WATER, WOMEN AND DISABILITY STUDY

MAIN REPORT

MARCH 2020

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This study was conducted collaboratively between World Vision Vanuatu and the International Centre for Evidence in Disability at the London School of Hygiene & Tropical Medicine.

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01

EXECUTIVE SUMMARY

BACKGROUND

WATER SANITATION AND HYGIENE (WASH)

Safely managed drinking water, sanitation and hygiene (WASH) are essential to human health and well-being[1].

Access to WASH contributes to good health and the prevention of disease, enables participation in other areas of life such as livelihoods, school and training[2] and has social and economic impacts on individuals, as well as communities and nations[3].

WASH is a gendered issue, with women often bearing the socially prescribed responsibility for household water provision and providing WASH-related care to family members who require it[4]. Women and girls have additional WASH requirements related to menstrual hygiene management, and may be more at risk of incontinence.

Incontinence can be classified as faecal, urine, or both. Urinary incontinence is defined as the involuntary loss of urine that is objectively demonstrable, and is a social or hygienic problem[5,6]. Faecal, or bowel, incontinence is an inability to control bowel movements, resulting in the involuntary passage of stools[5].

Incontinence is a complex health and social issue that is largely taboo and widely overlooked. It is estimated that incontinence affects 1 in 4 women over the age of 35 years, and 1 in 10 adult men[7]. These figures are mostly from high-income settings and it is likely may be higher in Low and Middle Income Countries, although evidence is lacking. Incontinence affects a wide variety of people, particularly older people, mothers, children and persons with disabilities[5]. Incontinence also leads to additional WASH requirements, in part due to increased need to bathe and use the latrine, and can be extremely stigmatising – particularly when these WASH requirements cannot be met.

WASH DEFINITIONS

(Source: washdata.org)

Safely managed water is defined as drinking water from an improved water source (one which has the potential to deliver safely managed water supply by nature of its design and construction) which is located on premises, available when needed and free from faecal and priority chemical contamination.

Safely managed sanitation is use of improved facilities (those designed to hygienically separate excreta from human contact) which are not shared with other households and where excreta are safely disposed in situ or transported and treated off-site.

The presence of a handwashing facility with soap and water on the premises is the global priority monitoring indicator for hygiene.

PhotoVoice photo by James Packet captioned:

"I can bathe myself. I can do it myself. I'm proud to be clean"

WASH AND DISABILITY

Globally, there are an estimated 1 billion people with disabilities (approximately 15% of the world's population)[8].

People with disabilities commonly have less adequate access to WASH services than people without disabilities[9]. Within their homes, people with disabilities are less likely to have access to bathing and latrines, and face stigma and discrimination when using public WASH services[9].

WASH AND DISABILITY IN VANUATU

Vanuatu is a Pacific nation of 83 islands extended over 1000 kilometres that is considered one of the most vulnerable to natural disaster in the world[10 11].

Combined coverage of basic water and sanitation is lower in the Pacific than any other region, and lower in Vanuatu than many of its Pacific neighbours[12]. Less than half of ni-Vanuatu have access to safely managed drinking water, less than two thirds have access to at least basic sanitation and less than three quarters have a basic handwashing facility at home[13].

According to Vanuatu's 2009 Census, around 5 percent of the population were found to have a mild, moderate or severe disability[14]. This is lower than the often-stated global estimate of 15%, however more recent evidence has shown a wider range of estimates across different settings, and confirmed the historic impact of using non-standardised or impairment-based methodologies[8,15,16]

Vanuatu has demonstrated considerable commitment towards the rights of persons with disabilities and to gender equality. This includes ratifying the UNCRPD[14], establishing disability related strategies, action plans, and a Disability Desk within the Ministry of Justice and Community Services[14]. Additionally, the Vanuatu National Sustainable Development Plan 2016 – 2030 ("Vanuatu 2030: The People's Plan") formalises the Republic's commitments to the Sustainable Development Agenda and to disability and gender inclusive progress, including Economy Pillar Objective 2.2 "Ensure all people have reliable access to safe drinking water and sanitation infrastructure".

However, little rigorous evidence exists about people with disabilities' access to WASH services within Vanuatu and the impact of poor WASH access on women. Moreover, limited evidence exists globally on MHM and incontinence. The Water, Women and Disability Study was undertaken to address these gaps to inform programming, policy, and advocacy interventions.

The Water, Women and Disability study aimed to complete a comprehensive population-based study of disability in TORBA and SANMA Provinces, to measure how common disability is, and understand access to and experience of WASH, menstrual hygiene management (MHM) and incontinence amongst persons with and without disabilities with a gender lens.

Photovoice photo by Marie Chanelle captioned:

"I need a safe and private bathroom"

LAETEM DAK KONA

The Laetem Dak Kona (LDK) project, funded by the Australian Government's Water for Women Fund, will be implemented by World Vision Vanuatu with and through its key partners in the two northern provinces of Vanuatu, SANMA and TORBA from 2018-2022. LDK aims to achieve improved health and well-being for people with disabilities and women in these provinces through access to gender-equitable and disability-inclusive WASH systems.

The Water, Women, and Disability (WWD) study in SANMA and TORBA provinces provides the baseline for LDK, including disseminating findings at all levels in an accessible way, to inform the development of the intervention.

METHODOLOGY OVERVIEW

1. Complete household listing and disability prevalence survey across almost 55,000 individuals in TORBA and SANMA Provinces (March to July 2019).

- The Washington Group Short Set of questions[i] were used to identify people with disabilities. Adults aged 18+ self-reported, and adult caregivers reported for all children 5 – 17 (children aged 0-4 years were excluded from disability screening)

2. A nested quantitative case-control study of people with and without disabilities (sample size 800 women and men with disabilities, and 800 women and men without).

3. An in-depth qualitative study of menstrual hygiene and incontinence (46 individuals with and without a disability, and 17 policy makers and implementers focusing on WASH, health and disability).

Quantitative data was collected by a team of 48 data collectors and five field supervisors, and the qualitative team consisted of five people.

Gender composition and meaningful inclusion of persons with disabilities in all teams was taken into account when recruiting. Teams were trained to use the data collection tools correctly, carry out research ethically with people with disabilities and how to discuss sensitive topics such as MHM and incontinence.

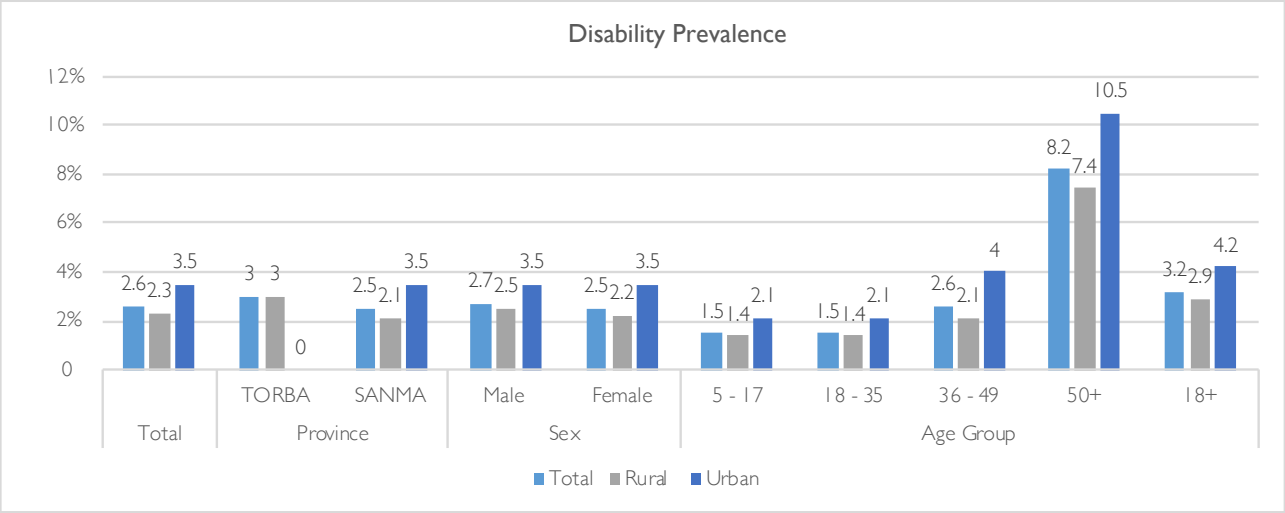
Data collection tools were translated from English to Bislama, piloted and refined prior to data collection. Full ethics approval was granted by the London School of Hygiene and Tropical Medicine (LSHTM) and endorsement was provided by the Ministry of Justice and Community Services.


Photo Credit: Mike Kaun (WVV)

i A self-reported functional limitation tool developed by the United Nations Washington City Group. Four additional questions on Anxiety and Depression were also captured (ESF-Lt) but not included in prevalence estimates http://www.washingtongroup-disability.com/

KEY FINDINGS[ii]

DISABILITY PREVALENCE

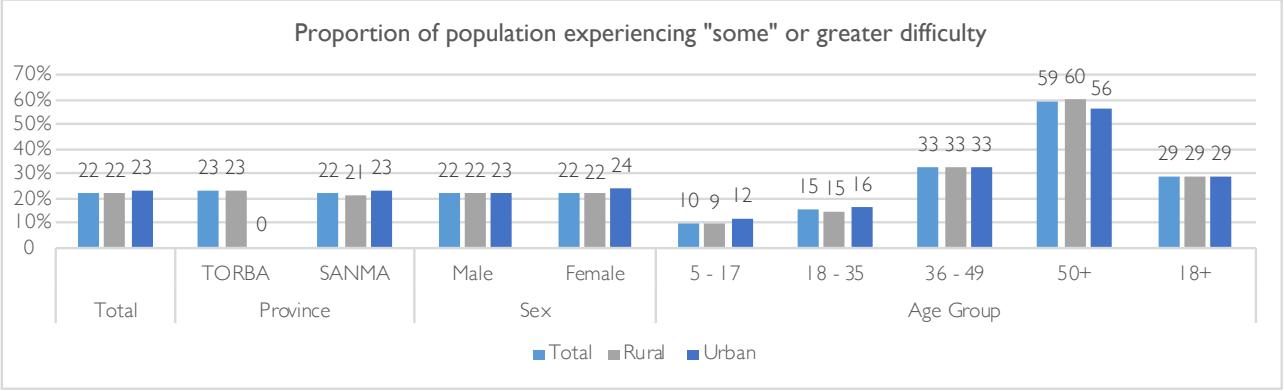


ES Graph 1: Disability Prevalence

- All-age disability prevalence using the standard Washington Group definition was 2.6%, increasing to 3.5% in Luganville. This is lower than estimates using the same tool in different settings, but comparable to other Pacific estimates (e.g. 2.7% in Samoa, 4.6% in Tonga, 3.1% in Kiribati Census and 2.4% in Palau)[17-20]. There may be cultural reasons which affect reporting of functional limitation in this region which warrant further qualitative research.

- As seen in other settings, disability increased with age, but was similar by sex[16].

- The proportion of people not categorised as having a disability, but reporting "some" difficulty in functioning was 22% (ten times higher than the prevalence of disability).



ES Graph 2: Proportion of population experiencing "some" or greater difficulty

ii All findings reporting differences between groups are statistically significant at the 95% confidence level. The study's Full Report contains a complete statistical appendix.

WATER AND HYGIENE

- 91% of households overall had access to an improved water supply[iii], although this was lower in rural households (89%) compared to urban (99%).

- The majority of households (86%) do not have a water source on the premises, but it takes less than 30 minutes (round trip) to collect water.

- Women and men with disabilities were less likely to collect water themselves than women and men without disabilities. Less people with mobility limitations reported feeling safe when doing so, citing distance to the water source, fear of abuse from others, and inaccessibility of terrain as reasons. Menstruating women reported an increased requirement for water.

- People bathed most regularly using water from a pump or standpipe outside the dwelling but inside the household compound, but 19% of people with disabilities used a different bathing source to other household members.

- Harmful menstrual beliefs and taboos were prevalent, and internalised by women and girls. The most widespread beliefs were that menstruating women and girls will kill crops if they touch them, they must not work in the gardens, cook food, or lift heavy objects. They must also collect their own water for bathing and washing their reusable menstrual product, wash their own menstrual product and use separate latrines and bathing shelters.

- Women and girls with a disability who require support to collect water, bathe, and do the laundry, are more negatively affected by harmful menstrual beliefs. This is also true of people who have difficulties accessing the latrine or bathing shelter.

Water availability was insufficient (not available every time needed in last 3 months) for over half of all households (57%), with no difference between rural and urban locations.

