities in Humanitarian Action-WASH*.⁶⁰

Importantly, the direct benefits of inclusive WASH accrue not only to individuals with disabilities, but also to family and household members. Inclusive WASH can increase independence of family members with disabilities and reduce carers' responsibilities or free up

other family members' time, leading to potentially more available human resources and productivity in households.

Indirect and downstream costs: Long-term impacts

A strong argument for disability inclusion in WASH lies in the potential for downstream savings to duty-bearers.

Alongside direct benefits to individuals and households, the benefits of inclusive WASH can bring cost savings to those departments and ministries responsible for education, health, work/labour and so forth. Ensuring that the benefits of inclusion are realized requires cross-ministerial collaboration and coordination.

The *2030 Agenda for Sustainable Development* outlines global development commitments, including greater cross-sectoral collaboration and moving beyond 'siloed' responsibilities and action. While there is not yet enough data to attribute cost savings across sectors, the case that inclusive WASH brings benefits across sectors is strong. This suggests that new approaches and cross-sectoral collaborations will be beneficial to resourcing WASH coverage. In short, both WASH and disability inclusion are the responsibility of all. Inclusive WASH can bring benefits to both established and new stakeholders.



9-year-old Vandana (who has an intellectual disability) plays while rinsing her hand at a handwashing facility at the government primary school in Vaishali Bihar District, India.

© UNICEF/UNI142002/Vishwanathan

Part 3. A call to action

Including persons with disabilities in WASH has never been more essential. Human rights instruments, development frameworks and multiple targets and indicators underpin the need to act and to translate rights-based commitments into practice.

With hundreds of thousands of preventable deaths and morbidity associated with poor access to WASH alone, the case for continued and increased investment in improved WASH is clear. However, if WASH actions are not inclusive of persons with disabilities, those with the most to gain from inclusion will continue to miss out. At least 110 million persons with disabilities do not have the access to WASH services that they need, and are among those with the most to gain from improved service quality and coverage.

For universal access to WASH to be achieved, some high-priority actions are proposed. These actions:

- build on what is already working,
- exploit opportunities presented by new mandates for disability inclusive development,
- emphasize the need to continue to learn and invest in good practices, and
- build the foundations needed to demonstrate effectiveness and impact.

Continued strengthening of disability inclusion in WASH

Key actions

- **Promote, build on and scale existing commitments and practices to inclusive and accessible WASH.**

Methods, frameworks and technical tools exist and are strengthening, and real action cannot be delayed because of evidence gaps.

Evidence from the field, literature and testimony highlight the mandate and value in prioritizing

accessible WASH services. WASH stakeholders should reaffirm and strengthen existing commitments and practice to continue to address persistent barriers to WASH for persons with disabilities and other people who might be at risk of exclusion.

- **Ensure that persons with disabilities are key actors, can share their voices and experiences, and that their expertise is central to WASH actions.**

Talking to persons with disabilities and DPOs about their priorities and experiences reveals their expertise and capabilities. Individual testimonies and experiences should be used to inform personalized and local actions and to understand impacts of inclusive and accessible WASH programming for persons with disabilities, their families, and communities. Working with persons with disabilities as both trainers and participants in behavior change campaigns and WASH training programs brings the benefits of personal experience, inclusion, and knowledge of disability in the community.

Strengthening evidence of effectiveness of accessible and inclusive WASH strategies

Evidence for the cross-sectoral impact of WASH throughout the life cycle is strong overall. While the sector lacks direct evidence concerning the specific experiences of persons with disabilities, pathways for improving impact and widening positive benefits are clear.

Key actions

- **Measure successes, change and impact through strengthening disability disaggregation in WASH monitoring.**

All major WASH interventions should consider how the inclusion and exclusion of persons with disabilities is understood and improved in monitoring and evaluation approaches.

While there is good evidence of effectiveness and a solid theoretical basis for impacts of inclusion in WASH, better evidence is needed. The interaction between disability, WASH and economic returns is context-specific and multi-dimensional – no single method or approach is likely to capture the full picture and all interactions. However, new methods to understand disability and its impacts can be included in current WASH monitoring and evaluation.

