

Revealing Disability

Insights from individual-level measurement in Bhutan, Lao PDR and Nepal



Overview

This 2024 study by UTS-ISF and SNV in three countries investigated gender-WASH-resilience experiences using WASH-GEM+. We purposefully oversampled people with disabilities using the Washington Group Set. Ethical clearance from the study was obtained prior to the study (UTS HREC REF NO. ETH18-2599 – Project 21051)

Respondents: 1 man and 1 woman from ~200 households in each of the three countries (1,353 total respondents). The individuals lived in localities with improved WASH services supported by SNV's Water for Women program.

Climate events: This brief includes reflections on experiences of people with disabilities in relation to resilience for flood and drought events alongside aspects related to WASH and beyond.

Analysis: Analysis was conducted by item (question) and theme to understand where the experiences of people with disabilities were significantly divergent from people without disability.

Key messages

- Addressing disability requires nuanced understanding of who functional difficulties and how, since people with disabilities are not a homogenous group. Age, poverty and gender all affected outcomes associated with disabilities, and some individuals concurrently experienced multiple types of disabilities.
- People with disabilities showed both better and worse outcomes as compared with those without disability. People with disabilities demonstrated stronger social capital. They also showed similar life satisfaction and agency to people without a disability. Meanwhile, worse outcomes were observed for people with multiple types of disability. They had poorer WASH outcomes, less control of finances, lower awareness of equality between women and men, and poorer physical health.
- Gender intersections with disability need dedicated attention. Differences for women and men with and without disabilities were most prevalent for control over money, mobility, physical health, physical well-being and flood resilience, with women with disabilities facing the greatest challenges.
- Individual level data provides insight required to ensure tailored response. Programs and policies that can access and utilise data supporting disaggregation by disability, gender and other characteristics is essential for addressing inequalities and promoting inclusive outcomes.

Background

Climate change impacts everyone, and knowledge of these impacts for people with disabilities and understanding their resilience is fundamental to inclusive climate adaptation response, including gendered aspects. Access to water, sanitation and hygiene (WASH) is foundational for climate resilience, and recent expansion of the WASH gender equality measure (WASH-GEM) to incorporate a climate module provides new insight.

This brief aims to:

- Identify how disability intersects with other socio-economic characteristics for WASH-GEM participants in Nepal, Lao PDR and Bhutan
- Explore the differing experiences of women and men with disability and WASH climate change and life more broadly (as measured through WASH-GEM+ scores)

The WASH-GEM+ comprises six domains made up of 17 themes ([Carrard et al. 2022](#); [Gonzalez et al. 2022](#); [MacArthur et al. 2025a](#); [MacArthur et al. 2026](#)) as outlined in **Figure 1**, with ongoing work to validate and strengthen the themes ([MacArthur et al. 2024](#)). For climate change, resilience to floods and droughts were included, with landslides and storms excluded due to low numbers of individuals with disabilities reporting these events.

The WASH-GEM domains are **Resources**, **Agency**, **Critical Consciousness**, **Structures**, **Wellbeing** and **Resilience**). The study also reported if respondents experienced any distress during the interviews using the Distress-4 measure ([MacArthur et al. 2025b](#)).