PhotoVoice photo by Liti Akimere captioned:

"The water source is far. I want water closer to me so I can get it easily"

SANITATION

- 55% of households had access to an improved sanitation facility[iv], with no difference depending on whether there was a person within the household with a disability or not.

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iii **Improved drinking water source definition:** those that have the potential to deliver safe water by nature of their design and construction, and include: piped water, boreholes or tubewells, protected dug wells, protected springs, rainwater, and packaged or delivered water.

iv **Improved sanitation facilities definition**: those designed to hygienically separate excreta from human contact, and include: flush/pour flush to piped sewer system, septic tanks or pit latrines; ventilated improved pit latrines, composting toilets or pit latrines with slabs.

- Amongst people with disabilities, 14% did not use the same facility as other members of their household, and 38% needed assistance to use the toilet.

- 32% of people with disabilities found it difficult to use the toilet without coming into contact with faeces or urine. This was more likely for older people, and people with mobility and self-care limitations.

Inaccessible latrines are a more significant challenge for people who experience incontinence, as they need to reach a toilet quickly. This indignity affects a person's ability to leave home and participate fully in daily life.

- People with mobility, self-care and remembering functional limitation were least able to use the toilet as frequently as they desired.

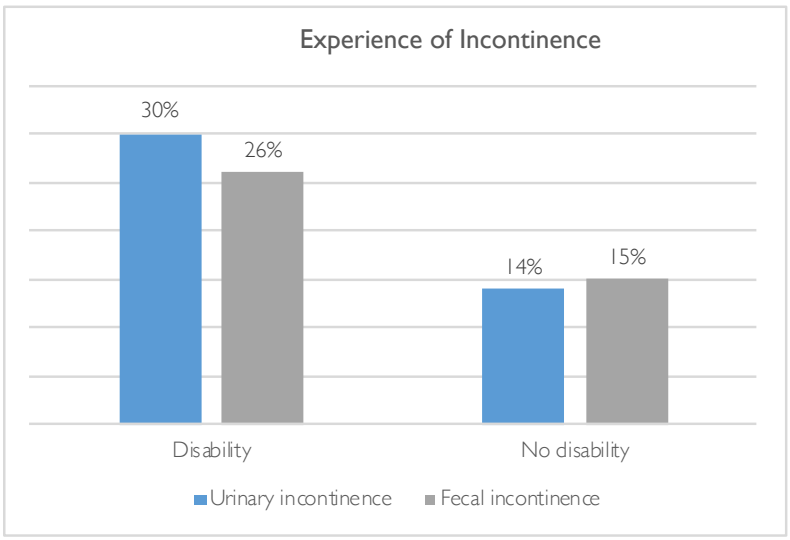
- Participants with disabilities cited the distance to the latrine, unsafe route to reach it, lack of lighting and privacy as major barriers. Older people and people with mobility limitations said that a lack of support structures inside the toilet made it difficult or impossible to use.

- Barriers caused by inaccessible latrines are compounded by the lack of affordable incontinence products on the market, such as bed pans and adult diapers, and information about management strategies.

- Management strategies applied by people who experience incontinence and are unable to sit unaided out of bed, include uncovered bucket latrines next to their bed, which are emptied and cleaned by carers.

- Waste water from bathing a person who experiences incontinence, can be thrown on the ground outside the home, and without water on the premises, some carers wash the person who experiences incontinence's laundry in the creek.

- People with disabilities were twice as likely to experience incontinence as people without. Women with disabilities and people with mobility limitations reported a greater likelihood of experiencing urinary incontinence than other people with disabilities. No sex difference was recorded for faecal incontinence.



ES Graph 3: Incontinence

- Participants with and without a disability who experienced incontinence, reported that it disturbs sleep and affected them most during the night. Management strategies applied by all participants who experience incontinence, included limiting water intake with and after the evening meal.

- Carers reported limiting people's consumption of food and water, in order to reduce the number of times the person needs to urinate, and to manage weight gain. This was a particularly concern for ageing parents of growing children with mobility functional limitations, who have no lifting devices.

STIGMA AND TABOO

There is no word for incontinence in Bislama, and most people who experience incontinence do not talk to others about it, preferring to 'manage' as independently as possible. This was borne from shame, a fear of what others would say and think, because it is thought of as a normal part of ageing and because they have never been asked about incontinence by a medical professionals or members of the family.

There were very few accounts of formal education in school about puberty and menstruation, a dearth of accurate information on the menstrual cycle, how to manage it hygienically, and how to dispose of menstrual products in an environmentally friendly way.

Information that was provided focused on menstrual taboos and restrictions, and practical management of menstruation, such as using a menstrual product to soak up menstrual blood, but not how often to change the product.

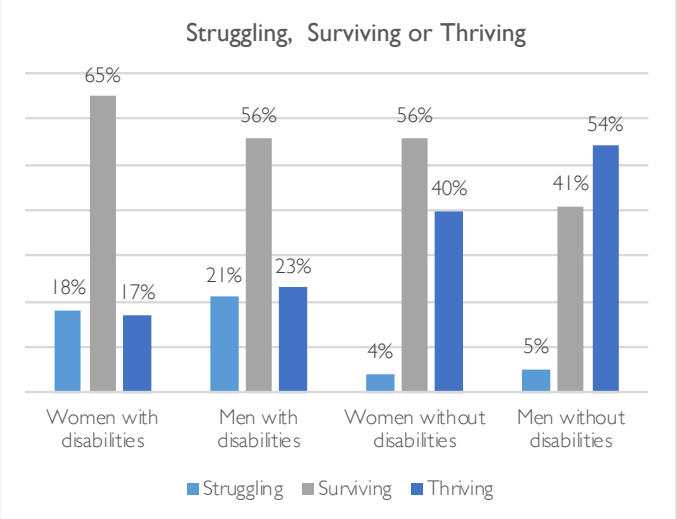
Key influencers for menstrual hygiene are mothers, older sisters and grandmothers. Some participants were told menstruation is normal, but it was always framed negatively as a 'problem' or 'women's sickness'. The negative language used to describe menstruation shows how menstrual taboos are passed down the generations.

SURVIVING VERSES THRIVING

Based on self-reported satisfaction with life and Gallop World Poll cut-offs[21], people with disabilities were more likely to be struggling and less likely to be thriving than people without disabilities. Women with disabilities were the least likely to be thriving.

People with and without a disability who experience incontinence cited a reliance on others as a major challenge, partly because of a deep sense of shame they feel when a carer supports them with toileting. Women and men who experience incontinence felt they were a burden to their families and carers, and some carers felt this too, which led people to try to manage their incontinence silently.

Healthcare workers reported a lack of capacity for development and skills training on providing services for people with disability and limited understanding of incontinence and disability and menstrual hygiene



ES Graph 4: Struggling, Surviving or Thriving

There were many accounts across all participants who experience incontinence of limiting their own participation, with a lack of public toilets and fear of soiling oneself being cited as a major concern. Carers also limit people with disabilities movements for these reasons, and because they do not want the person subjected to ridicule by others.

Women with a disability were also more likely to restrict their participation when they are menstruating than women without a disability.

STUDY RECCOMENDATIONS FOR WASH ACTORS IN VANUATU

IN TORBA AND SANMA:

- Continue to work with stakeholders to strengthen consistency of household water supply in TORBA and SANMA - without this fundamental WASH building block in place, women and men with and without disabilities will continue to face WASH challenges.

- Prioritise self-supply initiatives within the WASH programmes, especially targeting households with persons with disabilities, all older people and anyone experiencing incontinence.

- For both MHM and incontinence management: Explore locally available, reusable, sustainable and cost-effective materials that can be used to make environmentally-friendly products that meet potentially different requirements of people with different impairment types.

- Support carers to understand incontinence and management strategies that can be applied at home, and how to support another person to manage their menstruation hygienically and with dignity.

- Complete accessibility and safety audits for all clients with disabilities and for all public facilities - remember, one size does not fit all in terms of WASH and disability.

- Feed into current rural and urban sanitation plan development, by encouraging and working with stakeholders to develop building regulations to ensure accessible public facilities (with bins with lids in female toilets for MHM) are built in both rural and urban settings.

ACROSS VANUATU:

- Destigmatise incontinence by giving it a name in Bislama and providing clear messaging to communities around what it is and where people who experience it can get support.

- Destigmatise menstruation by celebrating it, challenging harmful beliefs and avoiding euphemisms.

- Champion hygiene as a core component of WASH activities, including capacity to bathe regularly with soap - this is particularly important for women and girls who menstruate.

- Encourage stakeholders to build MHM, incontinence and disability into healthcare worker training, including how to discuss sensitive topics such as incontinence with people who experience it, and the links between urinary incontinence and the diabetes epidemic.

- Encourage and work with Ministries to develop a single, comprehensive and fully inclusive Water, Sanitation and Hygiene Policy that explicitly includes people with disabilities, MHM and incontinence.

- Prioritise household level water supply in national strategic planning.

- Work with Disabled Peoples Organisations to support full and meaningful inclusion of people with disabilities, and diminish attitudinal, institutional and structural barriers to participation that become internalized by people with disabilities.

To ensure no one is left behind, these recommendations (designed to inform the LDK intervention) should be taken forward by all WASH actors in Vanuatu.

Photo Credit: World Vision

ACRONYMS

ACRONYM	MEANING
AC	Area Council
CEDAW	Convention on the Elimination of All Forms of Discrimination Against Women
CSO	Civil society organisations
DPO	Disabled Persons' Organisations
EA	Enumeration Area
GNI	Gross National Income
HH	Household
HIV	Human immunodeficiency virus
ICED	International Centre for Evidence on Disability
JMP	Joint Monitoring Programme for Water Supply and Sanitation
LDK	Laetem Dak Kona
LMIC	lower and middle income country
LSHTM	London School of Hygiene & Tropical Medicine
MHM	Menstrual hygiene management
MoET	Ministry of Education and Training
NPHC	National Population and Housing Census
NSDP	National Sustainable Development Plan
ODK	Open Data Kit
PCA	Principle Component Analysis
SES	Socio-economic status
UNCRPD	United Nations Convention on the Rights of Persons with Disabilities
VDPA	Vanuatu Disability Promotion and Advocacy Association
VNPF	Vanuatu National Providence Fund
VNSO	Vanuatu National Statistics Office
VSDP	Vanuatu Society for Disabled People
WASH	Water, sanitation and hygiene
WG ESF-lt	Washington Group Extended Set on Functioning Lite
WGSS	Washington Group Short Set
WHO	World Health Organisation
WVV	World Vision Vanuatu

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02
INTRODUCTION

IMPORTANCE OF WATER, SANITATION AND HYGIENE (WASH)

Safely managed drinking water, sanitation and hygiene (WASH) are essential to human health and well-being[1]. Adequate access to safe WASH contributes to good health and the prevention of disease, and enables participation in other areas of life such as livelihoods, school and training[2]. Access to safe WASH thus has social and economic impacts on individuals, as well as communities and nations[3].

WASH includes not only safe drinking water, sanitation and hygiene, but also menstrual hygiene management (MHM) and incontinence

Improved access to safe WASH has been shown to reduce rates of diarrhoeal diseases, trachoma and infectious diseases [3,22,23]. A consistent and safely managed water supply in or near the home allows more time for income generating activities, education, childcare and leisure[3,22]. Accessible, closed toilets or latrines increase security and personal dignity and individuals (especially girls) are more likely to attend school if latrines are available at school[24-26]. WASH not only includes access to hand washing and toileting facilities, but aspects related to hygiene and sanitation such as menstrual hygiene management (MHM) and incontinence.

Historically, in global WASH programming water has been prioritised over sanitation, and hygiene is often invisible in national WASH policies, resourcing and implementation. For example, hygiene was absent from the Millennium Development Goal 7: ensure environmental sustainability[27]. It is now included as target 6.2 under the Sustainable Development Goal 6: ensure availability and sustainable management of water and sanitation for all[27].

The World Health Organisation (WHO) defines hygiene as 'the conditions and practices that help to maintain health and prevent the spread of diseases, including hand washing with soap or other agents, food hygiene, overall personal hygiene including laundry, and environmental cleaning'[28]. Water and sanitation infrastructure provides the physical conditions for hygiene, but good hygiene behaviours can prevent disease. If hygiene is not politically prioritised, disease reduction may not be as significant from funding water and sanitation infrastructure as it could be.

Hygiene is about behaviour change, which is harder to influence and report against than installing water and sanitation infrastructure. Arguably this may be why hygiene often lacks political ownership, and is often less visible in national policies and implementation than water and sanitation.