A starting point is to disaggregate for disability in WASH monitoring, using well-validated measures such as the Washington Group tools,^{††} including the UNICEF/Washington Group Module on Child Functioning.^{††}

- ***Strengthen understanding of ‘intersectional’ exclusion – especially for women and girls.***

It is important to consider who might be especially marginalized. While there is some evidence that women and girls are especially at risk of exclusion, the sector must learn more about effective inclusion and participation of women and girls, older people, isolated people and other minority groups.

- ***Build consensus on clearer measures of the impacts of inclusion in WASH.***

Improving access, quality and coverage are essential, and clear, direct impacts of inclusion strategies – but understanding longer-term impacts will strengthen the evidence of effectiveness, impact and the power of inclusive WASH in transforming individual lives, communities and advancing progress towards development targets.

By developing and agreeing on clearer objectives and targets, beyond improving access and coverage alone, evidence of the impact of

investing in inclusive WASH programming can be established.

Defining and operationalizing some potential downstream impacts of access to WASH will help WASH stakeholders monitor and learn about the effectiveness of programming.

A starting point might be some of the potential impacts of inclusive WASH emerging from current evidence. These include:

- better health and access to healthcare,
- improved opportunities for work and education,
- reduced household financial pressures,
- community engagement, and
- improved dignity and a reduction in disability stigma.

Many WASH stakeholders around the world have already demonstrated their commitment to strengthen disability inclusion in their work, but there is much work still to do. Normative frameworks and good practice guides exist, and there are new ways to understand disability in populations and programme beneficiaries. More investment and focus is needed to use new and existing methods to strengthen the evidence base.

Advocacy for change

Key actions

- ***Tackle persistent negative attitudes about disability inclusion in WASH programming at the highest levels.***

Many stakeholders report that while there are cost-effective measures to include persons with disabilities in WASH and meet minimum standards and goals, attitudes and the profile of disability inclusion in WASH action remains a barrier. To address this, clear messaging, buy-in

^{††} www.washingtongroup-disability.com.

^{††} www.washingtongroup-disability.com/washington-group-question-sets/child-disability.

and change are needed. It could be based around the following key actions:

- ***Use existing evidence to champion the feasibility, effectiveness and efficiency of inclusion with other stakeholders.***

New evidence, including the findings presented here, highlights that inclusive WASH is essential, effective and often neglected. By emphasizing low-cost and community-driven strategies, disability and WASH stakeholders should promote disability inclusion in WASH programming drawing on current evidence and good practice examples. Even if there are many evidence gaps and assumptions, evidence concerning the growing need for action and effective measures is available.

- ***Revise estimates and methods for understanding incremental (additional) costs of achieving minimum standards for accessibility and inclusion in WASH.***

Previous estimates of the incremental costs of WASH have been powerful tools for advocacy and

planning, but were based on small datasets and have not been updated for new WASH practices.

Combined with better understanding of the effects and impacts of inclusion in WASH, along with new knowledge about the costs of exclusion, information about costs is needed to strengthen advocacy messaging and to inform the *investment case* for accessible and inclusive WASH.

Simple tools and guidance to help understand costs could be developed and incorporated into WASH programming to address this need.

- ***Recall and reaffirm human rights and development targets.***

Strengthening the case for inclusion in WASH should not dilute the messaging that WASH is a human right for all, and fundamental to the realization of many other rights and development targets. Caution is urged against arguing that cost-benefit analysis is the only imperative for action. The challenge is to deliver the right to safe WASH in cost-effective ways.



Boke, 12, who has an intellectual disability, carries a bucket of water in Tarime District, Tanzania.