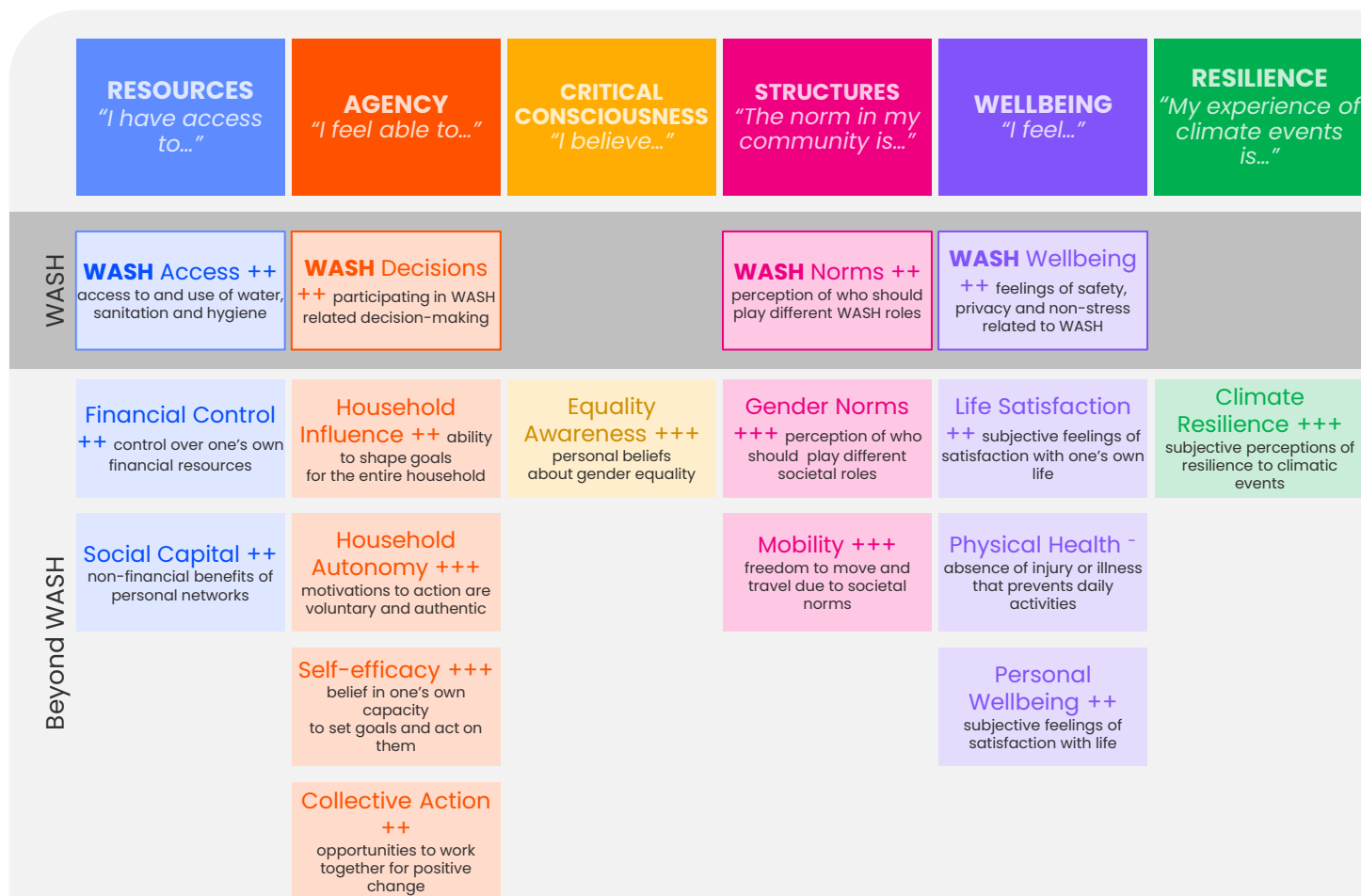


Figure 1. WASH-GEM+ Themes across six domains of related to gender equality and social inclusion. The theme quality (robustness) is indicated through plus and minus symbols, from fair (-) to very strong (+++).

Objective 1 Exploring intersectional and compounded disability – Who has a functional difficulty?

The communities included in this study were low-income, rural communities with inadequacies in WASH and exposure to climate change impacts, which was addressed through SNV’s Water for Women programs. SNV’s work with people with disabilities in the Beyond the Finish Line project focused on making rural water and hygiene services in Nepal more inclusive, accessible, and equitable, especially for groups traditionally left behind (SNV 2023). The programme strengthened local governments, service providers, and community systems so they could plan, deliver, and monitor water and hygiene services that upheld human rights and actively included people with disabilities. It also increased the leadership, voice, and participation of women, people with disabilities, and other marginalized groups by embedding inclusive practices across all components and implementing tailored support for those facing the greatest barriers.

The extent and prevalence of disability within the study population (n=1,353 across Bhutan, Laos and Nepal) was explored through the short set of six Washington Group questions which ask about functional difficulties and are interpreted as a measure of disability. These were then analysed as both as categorical variable (with any disability, without any functional difficulty – **Figure 2**) and as a numeric variable (number of co-occurring functional difficulties – **Figure 3**).