MENSTRUAL HYGIENE MANAGEMENT

Menstrual hygiene management is defined as "women and adolescent girls using clean menstrual management material to absorb or collect blood, that can be changed in privacy as often as necessary for the duration of the menstruation period, using soap and water for washing the body as required, and having access to facilities to dispose of used menstrual management materials"[29]. MHM also involves addressing harmful social beliefs and taboos surrounding the issue. Poor MHM can negatively impact the health and psychosocial well-being of women and girls[29-32].

Taboos around menstruation can inhibit women and girls' full participation in daily life. Many girls opt out of school when they have their period, because they lack materials to manage their menstruation and/or lack confidence to continue

normal participation in daily activities, including sports[31,32]. Challenges include a lack of information of menstruation and inadequate WASH facilities in schools and public places[31]. Male attitudes towards menstruation can be an additional barrier to effective menstrual hygiene management. Women with disabilities, may also have specific or additional menstrual hygiene management needs which are overlooked. Barriers to MHM for people with disabilities include a lack of training, information and support for people who have difficulties remembering and understanding, lack of standardised guidance for carers, unaffordable menstrual products and a lack of appropriate design options for people with mobility limitations[33].

Taboos around menstruation can inhibit women and girls' full participation in daily life

Affordability of menstrual products is an issue in many countries, especially for people from lower socio-economic groups. In the UK, one in ten girls (10%) have been unable to afford sanitary wear and more than one in ten girls (12%) have had to improvise sanitary wear due to affordability issues[34]. Evidence exists that young adolescent girls in western Kenya engage in transactional sex to obtain sanitary pads[35,36]. This can contribute to exposure to sexually transmitted diseases[37], HIV, pregnancy and school dropout[38]. In many lower and middle income countries (LMICs), people use bark, paper, sand, mud or cloth to absorb menstrual blood[39]. Many of these people do not have access to safe WASH services, so find it difficult to wash reusable menstrual products and the body, and change menstrual products in private.

INCONTINENCE

Incontinence can be classified as faecal, urine, or both. Urinary incontinence is defined as the involuntary loss of urine that is objectively demonstrable and is a social or hygienic problem[5,6] . Faecal, or bowel, incontinence is an inability to control bowel movements, resulting in the involuntary passage of stools[5].

Incontinence is a complex health and social issue that is largely taboo

Incontinence is a complex health and social issue that is largely taboo. As a result, incontinence has been largely overlooked in development and humanitarian settings and under-researched as a focal area for WASH interventions[5]. Incontinence affects a wide variety of people, particularly older people, expectant and new mothers, children and persons with disabilities. If not well managed, incontinence can result in social and economic exclusion, decreased participation in society, reduced quality of life and have implications on mental health and personal dignity[40]. There is research on urinary and faecal incontinence, mainly focused in hospitals, clinical settings and long-term care facilities[5]. However, there is a lack of evidence for humanitarian and development actors in terms of WASH interventions and how to best support the needs of people with urinary and/or faecal incontinence in resource-scarce settings.

It is estimated that incontinence affects 1 in 4 women over the age of 35 years, and 1 in 10 adult men[7]. A meta-analysis from 2003 found the median prevalence of female urinary incontinence globally to be 27.6%, with prevalence of significant incontinence increasing with age[41]. This study included data from population- based studies in 35 countries, however very few of the studies were conducted in low- or middle-income countries. The majority of the 35 studies were from high income countries. There is very little evidence on incontinence in low- and middle-income countries and the prevalence of incontinence in these settings could be higher than global estimates for a number of reasons, including poor access to health services and care (e.g. higher prevalence of long and obstructed labour, limited ante- and post-natal care for mothers, sexual and reproductive diseases which go un-detected and un-treated, lack of access to surgery for existing conditions etc.), and higher rates of chronic illnesses such as HIV[5,42,43].

DISABILITY AND WASH

Globally, there are over 1 billion people with disabilities, which corresponds to approximately 15% of the world's population[8]. There is strong evidence to support the assertion that disability and economic poverty are intrinsically linked, and the majority (approximately 80%) of people with disabilities are believed to live in low and middle income countries[44]. In addition, people who live in poverty are more likely to have a disability regardless of the income classification of the country[44].

Difficulties in accessing WASH services are common and globally 844 million lack access to safely managed water and 2.3 billion people lack access to adequate sanitation. Those in the lowest wealth quintile (in which people with disabilities are overrepresented) are 5.5 times more likely to lack improved water access and 3.3 times more likely to lack adequate sanitation, compared with households in the highest quintile in the same country[45]. People with disabilities commonly have less adequate access to WASH services than people without disabilities. For instance, data from 34 countries shows that people with disabilities are more likely to live in households without access to basic water and sanitation than people without disabilities[9].

People with disabilities are more likely to be poor, and people who are poor are less likely to be able to access WASH

People with disabilities often face additional barriers in accessing WASH services and accessing the amount of water they require in LMICs[46]. In addition, girls and women with disabilities, especially wheelchair users, frequently have specific menstrual hygiene management needs which are overlooked[46].

Physical barriers comprise of environmental factors such as uneven terrain, inaccessible infrastructure or inappropriate facilities (such as pump handles that are unusable for people with disabilities). Institutional barriers are policies, strategies and agencies within the WASH sector that fail to meet the needs of people with disabilities or prevent the participation of people with disabilities[46]. Social barriers are those that result from cultural beliefs or practices such as stigma and discrimination[47]. For instance, believing that people with disabilities should be kept away from WASH facilities.

The barriers in accessing WASH facilities can have a profound impact on the lives of people with disabilities, and may vary depending on the type of disability a person has. For instance, inaccessible latrines could result in people with disabilities who cannot stand or see needing to crawl or sit on dirty latrine seats to change their menstrual pads or cloths[30,33]. People with visual impairments may be unable to identify when their menstrual period has started and finished or be unable to use latrines or sanitation facilities because of poor lighting or lack of tactile surfaces[46]. People with hearing, communication or intellectual impairments may be less able to communicate when they are in pain or need support[30] Inaccessible WASH can drive exclusion of children with disabilities (particularly girls) from school, and children and adults with disabilities from community events[48,49]. In addition, inaccessible WASH can lead to people with disabilities defecating in poorly lit and secluded areas leading to increased risk of injuries, abuse and exploitations.

Barriers to WASH for people with disabilities may be physical (e.g. terrain or infrastructure), institutional (e.g non-inclusive policies) or social (e.g. stigma or discrimination)

People with disabilities require an accessible built environment to enable access to WASH facilities. People with disabilities may also require access to specific assistive technology to enable safe, hygienic and independent toileting.

BACKGROUND ON VANUATU

Vanuatu is a Y-shaped archipelago comprised of approximately 83 islands that extend over 1000 kilometers in a north-south direction, located in the South Pacific Ocean[10]. It is located approximately 1750 kilometres East of Australia and 500 kilometres North-East of New Caledonia. The islands are primarily of volcanic origin and Vanuatu is regarded as one of the most vulnerable countries to natural disaster in the world due to the occurrence of natural hazards, including cyclones, earthquakes, tsunamis and volcanoes[11].

In 2016, Vanuatu had a total all-age population of 270,000 people[50]. The majority of the population relies on subsistence farming and 75% of the inhabitants live in rural areas[50]. Vanuatu is organized into 6 provinces, including (from South to North): TAFEA, SHEFA, MALAMPA, PENAMA, SANMA and TORBA.

The World Bank lists Vanuatu as a Lower Middle Income County meaning that the Gross National Income (GNI) per capita is between $1,026 and $3,995 USD. Vanuatu ranks 138 out of 189 countries and territories on the Human Development

Index[51]. The life expectancy at birth is 70 years for males and 74 years for females[50].

POLICY ENVIROMENT

VANUATU GOVERNMENT POLICY CONTEXT

CRPD CONVENTION ON THE RIGHTS OF PERSONS WITH DISABILITIES

The UNCRPD was adopted by the UN General Assembly in 2006, and "reaffirms that all persons with disabilities must enjoy all human rights and fundamental freedoms" (36). The UNCPRD declares that people with disabilities have the right to make decisions about their lives and be active members in decision making processes (36). The convention was adopted by Vanuatu in 2006/2007.

The Government of Vanuatu has shown commitment to the rights of people with disabilities and women, demonstrated by being the first Pacific Island country to sign the UN Convention on the Rights of Persons with Disabilities (UNCRPD) in 2007 and ratify it in 2008[14], and through the ratification of The Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW) in 1995[52].

Alongside the Disability Inclusive Development Policy (2018-2025)[53], the Mental Health Policy and Plan 2009-2015, the Inclusive Education Policy and Strategic Plan 2010-2020[14], and the National Gender Equality Policy (2015-2019)[14], Vanuatu's National Sustainable Development Plan 2016 - 2030, formalises a national commitment to disability inclusion and gender equality[11]. Objective 2.2 of the People's Plan mandates the importance of disability-inclusive and gender-equitable WASH to ensure that all people have reliable access to safe drinking water and sanitation infrastructure.

Some gaps in policies related to WASH are being addressed in policy revisions. For instance, the Design and Construction Standards for Rural Water Supply in Vanuatu includes disability as a standard (alongside health facilities and schools) and stipulates that people with disabilities 'are provided with appropriate access to water supply and sanitation facilities on the household compound'[54]. This includes ensuring that 1) household water surveys disaggregate data by disability, 2) water points are located within 30 metres of a person with a disability, 3) the path to the water point are accessible, 4) the water point is a 'suitable height' for children, adults and people with disabilities to access.

The Government of Vanuatu also created a Disability Desk within the Ministry of Justice and Community Services as well as Provincial Disability Officers to monitor the implementation of disability related policies and to coordinate collaboration with government institutions, civil society and development partners. However, where WASH policies currently exist key barriers include a lack of implementation capacity and accountability of government in ensuring their enactment[53].

According to the Global Facility for Disaster Risk Reduction and the UN University World Risk Index, Vanuatu is the world's most at-risk country for natural hazards. In this type of humanitarian context, people with disabilities are most at risk and the risk of disability increases in conflict and natural disasters[55]. Research exploring the experiences of people with disabilities during and after Tropical Cyclone Pam, a Category 5 storm that struck over 50% of the Vanuatu archipelago in 2015, highlighted that this group were 2.45 times more likely to have been injured and that they had poorer access to disaster risk reduction efforts than people without a disability[56]. Gendered differences within disability were also apparent: women with disabilities had less access to disaster risk reduction responses than men with disabilities. A key recommendation from the study was to mainstream disability inclusion across disaster risk reduction and response policies and practices, and activity that the Vanuatu National Disaster Management Office has partnered with donors and civil society to achieve.

GOVERNANCE STRUCTURES

The Government of Vanuatu is currently implementing its Decentralisation Policy (2017-2027), marking a shift in authority and decision making from the national to Provincial level government, and a commitment to creating a more enabling environment for citizens to directly participate in public service delivery[57].

Decision makers at the community level are generally men and include Area Council Secretariats, Chiefs and their councillors, church leaders, and Water Committees. Within households, men are also traditional landowners and key decision makers.

Civil society advocate for and partner with Government to further human rights. For instance, the Vanuatu Civil Society Disability Network, Vanuatu Disability Promotion and Advocacy Association (VDPA) and Vanuatu's Women's Centre are all active, though inclusive WASH has not been an advocacy priority to date[53]. The Vanuatu Society for Disabled People (VSDP, based in Port Vila) provides rehabilitation and early intervention services to children with disability[58].

WASH IN VANUATU

Combined coverage of basic water and sanitation is lower in the Pacific than any other region of the world, with progress in the region described by the JMP as having stagnated between 2000 and 2015[12]. In Vanuatu, it is estimated that 44% of people have access to safely managed drinking water, 34% to basic sanitation, and 25% have a basic handwashing facility at home[13]. In Fiji, 94% has access to safely managed drinking water, 95% to basic sanitation (no data for handwashing facilities)[13].

Climate change impacts such as sea-level rise, changing rainfall patterns and increasingly frequent extreme weather events make the Island Nations of the Pacific – of which Vanuatu is one –particularly vulnerable to inadequate potable water, and insufficient water and infrastructure for hygiene and sanitation.

Within Vanuatu, the province of SANMA is reported to have the greatest burden of WASH-related diseases per 1,000 persons in the country[59]. Surveys completed by World Vision Vanuatu also show that WASH statistics in SANMA are significantly lower than national averages: 30% lower for access to clean water, and 21% lower for improved sanitation facilities[60]. TORBA is the most geographically remote province in the country, with the highest number of islands – and despite having similar levels of cash and subsistence expenditure to all other provinces, TORBA has a significantly lower monthly income. In both of these provinces and indeed throughout the nation, people with disabilities and women face many inequities in accessing safely managed water supply, sanitation and hygiene (WASH) facilities, services and practices.