© UNICEF/UNI94715/Noorani

References

1. Promoting the rights of children with disabilities. Florence, Italy: Innocenti Research Centre, UNICEF; 2007.
2. World Report on Disability. Geneva: World Health Organization & The World Bank; 2011.
3. Data and statistics: country groups. Washington: World Bank; 2004 [July, 2017]. Available from: <https://datahelpdesk.worldbank.org/knowledgebase/articles/906519>.
4. Kuper H, Monteath-van Dok A, Wing K, Danquah L, Evans J, Zuurmond M, et al. The impact of disability on the lives of children; cross-sectional data including 8,900 children with disabilities and 898,834 children without disabilities across 30 countries. *PloS one*. 2014;9(9):e107300.
5. Visagie S, Eide AH, Dyrstad K, Mannan H, Swartz L, Schneider M, et al. Factors related to environmental barriers experienced by persons with and without disabilities in diverse African settings. *PloS one*. 2017;12(10):e0186342.
6. White S, Kuper H, Itimu-Phiri A, Holm R, Biran A. A Qualitative Study of Barriers to Accessing Water, Sanitation and Hygiene for Disabled People in Malawi. *PloS one*. 2016;11(5):e0155043.
7. Renzaho AM, Kamara JK, Georgeou N, Kamanga G. Sexual, Reproductive Health Needs, and Rights of Young People in Slum Areas of Kampala, Uganda: A Cross Sectional Study. *PloS one*. 2017;12(1):e0169721.
8. The human right to water and sanitation: Resolution adopted by the General Assembly on 28 July 2010 (2010).
9. Convention on the Rights of Persons with Disabilities : resolution / adopted by the General Assembly, (2007).
10. Erhard L, Degabriele J, Naughton D, Freeman MC. Policy and provision of WASH in schools for children with disabilities: A case study in Malawi and Uganda. *Glob Public Health*. 2013;8(9):1000-13.
11. Pruss-Ustun A, Bartram J, Clasen T, Colford JM, Jr., Cumming O, Curtis V, et al. Burden of disease from inadequate water, sanitation and hygiene in low- and middle-income settings: a retrospective analysis of data from 145 countries. *Tropical medicine & international health : TM & IH*. 2014;19(8):894-905.
12. Lim SS, Vos T, Flaxman AD, Danaei G, Shibuya K, Adair-Rohani H, et al. A comparative risk assessment of burden of disease and injury attributable to 67 risk factors and risk factor clusters in 21 regions, 1990-2010: a systematic analysis for the Global Burden of Disease Study 2010. *Lancet (London, England)*. 2012;380(9859):2224-60.
13. Hutton G, Rodriguez UP, Winara A, Anh NV, Phyrum K, Chuan L, et al. Economic efficiency of sanitation interventions in Southeast Asia. *J Wate Sanit Hyg Dev*. 2014;4(1):23-36.
14. King JD, Jip N, Jugu YS, Othman A, Rodgers AF, Dajom DY, et al. Mapping trachoma in Nasarawa and Plateau States, central Nigeria. *Br J Ophthalmol*. 2010;94(1):14-9.
15. Bieri FA, Gray DJ, Williams GM, Raso G, Li YS, Yuan LP, et al. Health-Education Package to Prevent Worm Infections in Chinese Schoolchildren. *N Engl J Med*. 2013;368(17):1603-12.
16. Arnold BF, Null C, Luby SP, Unicomb L, Stewart CP, Dewey KG, et al. Cluster-randomised controlled trials of individual and combined water, sanitation, hygiene and nutritional interventions in rural Bangladesh and Kenya: the WASH Benefits study design and rationale. *BMJ Open*. 2013;3(8):17.
17. 'The business case for investing in WASH.' Draft white paper. Stockholm: Water Action Hub; 2016 August.
18. Hutton G, Haller I, J B. Economic and health effects of increasing coverage of low cost household drinking water supply and sanitation interventions to countries off track to meet MDG target 10. Geneva; 2007.
19. Sanitation is an investment with high economic returns: Factsheet 2. UN Water; 2008.
20. Progress on drinking water, sanitation and hygiene: 2017 update and SDG baselines. Geneva: UNICEF & World Health Organization; 2017.