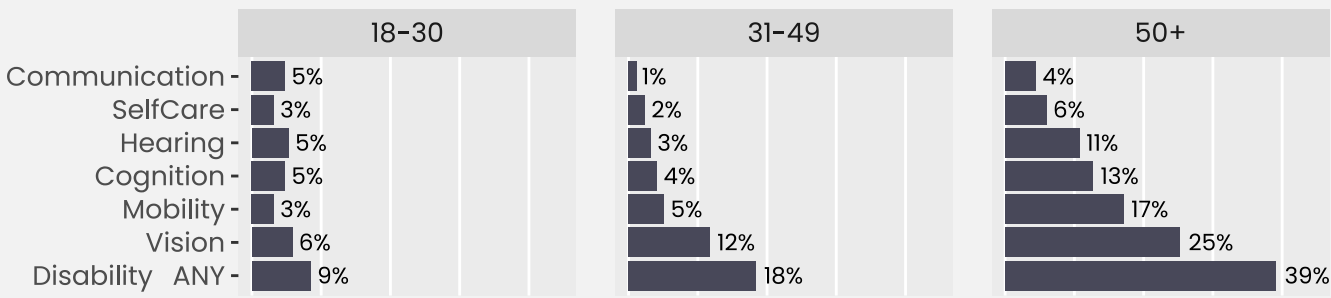


Figure 2. Prevalence and types of functional difficulty by age.

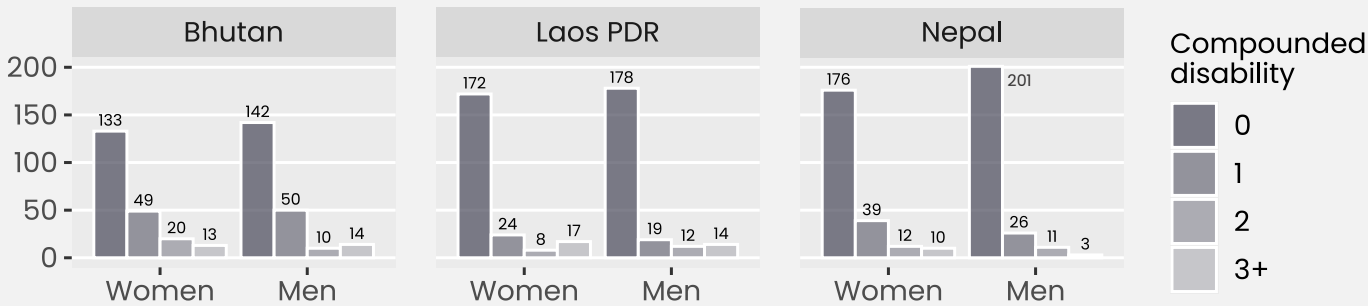


Figure 3. Extent of compounded functional difficulty by country and gender.

Our study oversampled people with disabilities (25% total) as summarised in Figures 2 and 3, to ensure their experiences were made visible. In comparison, approximately 16% of the world's population live with a disability and typical census results range from 6–20% (WHO 2023; Mont 2019). The most common disability was related to vision, and older respondents demonstrated higher proportions of people with all types of functional difficulty. Most respondents with a disability had a single functional difficulty, yet 11% of total respondents had two or more co-occurring functional difficulties.

Disability was also strongly connected with other socio-economic characteristics. Using the compounded disability score, a regression demonstrated how gender, location, age, education and wealth were connected to disability as summarized in **Table 1**.

Table 1. Connections between individual characteristics and compounded disability in order of significance.

Characteristic	Interpretation
<i>Age</i>	Older adults (50+) have substantially higher disability levels (0.54, $p < 0.001$).
<i>Country</i>	People in Nepal had lower disability levels than Bhutan and Laos (-0.39 , $p < 0.001$).
<i>Wealth</i>	Poorer groups had higher disability levels (Poor 0.33, Poorest 0.32, $p < 0.001$); Richest group also had slightly higher level of disability (0.18, $p = 0.04$).
<i>Gender</i>	Men had slightly lower level of disability compared with women (-0.13 , $p = 0.03$).
<i>Education</i>	No clear difference by education level.

Key takeaway

Within this study group in Bhutan, Laos and Nepal, disability was linked to older age, certain geographic locations, poverty and gender. These observations highlight that disability is intersectional and compounding. The results emphasize that disability is not a homogenous category that affects all people the same way.