In Vanuatu, as elsewhere in the Pacific, there still is a stigma or 'Tabu' around 'sikmun' or menstruation, which is believed to often lead to the isolation of menstruating women due to social and physical barriers, and to prevent girls from attending school[53,61].

Preliminary research undertaken by World Vision Vanuatu and Care International in 2018 suggests that women and girls in Vanuatu access information on menstruation from parents, teachers, grandmothers, aunties, school and clinics. However, the report noted that mothers and family members did not always have the confidence or information to discuss menstruation, and that consistent and specific information regarding menstrual hygiene management is lacking[53].

The preliminary research also suggested that women from urban areas used a variety of options to manage menstrual bleeding including sanitary pads, double cloth, tampons, washable calico pads and in some cases silicone cups (although these have not been available for purchase in country until recently). Whereas women and girls in rural areas relied more on cloth and in some cases used natural materials like dry banana leaves[53]. However, in both settings, products such as sanitary pads were not reported to be widely used due to lack of income, accessibility and availability. In some cases, there were reports that women would stay in an isolation hut for the duration of menstruation and used leaves for MHM. Additionally, it was noted that some women were not allowed to handle food our use shared plates and cups during menstruation as it is considered 'unhygienic' and sexual activities were postponed due to kastom (traditional) beliefs[53].

These preliminary statements from stakeholders reflect similar findings from elsewhere in the Pacific, documented in the 2017 report The Last Taboo: Research on menstrual hygiene management in the Pacific: Solomon Islands, Fiji, and Papua New Guinea[61].

In addition, it was reported in the preliminary discussions that some women were not allowed in the garden or to use canoes and on some areas where water was scarce, women were expected to spend the entire time washing in the river or sea.

In Vanuatu, women with disabilities manage their menstruation with assistance from their caregivers and family members. During menstruation they were also found to be isolated with no family visits and were not allowed to handle food. The report by World Vision and Care found that there was a lack of knowledge of menstrual hygiene management and accessibility to sanitary products for women with disabilities[53]. Family Members (whether educated or not educated) were either unaware, or blocked access to information for women with disabilities. Access to MHM products for women with disabilities depended on affordability and education on how to use the products.

However, in Vanuatu, access to assistive technology is limited, especially in rural areas[53]. Caregivers can provide support to people with disabilities for activities of daily living, such as showering and toileting. However, caregivers receive little to no training and support and their caregiving role can mean they are missing paid work opportunities[53]. People with disabilities may experience incontinence management strategies in Vanuatu can be costly and provoke negative reactions from others, which discourages their use.

DISABILITY IN VANUATU

According to Vanuatu's 2009 Census, around 5 percent of the population were found to have a mild, moderate or severe disability[14]. This is lower than the often-stated global estimate of 15%, however more recent evidence has shown a wider range of estimates across different settings, and confirmed the historic impact of using non-standardised or impairment-based methodologies[8,15,16]

According to the Vanuatu National Statistics Office (VNSO), people with disabilities experience decreased participation in society. For instance: children with disabilities are significantly less likely to attend school, people with disabilities are much more likely to live in the lowest wealth quintile, are less likely to be employed outside of the home and are more likely to experience violence and aggression at home[14].

In Vanuatu, people with disabilities and women in Vanuatu face inequalities in social, cultural, economic and political spheres of life. Vanuatu is a highly traditional society, with customary beliefs (referred to as 'kastom' in Bislama), practices, values and structures (including traditional governance) dominating community life (adapted from Braaf, R. Initial Gender and Social Inclusion Assessment for Vanuatu NGO Green Climate Fund Consortium, 2017[62]). There are limits to women's participation in decision-making at all levels, which results in policies and practices that do not account for their particular needs and priorities, and result in inequities. The risk of gender-based violence underpins day-to-day life.

People with disabilities and women regularly experience barriers in accessing economic empowerment opportunities. These can include confidence, low community recognition of their ability, limited financial literacy and a lack of specific work skills[14]. Where people with disabilities and women have limited engagement in decision making regarding the use of household income, this can result in limited access to soap, menstrual hygiene and incontinence products, which impacts on hygiene and health.

LAETEM DAK KONA (LDK)

Access to WASH is fundamental to living a healthy life and can enable participation in society and activities such as school, training and paid work. Therefore, World Vision Vanuatu will use WASH as an avenue to address agency, empowerment, and inclusion for women and people with disability in Vanuatu through the Laetem Dak Kona (LDK) project 2018 – 2022. The LDK project, funded by the Australian Government's Water for Women Fund, will be implemented by World Vision Vanuatu with and through its key partners in the two northern provinces of Vanuatu, SANMA and TORBA from 1 July 2018 through 30 December 2022.

Gender-equity and social inclusion are the focus of LDK. People with disabilities and women will make up the project staff, lead advocates in communities, and core implementing partners. They will cast "light into dark corners" and lead similar groups to raise their own expectations, voice, and agency for removal of WASH barriers. At the policy level, the project will focus on developing a better evidence base on the situation of women and people with disabilities and their caregivers, the barriers that they face in accessing services and opportunities and interacting with formal/informal decision-making institutions. At a social level, World Vision Vanuatu will engage by working through partners to offer concrete examples of how inclusion can be achieved in the WASH sector in part by challenging unhelpful social norms and power structures.

LDK aims to achieve improved health and well-being for people with disabilities and women in SANMA and TORBA provinces through access to gender-equitable and disability-inclusive WASH systems. In order to achieve this goal, LDK seeks the following outcomes:

- *People with disabilities and women are actively participating in community life & governance;*
- *Government at national level is committed to developing inclusive WASH policies & standards with TORBA & SANMA provincial governments creating inclusive WASH facilities;*
- *Community, provincial, national & international stakeholders are using new knowledge & effective practices identified & developed through the project;*
- *World Vision Vanuatu adopts a "stik faea" approach, becoming catalysts for change and modelling gender-equitable and disability inclusiveness at all levels.*

The program will employ numerous strategies to deliver these outcomes with the WW study providing pivotal information to hone the focus and specific strategies to achieve these outcomes. Key strategies are likely to include:

- *A Water, Women and Disability (WWD) study in SANMA and TORBA provinces. This will be the first detailed research into this topic in these provinces. The findings from the WWD study will inform the project activities.*
- *Community education on the rights of people with disabilities and women, and the importance of inclusive Water, Hygiene and Sanitation (WASH). This will be achieved through a number of media including drama performances and photo exhibitions.*
- *Capacity building on advocacy, supporting the construction of inclusive WASH infrastructure, providing improved training and support to those people caring for people with disabilities*
- *Developing curriculum and training approaches for carers*
- *Menstrual Hygiene Management (MHM) and Continence Management (CM) pilot*
- *Facilitation of the distribution of assistive devices to people with disabilities*
- *Working through Government initiatives to support increased access to water*

This report forms the primary output of the Water, Women and Disability Research Study in SANMA and TORBA provinces.

MEASURING DISABILITY

The Washington Group Short Set Questions (WGSS) is the most commonly used method to measure disability[63]. The WGSS consists of six self-reported questions on whether the respondent has difficulty: seeing, hearing, walking, remembering, performing self-care or using their customary language (Appendix 1). Each question has four response options: 1) no difficulty, 2) some difficulty, 3) a lot of difficulty or 4) cannot do at all.

The questions were developed to identify the population at risk of participation restrictions, and are considered socially and culturally bias-free, allowing for comparable data globally. The non-technical nature of the WGSS minimises assumptions about the situation of persons with disabilities, reducing the risk of inaccuracies and misguided data[64]. By focusing on functioning limitations without mention of disability, the WGSS supports the identification of 'hidden' at risk groups that may have difficulty performing activities of daily living or have participation restrictions that do not identify as being a person with disability, possibly due to stigma or social norms[63].

The research also captured the prevalence of symptoms of anxiety and depression amongst the adult population (18+) through the inclusion of four additional questions (collectively termed the Extended Set on Functioning Light, ESF-Lt). Prevalence estimates are derived from the WGSS only, with prevalence of anxiety and depression reported separately.

MEASURING WASH

The WHO/UNICEF Joint Monitoring Programme for Water Supply and Sanitation (JMP) developed a set of question and response categories intended to be used in household surveys and national censuses to ensure high quality and accurate data within countries and comparable data across countries, regions and globally[65]. The questions assess elements surrounding drinking water (water source, time required to collect water, treatment, etc.), sanitation facility, disposal of faeces, hygiene practices and MHM.

Standardised questions related to water and sanitation facility, ownership and testing allow household WASH to be categorised as below.

Improved drinking water source definition: those that have the potential to deliver safely managed water supply by nature of their design and construction, and include: piped water, boreholes or tubewells, protected dug wells, protected springs, rainwater, and packaged or delivered water

Improved sanitation facilities definition: those designed to hygienically separate excreta from human contact, and include: flush/pour flush to piped sewer system, septic tanks or pit latrines; ventilated improved pit latrines, composting toilets or pit latrines with slabs

Table 1 Drinking Water Ladder Definition and Table 2 define the JMP Sanitation and Water Ladder categories used in the report. The study did not test for faecal or priority chemical contamination, and therefore we are unable to report on safely managed water or sanitation supply in this data-set.

Table 1 Drinking Water Ladder Definition		
IMPROVED	SAFELY MANAGED	Drinking water from an improved water source which is located on premises, available when needed and free from faecal and priority chemical contamination
	BASIC	Drinking water from an improved source, provided collection time is not more than 30 minutes for a roundtrip including queuing
	LIMITED	Drinking water from an improved source for which collection time exceeds 30 minutes for a roundtrip including queuing
UNIMPROVED	UNIMPROVED	Drinking water from an unprotected dug well or unprotected spring
	SURFACE WATER	Drinking water directly from a river, dam, lake, pond, stream, canal or irrigation canal
	Source of definition: https://washdata.org/monitoring/drinking-water	

Table 2 Sanitation Ladder Definition		
IMPROVED	SAFELY MANAGED	Use of improved facilities which are not shared with other households and where excreta are safely disposed in situ or transported and treated off-site
	BASIC	Use of improved facilities which are not shared with other households
	LIMITED	Use of improved facilities shared between two or more households
UNIMPROVED	UNIMPROVED	Use of pit latrines without a slab or platform, hanging latrines or bucket latrines
	OPEN DEFECATION	Disposal of human faeces in fields, forests, bushes, open bodies of water, beaches and other open spaces or with solid waste
	Source of definition: https://washdata.org/monitoring/sanitation	

There are no standardized questions for incontinence or menstrual hygiene management, and these have therefore been developed or adapted with permission as part of this study.

MEASURING WELLBEING

Wellbeing was captured in two ways in the study. First, using the Alternative Indicators for Wellbeing in Melanesia[66] and second the Cantrill Ladder for Subjective Wellbeing.

Vanuatu is a culturally diverse country with the world's highest linguistic density per capita. SANMA and TORBA Provinces represent roughly 40% of that diversity[67]. Measures of traditional knowledge and wisdom included in this study were developed and piloted in Vanuatu from 2010-2012[66]. They seek to illustrate the capacity of cultures to maintain and develop cultural identity as well as the ability of cultures to overcome challenges and difficulties it faces from outside norms and ideals.

A majority of hosueholds in rural areas in Vanuatu possess basic production skills that alleviate dependency on cash for basic necessities[68]. Five skills have been measured at the household level in this study that are essential to sustain livelihoods in rural areas, including dwelling wall and roof construction using local materials; food crop production and cooking skills, and; skills for producing traditional medicines.

In addition, the collection of subjective well-being data provides a valuable lens for analysing social welfare. The Vanuatu National Statistics Office has collected subjective well-being through household surveys since 2010 and the measure has been adopted as a key indicator for monitoring and evaluation of the government's National Sustainable Development Plan. A fact sheet on happiness, using data collected from the 2012 Pacific Living Conditions Survey, describes subjective well-being as referring to "how individuals understand the quality of their lives". Subjective well-being data collected in this study is used to help illustrate for decision-makers and the community at large how living with a disability, or without adequate water and sanitation access, impacts the quality of life for men and women in TORBA and SANMA Provinces.

03

WATER, WOMEN AND DISABILTIY STUDY AIMS AND OBJECTIVES

AIM

To complete a comprehensive population-based study of disability in TORBA and SANMA Provinces, Vanuatu to quantify the prevalence and demographics of disability, and understand access to and experience of WASH, menstrual hygiene management and incontinence amongst persons with disabilities, alongside the situation of persons without disabilities and in particular women.