21. Van Rooy G, Amadhila EM, Mufune P, Swartz L, Mannan H, MacLachlan M. Perceived barriers to accessing health services among people with disabilities in rural northern Namibia. *Disabil Soc.* 2012;27(6):761-75.
22. Linneweh RW, Jr. Meeting the healthcare needs of special needs children. *Children's Village emerges and sustains through innovation, collaboration. Healthcare executive.* 2012;27(3):72-3.
23. Marella M, Devine A, Armecin GF, Zayas J, Marco MJ, Vaughan C. Rapid assessment of disability in the Philippines: understanding prevalence, well-being, and access to the community for people with disabilities to inform the W-DARE project. *Popul Health Metr.* 2016;14:26.
24. Ercumen A, Naser AM, Unicomb L, Arnold BF, Colford JM, Luby SP. Effects of Source- versus Household Contamination of Tubewell Water on Child Diarrhea in Rural Bangladesh: A Randomized Controlled Trial. *PloS one.* 2015;10(3):22.
25. de Oliveira AF, Leite ID, Valente JG. Global burden of diarrheal disease attributable to the water supply and sanitation system in the State of Minas Gerais, Brazil: 2005. *Cienc Saude Coletiva.* 2015;20(4):1027-36.
26. Stocks ME, Ogden S, Haddad D, Addiss DG, McGuire C, Freeman MC. Effect of Water, Sanitation, and Hygiene on the Prevention of Trachoma: A Systematic Review and MetaAnalysis. *PLoS Med.* 2014;11(2):29.
27. MacLeod M, Pann M, Cantwell R, Moore S. Issues in access to safe drinking water and basic hygiene for persons with physical disabilities in rural Cambodia. *Journal of water and health.* 2014;12(4):885-95.
28. Mensah SA, Badu E, Opoku MP. Towards an inclusive society in Ghana: An analysis of challenges persons with disabilities face in participating in tourism in the Ashanti region. *J Soc Incl.* 2015;6(2):64-76.
29. Mitra S, Posarac A, Vick B. Disability and poverty in developing countries: A snapshot from the world health survey The World Bank; 2011.
30. WASH in the 2030 Agenda: new global indicators for drinking water, sanitation and hygiene. New York: World Health Organization (WHO) and the United Nations Children's Fund (UNICEF); 2017 2017.
31. UNICEF. Executive Directive CF/EXD/2017-004: Executive Directive accessibility in UNICEF's programme-related construction activities.: UNICEF; 2017.
32. Leave no one out: reaching people with disabilities and leprosy with water, sanitation and hygiene: WaterAid Ethiopia's experience (Briefing Note). Addis Abbaba: WaterAid; 2013.
33. Groce N, Bailey N, Lang R, Trani JF, Kett M. Water and sanitation issues for persons with disabilities in low- and middle-income countries: a literature review and discussion of implications for global health and international development. *Journal of water and health.* 2011;9(4):617-27.
34. Marella M, Busija L, Islam FMA, Devine A, Fotis K, Baker SM, et al. Field-testing of the rapid assessment of disability questionnaire. *BMC public health.* 2014;14:12.
35. Vijayalakshmi P, Ramachandra, Reddemma K, Math SB. Impact of Socio-Economic Status in Meeting the Needs of People with Mental Illness; Human Rights Perspective. *Community Ment Health J.* 2014;50(3):245-50.
36. Bazzano AN, Oberhelman RA, Potts KS, Gordon A, Var C. Environmental factors and WASH practices in the perinatal period in Cambodia: implications for newborn health. *International journal of environmental research and public health.* 2015;12(3):2392-410.
37. Garsed C, Waite T. The importance of water, sanitation and hygiene for lymphatic filariasis and leprosy care and inclusion: Briefing note. WaterAid; The Leprosy Mission, England and Wales; 2015.
38. Petterson SR. Application of a QMRA Framework to Inform Selection of Drinking Water Interventions in the Developing Context. *Risk Anal.* 2016;36(2):203-14.
39. Bosomprah S, Beach LB, Beres LK, Newman J, Kapasa K, Rudd C, et al. Findings from a comprehensive diarrhoea prevention and treatment programme in Lusaka, Zambia. *BMC public health.* 2016;16:7.