Objective 2 Exploring impacts of disability and gender on WASH, resilience and broader human flourishing outcomes

2.1 Key theme level differences for multiple disabilities

The impact of disability on the WASH-GEM+ themes was found to be small but significant and connected to gender, age and wealth. These impacts are explored by disability and by gender in the following sections. We explored if having more than one disability had an impact on WASH-GEM+ thematic scores using regressions. When controlling for other socio-economic characteristics (gender, age, education, wealth, and country), individuals with multiple disabilities had slightly lower overall scores across all WASH-GEM+ themes and higher interview distress.

Statistically significant differences ($p < 0.002$) of lower scores were found for all four WASH-related themes (WASH Access, WASH Decision Making, WASH Norms, and WASH Wellbeing), alongside Financial Control, Equality Awareness, Physical Health and Interview Distress. It is important to note that these differences were small, but nonetheless significant as seen in Figure 4. For example, for each additional type of functional difficulty (vision, mobility, hearing, etc.), WASH Access scores decreased by 1.2%. For the other 11 themes, including Climate resilience for Floods and for Droughts, Household Influence, Life Satisfaction, and Mobility, there were not significant differences between people with disabilities and those without.

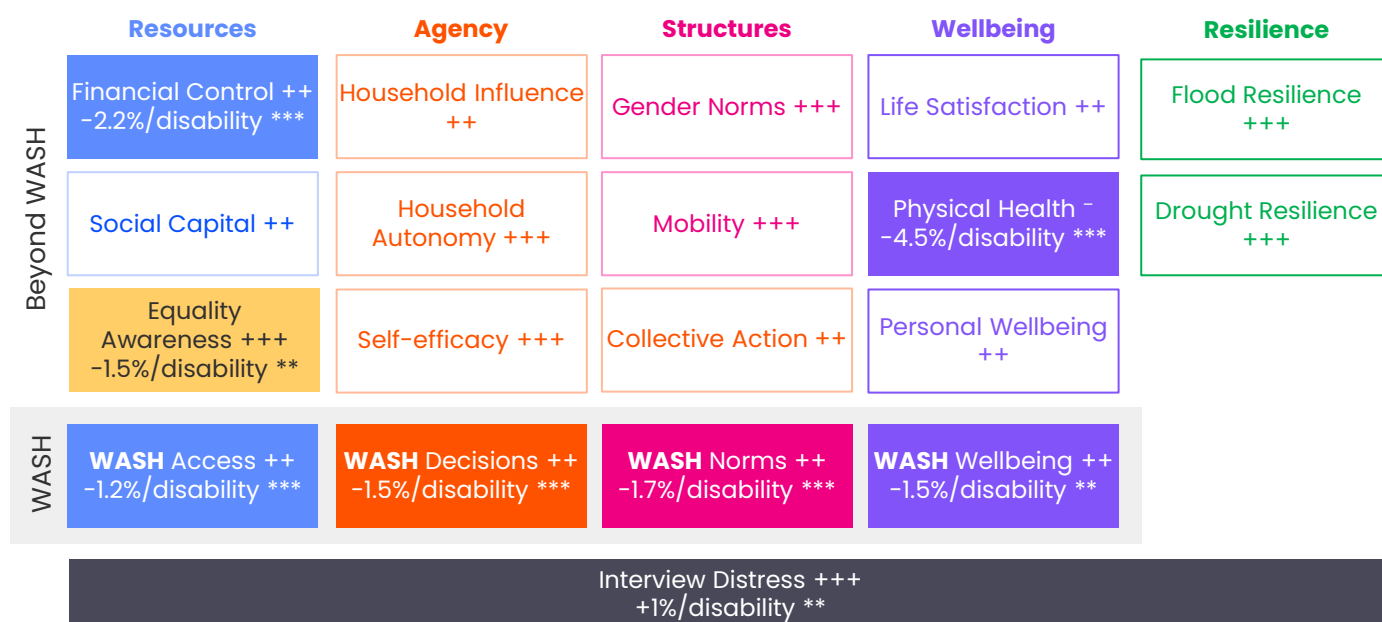


Figure 4. Summary of the impacts of multiple disabilities on WASH-GEM+ scores. The theme quality (robustness) is indicated through plus and minus symbols, from fair (-) to very strong (+++).

Key takeaway

While the effects were small, respondents with compounded disabilities had statistically significant lower scores for WASH (access, influence, norms and wellbeing), and for themes of Financial Control, Equality Awareness, and Physical Health. Yet, individuals with higher levels of disability did not have lower scores other psycho-social aspects such as life satisfaction, self-efficacy and even autonomy.