OBJECTIVES

1. To determine the prevalence of disability among adults and children in TORBA and SANMA Provinces, disaggregated by age, sex, and type of functional limitation.

2. To explore the associations between sex, disability and WASH (requirements, access, barriers and management) with a focus on menstrual hygiene and incontinence specifically to inform the implementation of the LDK project.

3. To quantify associations between disability and: poverty, quality of life, social inclusion, health and opportunities to go to school and to work amongst children and adults respectively.

04

WATER, WOMEN AND DISABILTIY STUDY METHODOLOGY

METHODOLOGY OVERVIEW

A complete household listing and disability prevalence survey was undertaken across TORBA and SANMA Provinces between March and July 2019, in combination with 1) a nested quantitative case-control study and 2) an in-depth qualitative study of menstrual hygiene and incontinence.

STUDY SETTING

The study population was the total, permanent population of TORBA and SANMA Provinces – the two northernmost provinces of Vanuatu. This includes permanently resettled Ambae residents on Espiritu Santo.

The terrain across TORBA and SANMA is predominantly small to medium islands, with a wet monsoon/cyclone season January – April.

Travel between islands is mostly by boat or small plane and the three official languages are English, French and Bislama. Many smaller dialects are also spoken across the islands.

SANMA is sub-divided into twelve Area Councils (ACs), whilst TORBA is sub-divided into six ACs and one municipality (Luganville). Luganville is the only urban location across the two provinces.

Figure 1: Map of Vanuatu

TORBA Province (Torres and Bank Islands)

SANMA Province (Espiritu Santo, Aore and Malo)

HOUSEHOLD LISTING AND DISABILITY PREVALENCE SURVEY

A complete listing of households in TORBA and SANMA Province was undertaken across an expected 68,000 individuals (14,000 households), inclusive of 8000 Ambae evacuees epexted to have settled on SANMA[69]. A complete-listing approach rather than selection of a population-based sub-sample was undertaken for two reasons:

1) The most recent (2009) census sampling frame was perceived to be non-representative of the target population, limiting opportunities for identifying a representative sub-sample on which to collect data to inform WVV's intervention design.

2) As part of WVV's baseline activities, there was a need to census the entire population to identify all persons with disabilities as potential clients for future programmatic work and to support addressing their unmet needs in future interventions designed through the program.

COMMUNITY SENSITISATION

Substantial efforts were made prior to data collection for household members to be present on the data collection day and self-report including targeted text messaging campaign, radio advertisements and awareness raising through church and community networks. A full sensitization strategy was developed including broadcast via radio and other networks, meetings with provincial leaders and meetings with community chiefs in advance of data collection.

Both to reach and to inspire the participation of individuals to be surveyed, key community influencers, the media and the Vanuatu Government were targeted, utilising existing networks with national reach. Appendix 3 details the networks and the key messages shared.

ENUMERATION

48 quantitative data collectors and 10 field supervisors were recruited from across the two provinces (so as to ensure local language fluency and synergy with participant populations), to work in ten teams (one supervisor plus four or five data collectors per team) across 11 Provincial Area groups (with all teams working together through the densely populated Luganville municipality).

Each team covered one Enumeration Area (EA) over 1 - 2 days depending on EA size. Enumeration areas were predefined by the Vanuatu National Statistics Office (VNSO). 2009 Census and Enumeration Area (EA) Maps were acquired from the VNSO for each EA across SANMA and TORBA provinces (approx 260 EAs total, ranging from 1 – 260 households per EA, average 80 households).

On the first day in an EA, teams first completed the household listing and disability prevalence survey component, before focusing on Day 2 on the nested case-control study and mop-up of households unavailable on day one.

Teams contacted community chiefs on arrival in each EA, who either accompanied the teams as they progressed through the EA or recommended a community guide to do so. Teams moved through the EA going house to house. At each available house, the team placed a unique household identity number sticker on the door, which was used for all data points related to that household.

Figure 2: Household ID stickers

PARTICIPANT ELIGIBILITY AND AVAILABILITY

All households were eligible for enrolment into the study provided they had lived in the study area at least 6 months prior to the date of data collection or, if not, intended to live in the study area for at least 6 months following the date of data collection.

If a dwelling was found to be inhabited but unattended, up to two repeat visits as feasible were undertaken by the survey team before leaving the EA. If the whole household was unavailable following up to two repeat visits, the household was then marked as unavailable on the android system.

DATA ENTRY

Mobile data entry was used for the Household Listing and Disability Survey, and the Nested Case-Control Study. The Open Data Kit (ODK) was used to build an encrypted, mobile version of the questionnaires with inbuilt skip logic. Each interviewer was provided with a password protected Android tablet and a data sim card, and data was transferred to a secure, encrypted server held at LSHTM.

INFORMED CONSENT

At each eligible, available household, the interviewer identified either the household head if available, or another adult key informant if not, to explain the study purpose and request that the household participate in the study. Informed consent was taken at three different stages of the quantitative data collection:

1) Household Listing – Household Head/Adult Key Informant
2) Disability Screening – Individual disability screening for adults 18+ and proxy screening for children
3) Nested Case Control Study – Individual for adults 18+ and proxy for children

At each point, an information sheet was read out or shared by the interviewer, describing the study purpose, procedures, benefits and risks, confidentiality of responses, and the eligible participant's right to refuse or withdraw at any time.
If a household or individual refused to participate, the household or individual was marked as a refusal on the system before the interviewer moved to the next household or individual.

HOUSEHOLD LISTING AND DISABILITY SCREENING

For each household that agreed to participate in the study, a household roster was completed first, using a pre-coded questionnaire completed on an Android tablet. The roster collected basic data on age, sex, education and occupation of all household members. Further household-level information, including household assets and characteristics was also collected.

Each household member aged 5 and above was then screened for reported functional limitations using the Washington Group tools as described in Table 3 below. Adults aged 18+ self-reported, and adult caregivers reported for all children 5 – 17.

Table 3 Reported Functional Limitation Tools

Age Group	Tool	Domains	Expected Length per Participant
0 – 4	Excluded from disability screening		
5 – 17 (proxy report)	WG SS	Seeing, hearing, walking, self-care, understanding/ being understood, remembering/ concentrating	<5 minutes
18+	WG ESF-lt	As above, plus anxiety and depression. Note, anxiety and depression estimates are not included in the reported prevalence estimates	<5 minutes

If adults (or adult caregivers of children 5 – 17) were not available on the day of data collection, up to two repeat visits were made as feasible. If repeat visits are not feasible, or two unsuccessful repeat visits had already been made, an adult household member acted as proxy for the unavailable adult/adult caregiver, which was documented in the data collection forms.

NESTED CASE-CONTROL STUDY METHODOLOGY

The nested case-control study recruited a sub-sample of survey participants identified as having a disability age 5+ and an equal number of matched controls (people without disabilities).

Based on expected disability prevalence and expected differences in sanitation scores for people with and without disabilities[v] a sample size of 800 people with disabilities, matched by age-group and community to 800 people without disabilities was determined as sufficient to provide adequate power to assess differences in WASH access and experience between:

- Men and women with disabilities compared with men and women without disabilities
- Women without disabilities compared with men without disabilities
- Women with disabilities who menstruate compared to women without disabilities who menstruate
- Women with and without disabilities who menstruate (approx. age-range 15 – 49)

The nested case-control study provided in-depth information on the situation of persons with and without disabilities in relation to access and quality of access to WASH services (including MHM and incontinence), as well as overview data on education, livelihoods, health and social participation. Figure 3 (next page) depicts the case-control sample stratified by age group and sex.

The expected prevalence of incontinence was approximately 17% in women and 11% in men, increasing with age[67]. It was unfeasible to further stratify the case-control sample by this expected prevalence, given that this data was not captured in the household listing and disability prevalence survey component. However, this expected prevalence was anticipated to identify at minimum 100 women and 66 men within the case-control sample who experienced incontinence for analyses.

Based on expected prevalence, average EA size and necessary numbers for robust estimates per sub group, eight persons with disabilities across each of eight age-sex groups (one per age-sex group) were recruited at random per EA throughout the data collection.

Questionnaires were drafted building upon prior quantitative case control questionnaire development at the International Centre for Evidence on Disability (ICED), and in line with the following key documents:

- The National Sustainable Development Plan (Vanuatu's People Plan) 2016 - 2030
- The Vanuatu National Disability Inclusion Development Policy 2018 – 2025
- Laetem Dak Kona Monitoring and Evaluation Framework

Questionnaire modules included:

Table 4: Case Control Questionnaire Modules

Module	**Restrictions**	**Provenance**
Subjective Wellbeing	Age 16+	Gallup World Poll[68]
Livelihoods	Age 16+	Living Standards Measurement Survey
Literacy	Age 16+	Bespoke – Developed for Study
Traditional Knowledge, wisdom, production skills and participation	Age 16+	National Baseline Survey Questionnaire[71]
Access to Water/ Household Water Treatment		JMP[65]
Water Access - Individual		LSHTM
Bathing Facilities		JMP[65]
Toilet Facility - Household		JMP[65]
Toilet Facility - Individual		LSHTM
Education	Age 5-17	LSHTM

v Average sanitation score for cases in Guatemala[70] 26.2 (SD 26.5); Average sanitation score for controls 15.5 (21.7 SD), $p<0.001$. Score for cases 60% higher; difference in scores 10.7. Sample size calculation based on a difference between means of 10.7 and SD 26.5, with 80% power and 95% significance = 97 per group

Incontinence		Bespoke – Developed for Study
Menstrual Hygiene Management	Female aged 10+ who has menstruated in the last 12 months	Bespoke – Developed for study with some questions Aadapted with permission from JMP[73]
Rehabilitation and Assistive Devices	Cases (persons with disabilities)	SINTEF[74]

In addition to the standard JMP household questionnaire on reported sanitation facility, the study also included a sanitation diagnostic module prepared by World Vision Vanuatu. The results of this module and comparisons between the diagnostic approach and the JMP approach will be made elsewhere.

The study experienced a number of methodological challenges, particularly around capturing sensitive incontinence information, some of which have led to limitations in how the data can be interpreted. See section Strengths, Limitations and challenges for details.

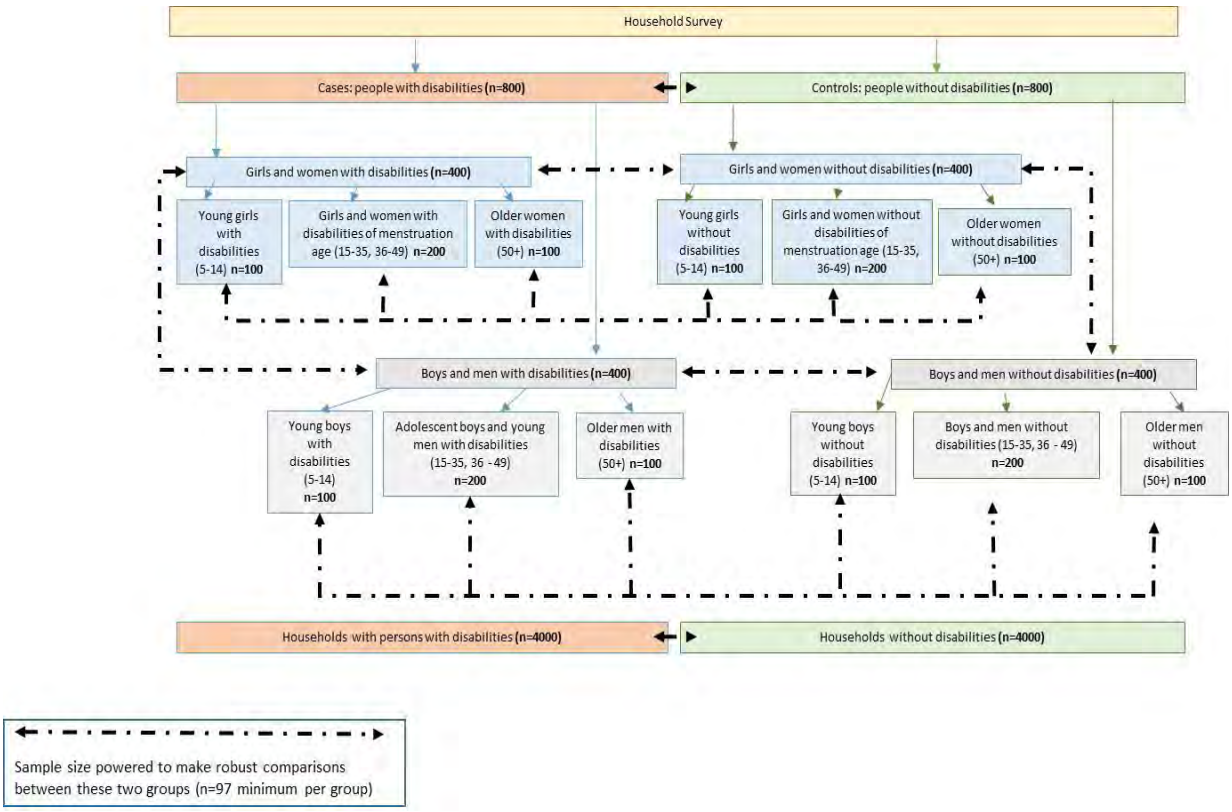


Figure 3: Case Control Sample Size and Comparison Groups

TRANSLATION

Questionnaires and information sheets were translated into Bislama, back-translated into English and amended where necessary to ensure accuracy of translation. Data collectors were recruited from across the islands included in the two provinces, so that verbal translation from Bislama into local dialects could be performed as necessary.