40. Humphrey JH, Jones AD, Manges A, Mangwadu G, Maluccio JA, Mbuya MNN, et al. The Sanitation Hygiene Infant Nutrition Efficacy (SHINE) Trial: Rationale, Design, and Methods. *Clin Infect Dis*. 2015;61:S685-S702.
41. Krahn GL, Walker DK, Correa-De-Araujo R. Persons with disabilities as an unrecognized health disparity population. *Am J Public Health*. 2015;105 Suppl 2:S198-206.
42. Sanitation for All in Mozambique. Maputo: UNICEF Mozambique; Undated.
43. Tierney K. The social roots of risk: Producing disasters, promoting resilience. Stanford: Stanford University Press.; 2014.
44. A difficult journey to the toilet. 2013. Available from: <https://www.youtube.com/watch?v=QQYfjUM74A0>.
45. Narahariseti R, Castro MC. Factors associated with persons with disability employment in India: a cross-sectional study. *BMC public health*. 2016;16(1):1063.
46. Muderedzi JT, Eide AH, Braathen SH, Stray-Pedersen B. Exploring structural violence in the context of disability and poverty in Zimbabwe. *African journal of disability*. 2017;6:274.
47. Munthali A, Tsoka M, Milner J, Mvula P. From Exclusion to Inclusion: Promoting the Rights of Children with Disabilities. Lilongwe: Centre for Social Research, Malawi; 2013.
48. Marella M, Huq NL, Devine A, Baker SM, Quaiyum MA, Keeffe JE. Prevalence and correlates of disability in Bogra district of Bangladesh using the rapid assessment of disability survey. *BMC public health*. 2015;15:867.
49. Sheeran A. Good Practices in the Provision of Accessible and Inclusive WASH services. New York: UNICEF; 2015.
50. Sheeran A. Inclusive and accessible WASH in UNICEF: Good practices by country (MATRIX). New York: UNICEF; 2015.
51. Strategy for water, sanitation and hygiene, 2016-2030. New York: UNICEF; 2016.
52. Sommer M, Ferron S, Cavill S, House S. Violence, gender and WASH: spurring action on a complex, under-documented and sensitive topic. *Environment and Urbanization*. 2015;27(1):105-16.
53. Wiman R, Sandhu J. Integrating appropriate measures for people with disabilities in the infrastructure sector. Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ); 2004.
54. Jones H, Shaw R, Chatterton K. Inclusive design of school latrines - how much does it cost and who benefits? Leicestershire: Water, Engineering and Development Centre, Loughborough University; 2011.
55. Zaunda H, Holm R, Itimu-Phiri A, Malota M, White S. A qualitative assessment of disability friendly water and sanitation facilities in primary schools, Rumphi, Malawi. *Development Southern Africa*. 2018:1-14.
56. Jones H, Reed B. Water and sanitation for disabled people and other vulnerable groups: designing services to improve accessibility. Loughborough University, UK: WEDC; 2005. 324 p.
57. Lawday A. Evaluation of HelpAge International's Programme 'Assistance to specific vulnerable groups affected by the Syrian crisis' (2013-2014). London; 2014 July 2014.
58. Singh R, Honda H, Frost B, Urlich K. Casting the net further: Disability inclusive WASH. Middlesex, UK: World Vision International; 2014.
59. Disability Inclusive WASH Practices: Including people with disabilities in UNICEF Water, Sanitation and Hygiene (WASH) Programming. In: UNICEF, editor. <https://washenablingenvironment.files.wordpress.com/2017/05/wash-and-disability-guidance-note-final.pdf>.
60. Including Children with Disabilities in Humanitarian Action: WASH guidance New York 2018 [Available from: <http://training.unicef.org/disability/emergencies/wash.html>].