2.2 Thematic results by disability and gender

When exploring the impact of disability as a binary variable on scores by gender, for several themes, we found bigger differences in scores for women with disabilities compared to women without disability, as compared to the equivalent for men. This was the case for Control over money, Mobility, Physical health, Physical well-being and flood resilience.

Importantly these results do not control for other socio-economic characteristics. Yet there are important differences between women and men in six themes by disability as shown in **Figure 5**. These key themes are highlight by black bounding boxes.

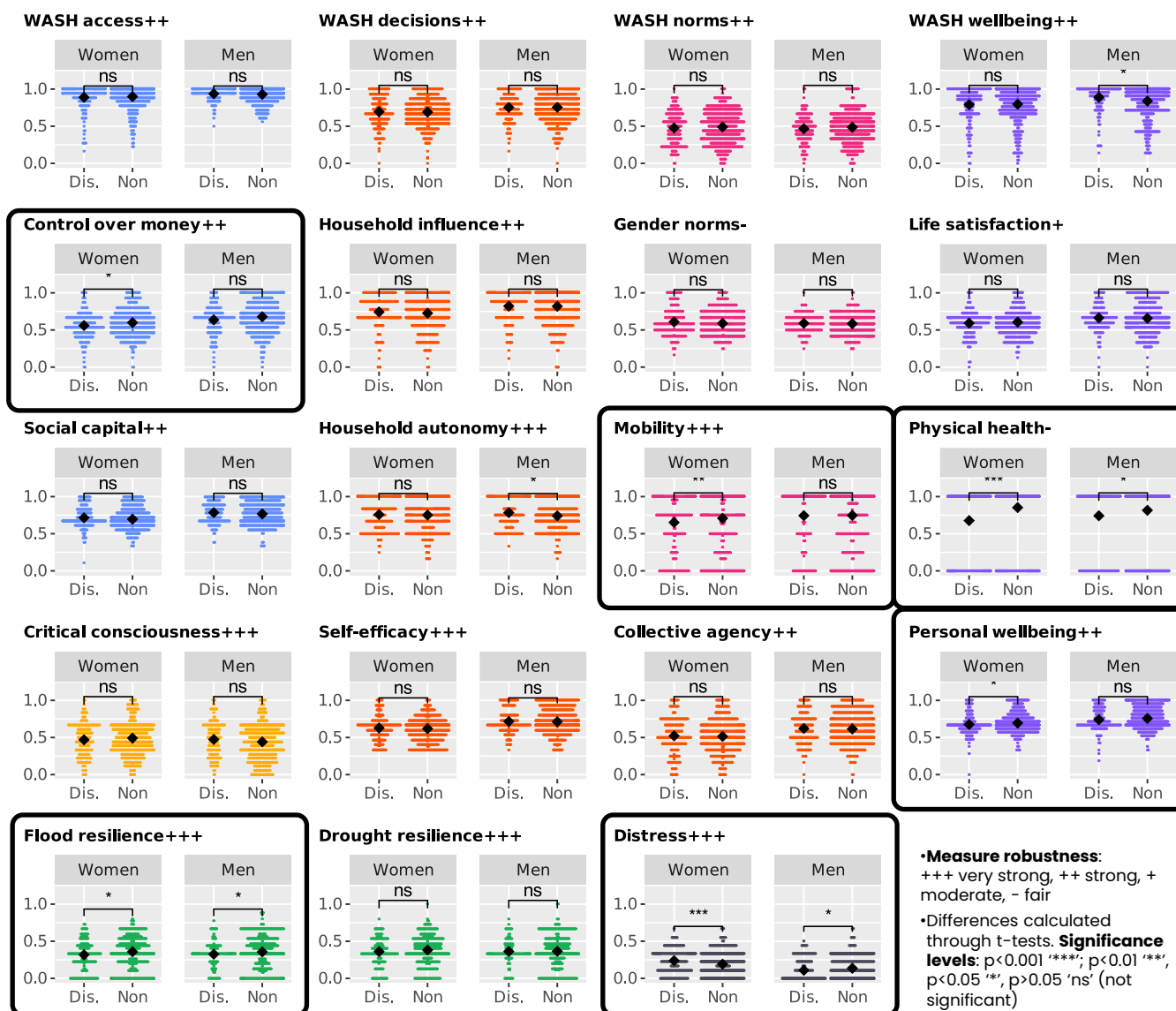


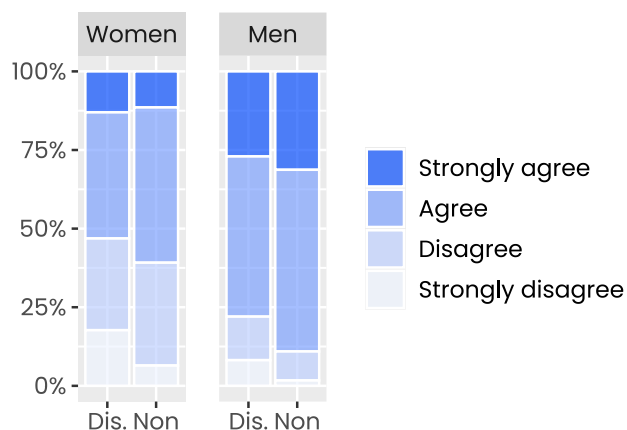
Figure 5. Statistical significance of differences between scores by gender and disability status.

Key takeaway

For most themes, there was not a big difference between individuals with disabilities and those without. However, there were a few themes showed important gender differences (Financial Control, Mobility and Personal Wellbeing) where women with disabilities experienced worse outcomes compared to women without disability, demonstrating a stronger influence of disability as compared with men.