QUALITATIVE COMPONENT

The qualitative sample was drawn purposively from the survey sample, based on the preliminary findings of the survey on the associations between disability and WASH. The qualitative research focused on MHM and incontinence specifically, with broader WASH associations explored in the quantitative piece.

Qualitative research methods were used to understand the experiences of people who experience incontinence and people with disabilities when they are menstruating relevant to WASH programming. Experiences of MHM and incontinence of people with disabilities were compared with that of non-disabled persons. The qualitative research methodology used a participatory framework to underpin all activities. This was critical to ensure local relevance, ownership and the input of local expertise, increasing the opportunities for the research findings to be more easily translated into useful outputs for Civil Society Organisations and other key WASH actors.

Throughout the life of the project, government and civil society stakeholders were kept informed and engaged with the progress of the research including through bi-weekly update email reports.

QUALITATIVE ACTIVITY DESIGN AND METHODS

The qualitative component focused on exploratory research to investigate WASH related barriers and impacts of incontinence and MHM at individual and family levels for people with disabilities and their non-disabled counterparts.

STUDY SITES

Participants lived in rural and urban areas in SANMA and TORBA Provinces. Key informants were located in Luganville and Port Vila.

STUDY POPULATION

The study population comprised:

1. Individuals with and without disabilities, living in rural and urban areas, who experience urinary and / or faecal incontinence two, three or more times a week. Areas of interest: caring support required and provided, access to healthcare services and health seeking behaviours for incontinence issues, incontinence products used and experiences of using these, personal hygiene behaviours, levels of participation and relationships with others, and any additional challenges faced by people who experience incontinence when they are menstruating.

2. Individuals with and without a disability, living in rural and urban areas, who regularly menstruate. Areas of interest: traditional norms, practices and cultural beliefs related to menstruation, water and sanitation facilities including for solid waste management, availability of affordable, usable and culturally appropriate sanitary protection materials, relationships with others (carer, family, peers, wider community, teachers, healthcare providers), knowledge and information provision on MHM, skills in coping and support required, intensity of menstrual discomfort, how these are managed and implications on behaviour.

3. Healthcare workers in rural and urban areas who provide services to people with and without disabilities. Areas of interest: types of services provided in healthcare centres, if people with / without disabilities and their carers go to healthcare centres about menstrual hygiene or incontinence management, the distribution of MHM and incontinence products, training for healthcare professionals on WASH, MHM and incontinence for people with / without disabilities and any resources that exist to support this process.

4. National level policy makers focusing on WASH, menstrual hygiene management, and health. Areas of interest were: WASH and disability policy context, how and why public health policies are prioritised and developed and the involvement of civil society within that process, stakeholders' understanding of and commitment to disability inclusive WASH services, how policy commitments are implemented.

5. Implementers of disability, WASH, MHM and incontinence services within Vanuatu. Areas of interest: a focus on implementing WASH, menstrual hygiene and incontinence management for people with and without disabilities, awareness of menstrual hygiene and incontinence management for people with disabilities, the existence of resources on how to include disability in WASH, MHM, incontinence programmes for implementers, policies that exist, the participant's awareness of these, and the extent to which the participant considers these issues, if and how the organisation collaborates with others.

SAMPLING AND INCLUSION CRITERIA

Individuals with and without a disability, who experience incontinence and / or menstruate were purposively sampled from the quantitative data. Key informants (healthcare workers, policy makers and implementers) were purposively sampled through World Vision and Vanuatu Society for People with Disability (VSPD) networks. These interviews were used to describe and analyse the policy environment for disability and WASH in Vanuatu.

The following inclusion criteria characteristics was used to identify study participants:

- National level policy makers: role focuses on WASH, menstrual hygiene management, disability and/or health
- Implementers: location, role focuses on implementing or monitoring the implementation of disability, WASH, MHM and or incontinence programmes
- Individuals with a disability
    - meets the Washington Group's disability criteria[63]
    - experiences urinary and / or faecal incontinence two, three or more times a week location, gender
    - menstruates, location, gender
- Individuals without a disability:
    - experiences urinary and / or faecal incontinence two, three or more times a week location, gender
    - menstruates, location, gender

SAMPLE SIZE

The sample size for individuals across all variables was 46 (Table 5) and 17 key informants (Table 6).

Table 5. Qualitative Sample size (actual)

Urban	
Variable	**Sample size**
Men incontinence with disability	6
Men incontinence NO disability	1
Women incontinence with disability	4
Women incontinence NO disability	3
MHM	5
MHM NO disability	4
Total	**23**
Rural	
Variable	**Sample size**
Men incontinence with disability	4
Men incontinence NO disability	2
Women incontinence with disability	5
Women incontinence NO disability	3
MHM	4

MHM NO disability	5
Total	**23**
Grand total	**46**

Table 6. Key informants sample	
Variable	**Sample size**
Healthcare worker: rural and urban	2
Policy maker: health & WASH	5
Implementer: WASH	10
Total	**17**

DATA COLLECTION METHODS AND ACTVITIES

Data was collected through the following socially inclusive participatory methods which the LSHTM research team have developed and piloted for exploring sensitive topics with people with disabilities, marginalised populations and people with communication limitations:

- **Photovoice and ranking**, which enables individuals with and without disabilities to communicate their experiences related to MHM and incontinence through photography. With full consent, images can be used in exhibitions, online, in research reports and other media channels and the affective impact of PhotoVoice images have been demonstrated to influence policy and decision makers and implementers[77]
- **Structured observation** to understand the MHM practices, using an Accessibility and Safety Audit of the WASH facilities used.
- **Market survey and product attribute assessment** to identify products on sale that may be used for incontinence and menstrual hygiene management and asking research participants about their feasibility, affordability and acceptability.
- **In-depth interviews** with individuals and proxy interviews with carers for individuals with remembering or communication functional limitations
- **Focus group discussions** with people who menstruate but do not have a disability
- **Key informant interviews** and focus group discussions with policy makers and implementers at the national and district levels

Topic guides on incontinence were developed in collaboration with leading academics and practitioners working on incontinence in low and middle-income countries, VDPA, VSPD, World Vision and its partners to ensure cultural and context applicability. Topic guides on menstrual hygiene followed the same process, but were based on guides that had been applied in Nepal by the LSHTM[78]. Topic guides were translated from English into Bislama and checked by local practitioners fluent in the language.

PRE-TESTING

The topic guides were tested prior to the start of data collection to understand if the questions flow as a conversation, and if each question is unambiguous. VDPA identified people with a disability who menstruate and experience incontinence from the survey data. The interview with the woman with a disability was led by the female qualitative research manager, with the research team observing. The interview with the man experiencing incontinence was led independently by the male field researcher as stipulated by the participant during the consent process. The topic guides were revised based on the pre-test.

SURVEY TEAMS AND TRAINING OF FIELD STAFF

QUANTITATIVE TEAMS RECRUITMENT AND TRAINING

58 Data collectors and five field supervisors were recruited, primarily from the two target provinces, for the duration of the fieldwork.

Meaningful inclusion of persons with disabilities in the survey teams was sought, through active recruitment of persons with disabilities via VDPA, VSPD, the Vanuatu Civil Society Disability Network, the Vanuatu Skills Partnership and the Ministry of Education and Training's (MoET) Skills Centres in TORBA and SANMA provinces. Gender composition in the team was also be taken into account when recruiting as well as people with disabilities who made up close to 20% of enumerators.
A 14 day training programme, including pilot testing, was developed and delivered collaboratively between ICED, WVV and the VNSO.

This broadly included:

- Introduction to disability in Vanuatu
- Survey Background and Overview
- Survey protocols (Measuring disability in population-based surveys, Census Protocol and Case-Control Protocol)
- Completion of survey forms and additional field protocols
- Short test of survey form to refine before training & piloting
- Ethics and informed consent
- Field Practice
- Pilot testing
- Safety and security protocols
- Troubleshooting and problem-solving

A half day refresher training per team was completed mid-way through quantitative data collection to provide revised translations of the incontinence module, and trouble-shoot data collection issues.

QUALITATIVE TEAMS RECRUITMENT AND TRAINING

The qualitative research team is set out in Table 7.

Table 7 Qualitative Team Structure and Roles

Position	Organisation	Role
Qualitative Research Manager	LSHTM	Lead qualitative researcher; manage and undertake qualitative data collection for the research
Research Manager	World Vision	Co-manage and support data collection for the research
Research Coordinator	VDPA	Co-manage the day to day activities and undertake qualitative data collection for the research
Field Researcher	Independent consultant	Support the lead qualitative researcher and coordinator to undertake the data collection
Field Researcher	Independent consultant	Support the lead qualitative researcher and coordinator to undertake the data collection

The LSHTM lead qualitative researcher led the qualitative team, which consisted of Ni-Vanuatu field researchers. The field researchers were mentored throughout the data collection by the Qualitative Research Manager and the Research Manager (World Vision).

A week-long training for the qualitative research team, including pilot testing the data collection tools was developed and delivered by ICED in collaboration with WVV and key partners prior to data collection. The training included:

- Ethics of research and safeguarding issues
- Researching sensitive topics such as menstrual hygiene and incontinence
- Qualitative data collection tools: how to use them and why. Methods will include conducting in-depth interviews, focus group discussions, PhotoVoice, market surveys and product attribute assessments, and observation using accessibility and safety audits.

ETHICAL APPROVAL

Ethical approval for the study was provided from the London School of Hygiene & Tropical Medicine Observational Ethics Committee (Ref 16202/2019) and, in the absence of an Ethics Committee in Vanuatu, endorsement was provided in writing from the Ministry of Justice and Community Services for the study to be carried out between LSHTM, WVV and the VNSO (letter available on request).

Photo Credit: Mike Kaun (WVV)

05
DATA ANALYSIS

STATISTICAL METHODS USED

The main statistical methods used in the quantitative analysis are prevalence estimates with confidence intervals, odds ratios and multivariate logistic regression.

The 95% confidence intervals around prevalence estimates can be interpreted as indicating the range within which we can be 95% sure that the true population estimate exists.

Broadly, all other statistical methods used provide an estimate of whether observed differences between people or groups are statistically significant, or by chance. A detailed description of how to interpret these tests is included in Appendix 1. In the results section below, statistical significance is denoted in the key findings section using the symbol "💧". Detailed statistical outputs are available in Appendix 2: Statistical Appendix, with statistically significant results denoted in each table.

A Socio-economic status (SES) index was created using Principle Component Analysis (PCA), which is a type of factor analysis that incorporates different variables related to multi-dimensional wealth[vi] . Through PCA, each variable is assigned a weight that is either positive (associated with wealth) or negative (not associated with wealth). The composite sum of weights provides an overall score for each household, ranging in the dataset from -5.8 (least wealthy) to 4.5 (most wealthy). These scores are then divides into quartiles to create SES groups. This is an approach often used for asset-based SES categorisation in surveys[79].

Note that all study proportions rounded to nearest whole integer. Cumulative categories may sum to greater than 100%.

QUALITATIVE DATA ANALYSIS

A thematic analytical approach was used to analyse findings. After each day of fieldwork, interview notes were reviewed by the research team. This helped to identify gaps in the interview schedule and emerging themes. In-depth and key informant interviews were translated from Bislama into English and then transcribed. These transcriptions were checked by the Ni-Vanuatu research team.