Annexes

Annex 1 – Search strategies

Review of scholarly literature

To develop the first assessment of existing evidence for what works in inclusive WASH, we have conducted a review of the literature. This review sought to find evidence for access to, or exclusion from, WASH services, and implications on social or economic outcomes for persons with disabilities, including both adults and children. This initial review targeted scholarly literature using three major health and social databases, using keywords and search strategies appropriate to each one. An example strategy for one of the database searches is presented in Table 1 below. **Error! Reference source not found.** A total of 623 papers were found after removal of duplicates.

This approach initially resulted in no directly relevant papers. The strategy was therefore expanded to inform the types of interventions and types of outcomes and specifically sought to identify evidence of exclusion. This search strategy is summarized in Table 1.

Abstracts were reviewed and clustered into three major groups:

- Mechanism/intervention types – 16 papers
- Types of outcomes measured – 14

Additional searches were used to explore emerging themes from the abstracts. Emerging themes included:

- Evidence for exclusion – 10 papers
- Ageing – 2 papers
- Poor sanitation as cause of disability/impairment – 6 papers
- Other background – relevant papers

These findings are summarized graphically in Figure 2, below.

Subsequent consultative survey and primary data retrieval

Recognizing that inclusion in WASH has grown quickly in recent decades, it is not surprising that an evidence gap remains. As such, we used this review to inform a subsequent consultative survey with global WASH stakeholders to explore what primary data sources could help inform an investment case.

This wide-angle survey examined current working contexts, intervention types and potential sources of evidence of impact. 66 respondents (28F, 33M, 5 not defined) in 38 countries and representing 23 different organizations provided input into this survey. 20 respondents were contacted for follow-up data, of whom 100 per cent provided additional resources that are included here.

Table 1 - Search Strategy

#	Keywords and operators	results
1	(developing or low-income or LMIC or LAMIC or "low and middle income" or least-developed or underdeveloped or third-world).mp. [mp=ti, ab, tx, ct, ac, de, sh, md, sd, jn, pg, yr, vo, ip, dp, so, bt, mo, op, os, pa, pi, pl, pu, ry, st, ar, hw, tc, id, ot, tm]	337844
2	(transitional economy or (Africa or Asia or Caribbean or West Indies or Latin America or Central America or South America)).af.	180459
3	(sub-saharan africa or africa or asia or south-east asia or south-asia or latin-america or caribbean or central-america or south-america).af.	178275
4	(afghanistan or benin or burkina-faso or burundi or central african republic or (chad or tchad) or comoros or congo or eritrea or ethiopia or gambia or guinea-bissau or haiti or korea or dprk or liberia or madagascar or malawi or mali or mozambique or nepal or niger or rwanda or senegal or sierra-leone or somalia or (sudan or South Sudan) or tanzania or togo or uganda or zimbabwe).af.	139651
5	(albania or algeria or (samoa or american samoa) or angola or armenia or azerbaijan or bangladesh or belarus or belize or bolivia or bosnia or botswana or brazil or bulgaria or (cabo verde or cape verde) or cambodia or cameroon or china or colombia or congo or costa rica or (cote d'ivoire or ivory coast) or cuba or djibouti or dominica or dominican republic or ecuador or egypt or el salvador or guinea or fiji or gabon or georgia or ghana or Grenada or guatemala or guyana or honduras or india or indonesia or iran or iraq or jamaica or jordan or kazakhstan).af.	557582
6	(kenya or kiribati or kosovo or kyrgyz* or (lao or laos) or lebanon or lesotho or libya or macedonia or malaysia or maldives or marshall islands or mauritania or mauritius or mexico or micronesia or moldova or mongolia or montenegro or morocco or myanmar or namibia or nicaragua or nigeria or pakistan or palau or panama or (papua new guinea or png) or paraguay or peru or philippines or romania or russia* or samoa or "sao tome and principe" or serbia or solomon islands or south africa or sri lanka or st lucia or (st vincent and the grenadines) or sudan or suriname or swaziland or syria* or tajikistan or thailand or (timor-leste or east timor) or tonga or tunisia or turkey or turkmenistan or tuvalu or ukraine or uzbekistan or vanuatu or venezuela or (vietnam or viet nam) or (west bank or gaza or Palestine or Occupied Palestinian territories) or yemen or zambia).af.	396968
7	(poverty or low income).af.	137556
8	1 or 2 or 3 or 4 or 5 or 6 or 7	1248671
9	(disab* or person with disabil* or pwd or people with disabil* or disabling disease or handicap).af.	434685
10	(impairment or paralysis or deficien* or deaf or blind or deaf-blind).af.	775841
11	9 or 10	1057639
12	(wash or iWASH or Watsan or (water and sanitation) or (water sanitation and hygiene) or MHM or menstrual hygiene management or potable water or drinking water or waste management or (sewage or sewerage) or latrine* or toilet).af.	42026
13	1 and 2 and 3 and 4 and 5 and 6 and 7 and 8 and 9 and 10 and 11 and 12	55