2.3 Key item level differences by disability and gender

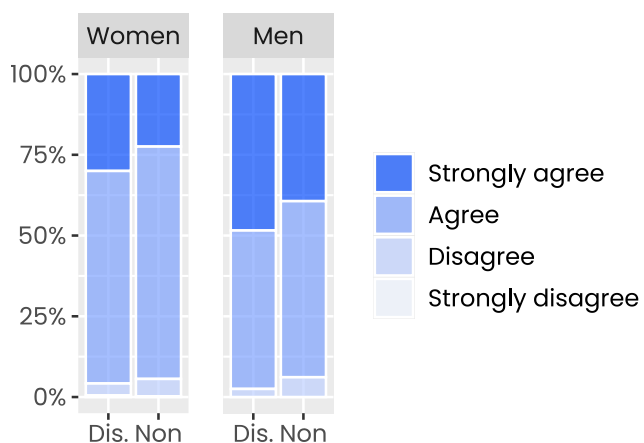
The WASH-GEM+ also offers the opportunity to dive deeper into these thematic results by exploring individual questions (items). Five items showed significant differences between those with and without disabilities by gender. Importantly, not all these results indicate that individuals with disabilities are worse off. In fact, on two of the social capital questions, individuals with disabilities experienced better community support.



Financial Control (Resources domain)

Across all three countries, women and men with disabilities described being significantly less able earn money by working as compared with women and men without disabilities.

[I can acquire money by earning money through work]

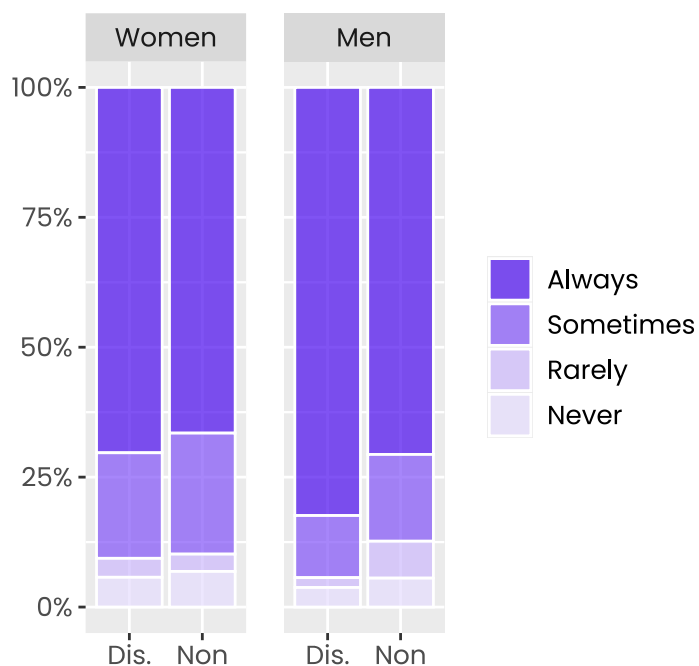


Social Capital (Resources domain)

Both women and men with disabilities in all three countries indicated that they had higher social capital across these two questions related to favours and helping one another. Men with and without disabilities had stronger scores as compared with women with and without disabilities.