Data was coded using NVivo 11; data was analysed to develop a fuller framework of themes and sub-themes. Relevant quotations are presented in this report.

vi PCA variables for SES score: Household head (HHH) reads at least one indigenous language; HHH reads English; HHH reads French; HHH reads Bislama; HHH writes at least one indigenous language; HHH writes English; HHH writes French; HHH writes Bislama; Household (HH) has access to indigenous land; HH roof type; HH wall type; HH floor type; HH number of rooms, HHH school completion (primary, secondary or tertiary); HHH age; HHH female; HHH male

06

KEY FINDINGS

HOUSEHOLD LISTING AND DISABILITY PREVALENCE RESULTS

RESPONSE RATE (HOUSEHOLDS)

Table 8 Response Rate (Households)			
	Rural	Urban¤	Total
Available	8,802 (84%)	2,644 (88%)	11,446 (85%)
Unavailable	1,458 (14%)	248 (8%)	1,706 (13%)
Not Eligible§	36 (<1%)	38 (1%)	74 (1%)
Refused	214 (2%)	60 (2%)	274 (2%)
Total	10,510 (100%)	2,990 (100%)	13,500 (100%)
¤Luganville (Area Council 208) only §Household is not eligible if members have resided in the household for less than 12 months, and intends to vacate dwelling within 12 months			

13,500 households were approached by survey teams across TORBA and SANMA provinces (Table 8), of whom 85% were available and eligible to participate in the survey. Unavailability was slightly higher in the rural area councils than in Luganville, and only 2% of households refused to participate.

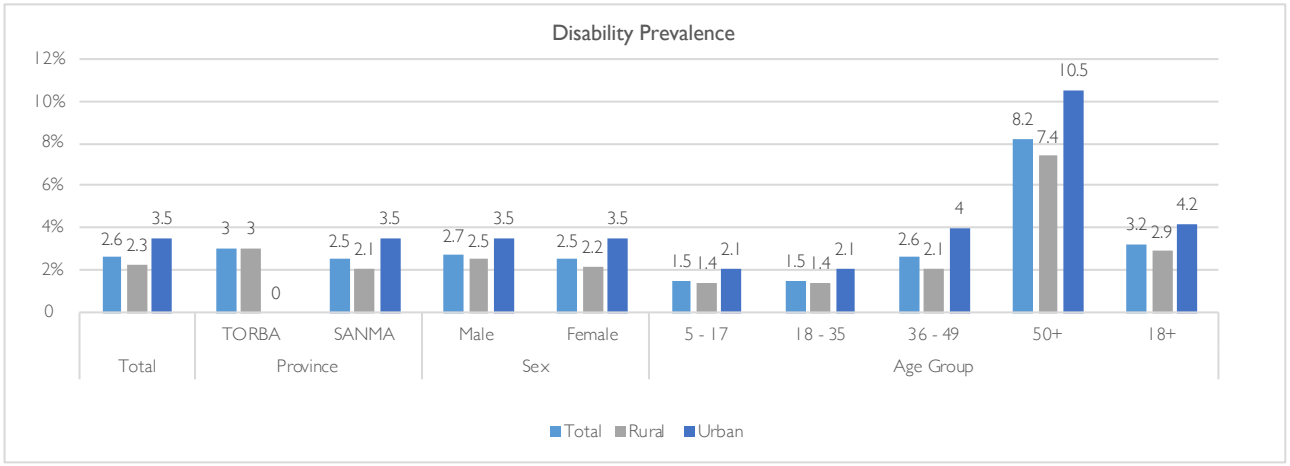
AGE-SEX DISTRIBUTION OF POPULATION ENUMERATED

Table 9 Age-Sex distribution of population enumerated			
Age group	Sex¤		Total (11,446 households)
	Male	Female	
0 – 4 years			7,717 (14%)
5 – 17 years	9,002 (36%)	8,320 (35%)	17,322 (31%)
18 – 35 years	8,318 (33%)	8,659 (36%)	16,977 (30%)
36 – 49 years	3,932 (16%)	3,572 (15%)	7,504 (13%)
50+ years	3,672 (15%)	3,209 (14%)	6,881 (12%)
Total	24,924 (100%)	23,760 (100%)	56,402 (100%)
¤Excludes 4 participants whose sex was recorded as "other" or "refused to say"			

56,402 individuals were enumerated across the two provinces in 11,446 available households (average household size of 4.9) - Table 9. 4 individuals refused to provide their sex and are excluded from the sex-wise columns. 7,717 children under 5 were enumerated, but their sex and information on their disability status was not recorded.

Comparatively, the 2016 Vanuatu mini-census estimated a national average household size of 4.8 (5.0 in TORBA, and 4.9 in SANMA).

PREVALENCE OF DISABILITY



Graph 1: Disability Prevalence

0.4% of listed household members were unavailable for, or refused to respond to the WG questions. The prevalence of disability[7] excluding those who were unavailable or refused to respond (n=48,476) is provided in Graph 1.

All-age disability prevalence using the standard WG definition was 2.6%, increasing to 3.5% in Luganville. Disability increased with age but was similar by sex. A proxy reported for 25% of adults. Disability prevalence estimates were slightly higher amongst those who self-reported compared to proxy but not substantially (2.8% versus 3.3%).

Table 10 compares the all-age prevalence estimate from the WWD study to the Vanuatu National Population and Housing Census (NPHC) 2009[14] and the Samoa NPHC 2016[17]. Both NPHCs used the WGSS, but the Vanuatu NPHC 2009 excluded the response option "A lot of difficulty".

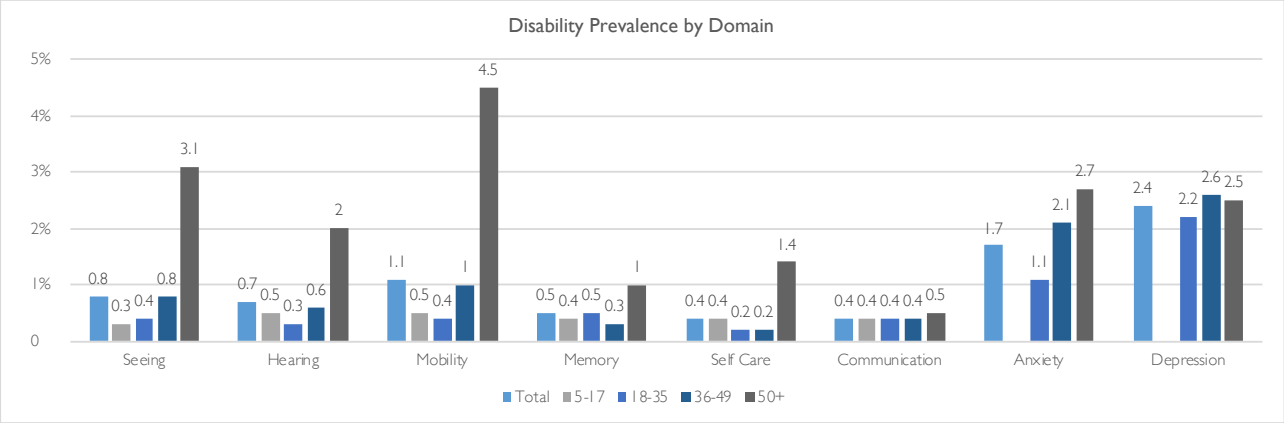
Table 10 Comparison of prevalence estimate with other data

	Water, Women and Disability Study 2019	Vanuatu Population and Housing Census 2009	Samoa Population and Housing Census 2016
No difficulty	78.8%	94.5%	90.2%
Some difficulty	19.6%	4.7%	7.1%
A lot of difficulty	2.2%	-	2.0%
Can't do	0.5%	0.8%	0.7%
A lot/Can't do	2.6%	-	2.7%

7 Definition of disability: Washington Group Short Set standard definition of any one domain (seeing, hearing, mobility, remembering/concentrating, self care, understanding/being understood) reported "a lot of difficulty" or "cannot do at all"

See Statistical Appendix 2 Table 15 and Table 16 for tabulated disability prevalence results, including tabulated results modified to include assistive device use and prevalence at the level of "some difficulty".

Graph 2 presents the prevalence of disability by domain and age group. Mobility and seeing were the most common functional limitations overall and particularly for older adults. Anxiety (1.7%) and depression (2.4%) were also common in adults (these results are not included in the prevalence estimate). Table 17 in Appendix 2 provides tabulated results by domain, age group and sex.



Graph 2: Disability Prevalence by Domain

CHARACTERISTICS OF HOUSEHOLDS WITH AND WITHOUT MEMBERS WITH A DISABILITY

9.8% of households included at least one person with a disability across the two provinces, including 15% of urban households and 9.6% of rural households.

Figure 4 below describes key differences at the household level between households with and without members with disabilities. Table 18 in Appendix 2 provides these results tabulated overall and by rural and urban location.

Compared to households without members with disabilities, households with at least one person with a disability:

- Have a bigger average household size than households without a person with a disability (5.5 vs 4.9)
- Have an older average age (36 vs 30)
- Have a greater dependency ratio (0.70 vs 0.57)
- Have a lower proportion of adults 18-64 working (18% vs 25%)
- Are more likely to have a female household head (18.6% vs 11.5%)
- Are less likely to have access to indigenous lands (69% vs 74%)
- In rural areas, have a lower average SES score (-0.49 vs -0.79)

Figure 4: Comparing households with and without a person with a disability

There was no overall difference between households with and without members with disabilities in SES score, or between households where the household head had a disability compared to households without a disabled household head. However, households were twice as likely to be in the poorest quartile if they had a female household head, rising to three times as likely in Luganville (see Table 19 in Appendix 2).

CASE CONTROL STUDY PARTICIPANTS

Table 11 describes the age, sex and location of participants enrolled into the Nested Case-Control study. **Table 12** describes the perceived cause and onset of functional limitation amongst people with disabilities in the Case-Control study. Due to the purposive sampling procedure of this component of the study, these cannot be interpreted as prevalence estimates.

Table 11 Case Control Study Participants						
	People with Disabilities ("Cases")			People without Disabilities ("Controls")		
	Male	Female	Total	Male	Female	Total
Age Group						
5 – 17	104 (25%)	93 (24%)	197 (24%)	103 (29%)	91 (26%)	194 (28%)
18 – 35	83 (20%)	85 (22%)	168 (21%)	72 (21%)	92 (26%)	164 (23%)
36 – 49	62 (15%)	66 (17%)	128 (16%)	63 (18%)	66 (19%)	129 (18%)
50+	173 (41%)	149 (38%)	322 (40%)	113 (32%)	101 (29%)	214 (31%)
Location						
Rural	327 (77%)	298 (76%)	625 (77%)	270 (77%)	274 (78%)	544 (78%)
Urban	95 (23%)	95 (24%)	190 (23%)	81 (23%)	76 (22%)	157 (22%)
Total	422 (100%)	393 (100%)	815 (100%)	351 (100%)	350 (100%)	701 (100%)

Table 12 Perceived cause and onset of functional limitation			
	Male	Female	Total
Type of functional limitation			
Vision	116 (27%)	111 (28%)	227 (28%)
Hearing	92 (22%)	93 (24%)	93 (24%)
Mobility	186 (44%)	181 (46%)	367 (45%)
Self Care	84 (20%)	69 (18%)	69 (18%)
Understanding	74 (18%)	75 (19%)	75 (19%)
Anxiety	24 (10%)	22 (9%)	22 (9%)
Depression	19 (8%)	22 (9%)	22 (9%)
Perceived cause of functional limitation			
Congenital	140 (34%)	138 (35%)	278 (35%)
Trauma	20 (5%)	11 (3%)	31 (4%)
Violence	8 (2%)	12 (3%)	20 (2%)
Illness	136 (33%)	113 (29%)	249 (31%)
Ageing	40 (10%)	62 (16%)	102 (13%)
Other	70 (17%)	53 (14%)	123 (15%)
Reported age on onset of limitation			
Birth	71 (17%)	90 (24%)	161 (20%)
1 – 5 years old	89 (22%)	62 (16%)	151 (19%)
6 – 17 years old	47 (11%)	54 (14%)	101 (13%)
18 – 49 years old	102 (25%)	82 (21%)	184 (23%)
50+ years old	105 (25%)	94 (25%)	199 (25%)
Total	422 (100%)	393 (100%)	796 (100%)
NB missing data on cause (n=12) and age of onset (n=19)			

There were no differences in socio-economic status amongst people with and without disabilities based on their household assets and characteristics. However, Box 2 describes the differences between men and women with and without disabilities (see Table 20 and Table 21 in Appendix). Note, these findings account for the age and sex of the respondent, and whether they live in a rural or urban AC.