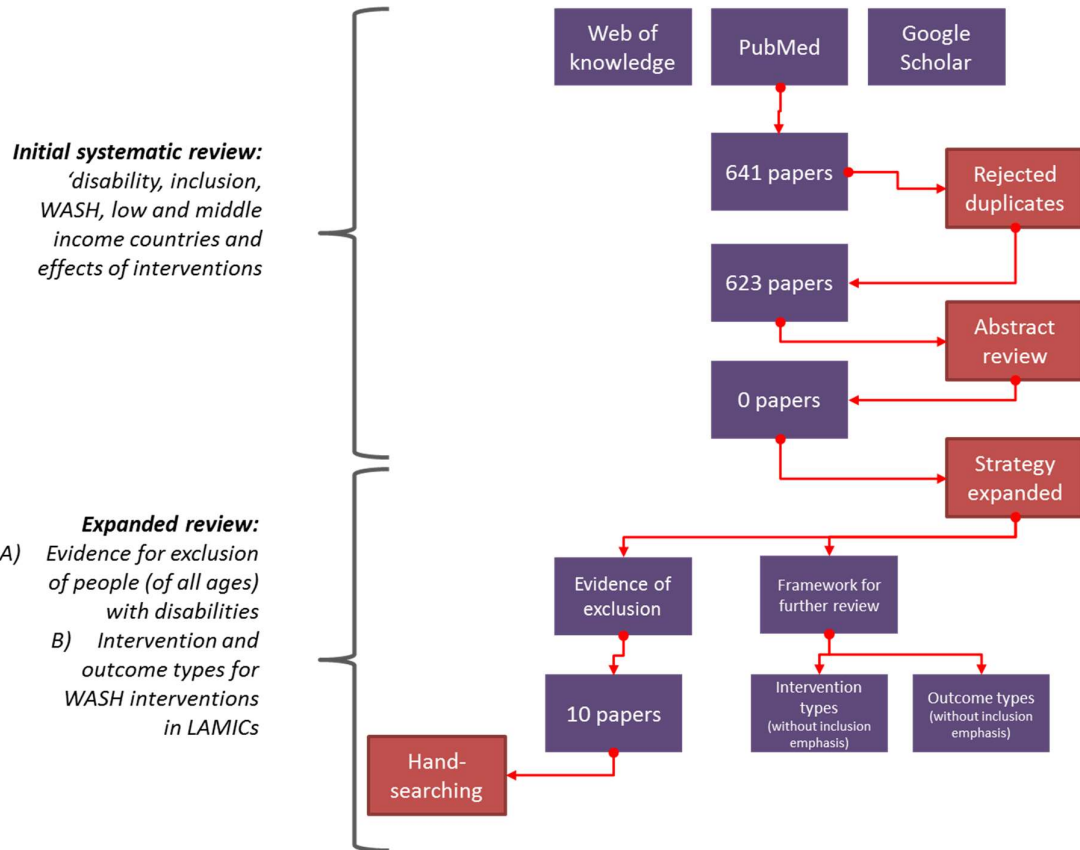


Figure 2 - Summary of search results of primary literature search strategy

Glossary

Term	Definition
Accessibility	Persons with disabilities accessing, on an equal basis as others, the physical environment, transportation, information and communication including information and communication technologies and systems, and other facilities and services open or provided to the public, both in urban and rural areas.
Coverage	The extent to which people have access to a service they need.
Disability	Impairments, which in interaction with various barriers may hinder full and effective participation in society on an equal basis with others.
Impairment	A significant deviation or loss in body function or structure.
Menstrual Hygiene Management (MHM)	The management of the hygiene associated with the menstrual process.
Pathogen	A micro-organism (germ) that can cause disease.
Prevalence	The amount something is present in a population of people.
Reasonable accommodation	Necessary and appropriate modification and adjustments not imposing a disproportionate or undue burden, where needed in a particular case, to ensure to persons with disabilities the enjoyment or exercise on an equal basis with others of all human rights and fundamental freedoms.
UNICEF/Washington Group Module on Child Functioning	Developed by the Washington Group and UNICEF, a set of questions to identify children aged 2 to 17 years who have difficulties functioning that helps to disaggregate data on children by disability.
Universal design	The design of products, environment, programmes and services to be usable by all people, to the greatest extent possible, without the need for adaptation or specialised design (UN CRPD [2006], Article 2), < http://universaldesign.ie/Built-Environment/Building-for-Everyone >.
Washington Group Questions	A set of questions for monitoring, evaluation or research applications (available in different versions for different applications), developed by a consortium of disability statistics experts, that helps disaggregate for disability within data about a larger population.

Photo credits

© UNICEF/UN0158317/Jean/Handicap International

Acknowledgements

This technical paper draws on the expertise of 67 WASH actors, working in 30 countries for 24 organizations. 28 women and 33 men answered the global call for information, and 17 individuals or groups provided supplementary reports and datasets. Their expertise and generous ideas were fundamental to the preparation of this technical paper.