[In this community, if you perform a favour for someone in your community, they will likely return the favour at some future date.]

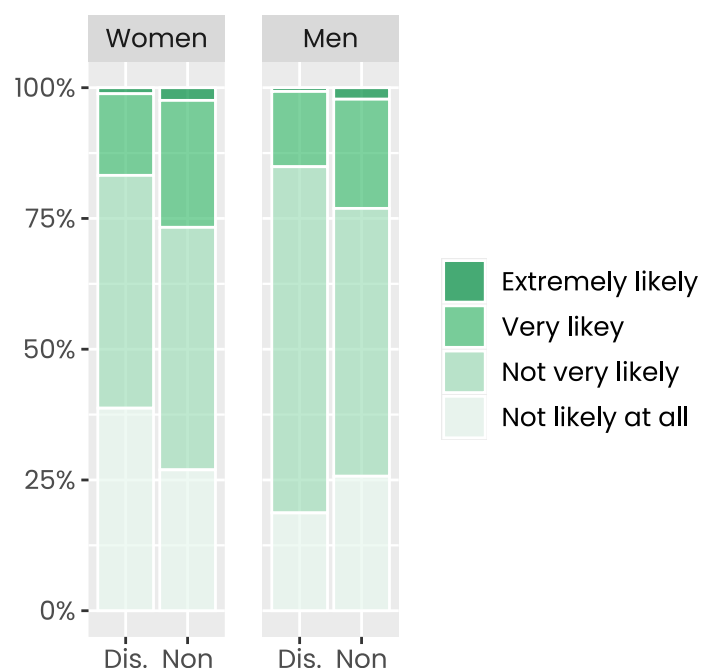
[One of the norms in this community is that people help one another.]



Safety accessing toilet (WASH wellbeing)

Across all three countries, women with and without disabilities had similar feelings of safety when using the toilet, however men with disabilities were less likely to feel safe as compared with men without disabilities.

[How often do you feel safe when accessing the toilet?]



Flood Recovery (Climate Resilience)

Across the three counties, women with disabilities described feeling less able to recover quickly after a flood as compared with men (both with and without disabilities).

[If an extreme flood occurred, how likely is it that your household would recover in 6 months?]

Key takeaway

Compared to their peers, people with disability had lower opportunity to earn income, particularly for women with a disability and felt less safe using the toilet, particularly for men with a disability. However, they also had better social support.

Overall insights

1

The impacts of disability on WASH outcomes, health and financial control were small but significant.

When controlling for other socio-economic characteristics (gender, age, education, wealth, and country), individuals with multiple disabilities had lower overall scores in WASH access, WASH decisions, WASH norms and WASH well-being, Financial Control and Physical Health. Individuals with multiple disabilities also had higher distress within the survey interviews.

Disability, particularly as the number of disabilities increases, acts as an independent and compounding challenge across all countries. The cumulative effect imposes a significant reduction in positive outcomes, reducing physical health scores by 4.5% per functional disability and systematically lowering outcomes like WASH norms and financial control by 10% and 13% respectively, regardless of the strong geographic and contextual effects. Importantly, this highlights that WASH, health and economic opportunities are all areas in which further support is particularly needed for people with disabilities.

2

Disability did not negatively affect life satisfaction and many forms of agency.

While disability did have negative impacts, these impacts were generally not statistically significant differences across many of the themes. The findings against life satisfaction and agency, including both autonomy, self-efficacy and household influence indicate that women and men with disabilities in the three country contexts had similar agency and life satisfaction to women and men without disabilities.

3

Country context and poverty often mattered more than other characteristics, but disability remained an important factor.

Across most themes, country and wealth differences show the largest effects, indicating that social, cultural, and institutional contexts strongly shape positive outcomes in WASH, resilience and inclusion. However, disability remained an important factor in all three countries. Additionally, the intersections between gender and disability were less pronounced than other intersections of poverty and age with disability.

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Learning brief prepared by Jess MacArthur, Juliet Willetts and Georgina Robinson of University of Technology Sydney – Institute for Sustainable Futures and Jo Crawford and Cliantha Dawit-Dessay of International Women's Development Agency.

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