About the authors

Lead author: Wesley Pryor, Senior Technical Adviser in Disability Inclusion for Health & Development, Nossal Institute for Global Health

For UNICEF: Dr. David Tsetse, WASH Specialist, and Megan Tucker, Programme Specialist (Children with Disabilities) from UNICEF.

Other contributors to the preparation of this technical paper:

- Kathryn James, Disability Inclusion Adviser CBM Australia
- Chelsea Huggett, WaterAID Australia
- Jesus Trelles, UNICEF Mozambique
- Chris Cormency, UNICEF Mozambique
- Bisi Agberemi, UNICEF Headquarters New York

Suggested citation: Pryor, W., et al., *The Case for Investment in Accessible and Inclusive WASH*. UNICEF, New York, 2018.

About the series

UNICEF's water, sanitation and hygiene (WASH) country teams work inclusively with governments, civil society partners and donors to improve WASH services for children and adolescents, and the families and caregivers who support them. UNICEF works in over 100 countries worldwide to improve water and sanitation services, as well as basic hygiene practices. This publication is part of the UNICEF WASH Learning Series, designed to contribute to knowledge of best practice across the UNICEF's WASH programming. The documents in this series include:

Field Notes share innovations in UNICEF's WASH programming, detailing its experiences implementing these innovations in the field.

Technical Papers present the result of more in-depth research and evaluations, advancing WASH knowledge in a key topic.

Guidelines describe a specific methodology to WASH programming, research or evaluation - drawing on substantive evidence, and based on UNICEF's and other partners experiences in the field.

Fact Sheets summarize the most important knowledge on a topic in less than four pages in the form of graphics, tables and bullet points.

WASH Diaries explores the personal dimensions of WASH, and remind us why a good standard of water, sanitation and hygiene is important for all to enjoy.

Readers are encouraged to quote from this publication, but UNICEF requests due acknowledgement. You can learn more about UNICEF's work on WASH here: <https://www.unicef.org/wash>.

www.unicef.org/wash

© United Nations Children's Fund (UNICEF)

The statements in this publication are the views of the authors and do not necessarily reflect the policies or the views of UNICEF.

United Nations Children's Fund
3 United Nations Plaza, New York, NY 10017, USA

For more information, please contact: WASH@unicef.org