Compared to people without disabilities in the case-control study, people with disabilities were:

- Twice as likely to live in a household with a female household head
- Three times less likely to have completed primary school
- Less than half as likely to read or write Bislama, English, French or an indigenous language
- Seven times more likely to have never married or lived with a romantic partner, and twice as likely to be widowed or divorced

Compared to *men* with disabilities, *women* with disabilities were:

- Less than half as likely to read or write Bislama, English, French or an indigenous language
- Three times as likely to be widowed or divorced

Compared to women *without* disabilities, women *with* disabilities were:

- Five times less likely to have completed primary school
- Less than half as likely to read or write Bislama, English, French or an indigenous language
- Nine times more likely to have never married or lived with a romantic partner, and twice as likely to be widowed or divorced

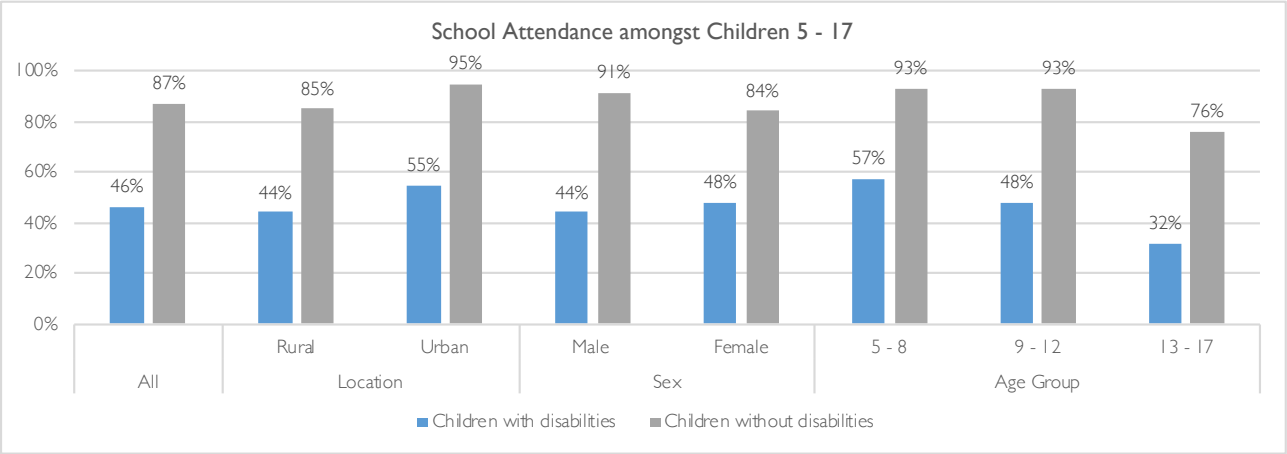
Box 2: Socio-economic characteristics of Case-Control Participants

OPPORTUNITIES FOR SCHOOL AND WORK

CHILDREN'S ENROLMENT IN SCHOOL

Less than half (46%) of the children with disabilities aged 5-17 in the case-control study were currently attending school, compared with 87% of children without disabilities (Graph 3). Once age, sex and location were accounted for, children with disabilities were 10 times less likely to be in school than children without disabilities, with the biggest gap between children with and without disabilities in urban settings. Children who were enrolled were less likely to be in the same grade as other children, and more likely to have missed 3+ days in the past month, although the latter finding was not statistically significant. Adjusted odds ratios are provided in Table 22 Appendix 2.

Of children with disabilities out of school, 61% had never attended. The child's health, lack of resources and inaccessible schools/ lack of accessible resources were often reported by parents as reasons for children with disabilities never being enrolled or having been taken out of school.

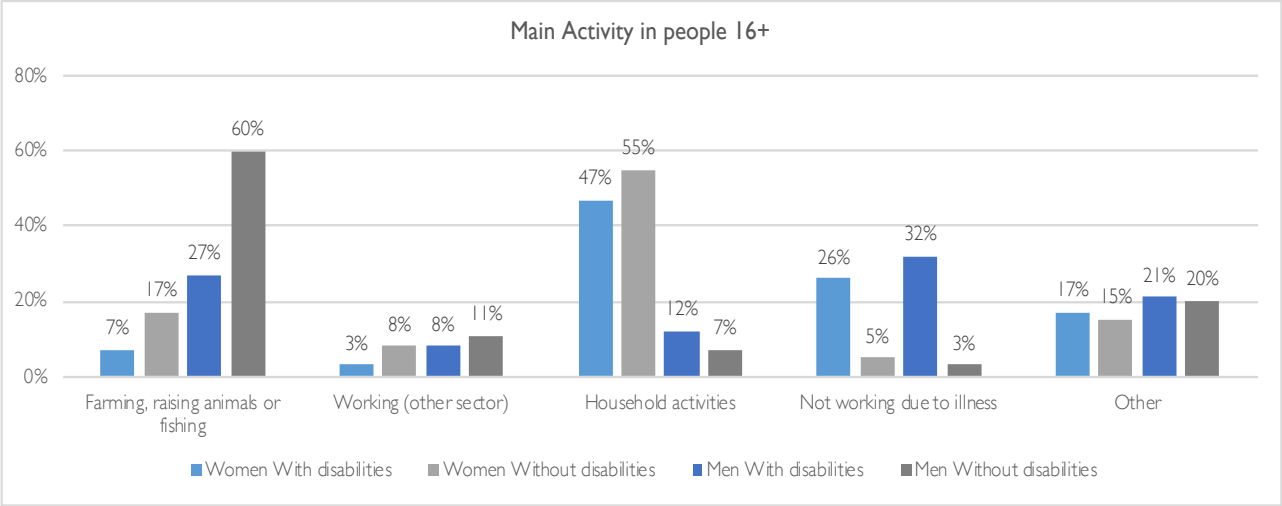


Graph 3: School attendance

LIVELIHOODS

All case-control participants age 16+ were asked to describe the activity that they spent most of their time doing, across paid, productive and reproductive roles (see Table 23 in Appendix 2 for figures and definitions of each). People with disabilities were statistically less likely to be working in farming, raising animals or fishing than people without disabilities, and women with disabilities (7%) were the least likely to be working in these industries, compared to women without disabilities (17%), men with disabilities (27%) and men without (60%) disabilities.

Both women and men with disabilities were more likely not to be working on account of illness compared to women and men without disabilities, and women with disabilities were less likely than women without disabilities to be engaged in household activities, although this was of borderline statistical significance (Table 24).



Graph 4: Main Activity in People 16+

People with disabilities 16+ were less than half as likely to have worked in the past week compared to people without disabilities the same age (Table 25). This association held by sex and location, and for all ages except the age group 16 – 34, in which there were no differences between young adults with and without disabilities.

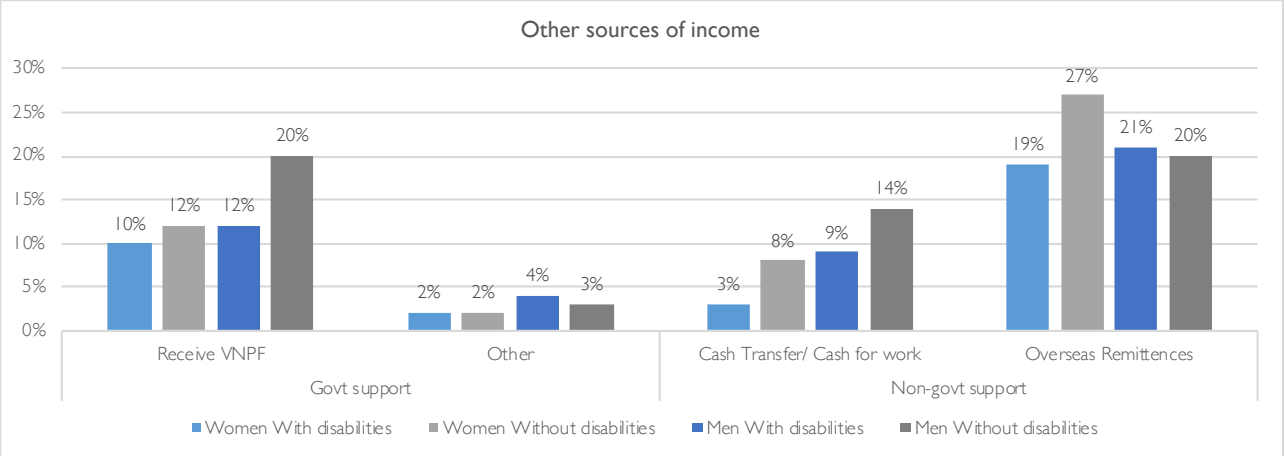
Amongst people with disabilities who had undertaken paid work in the past 7 days:

- Older people, and people with either mobility or self-care limitations were less likely to be in paid employment compared to younger age groups
- People (women and men) in Luganville were more likely to be in paid employment than people (men and women) in rural areas
- There were no differences by sex

See Table 25 in Appendix 2

Box 3: Likelihood of working amongst people with disabilties

Approximately one in ten women with, and without, disabilities, and men with disabilities, received the Vanuatu National Providence Fund (VNPF), compared with 20% of men without disabilities. Women with disabilities were three times less likely to benefit from cash for work/ cash transfer schemes compared to women and men without disabilities, and men with disabilities (Table 27 Appendix 2).



Graph 5: Other sources of income

ACCESS TO WATER

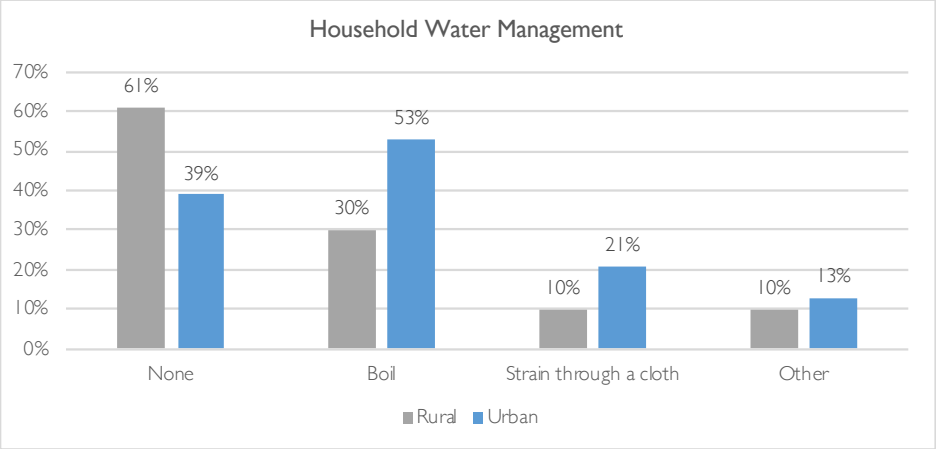
HOUSEHOLD-LEVEL ACCESS TO WATER

No household-level differences were observed between households with and without members with disabilities in terms of access to water. This was expected and has been seen in other settings[74]. The household level information below is instead disaggregated between rural and urban households within the case-control study.

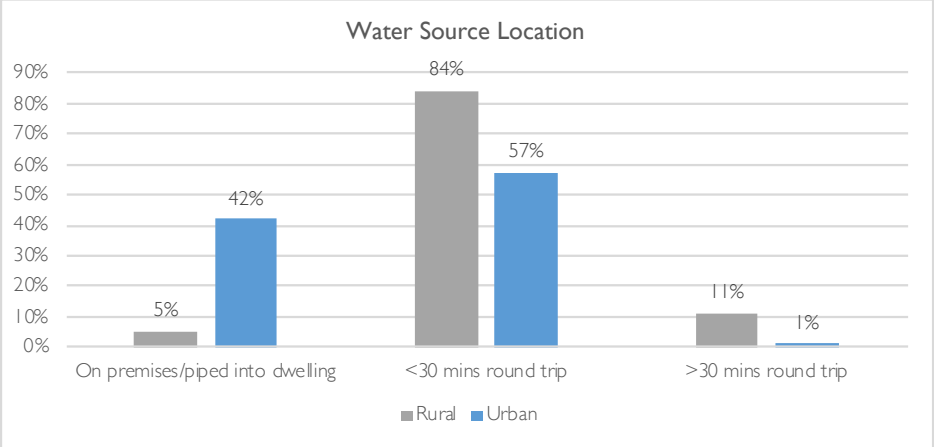
91% of households overall have access to an improved water supply, although this is lower in rural households (89%) than urban (99%) – shown in Appendix 2. 2017 estimates from the JMP also report that 91% of households overall in Vanuatu have access to at least basic water, ranging between 88% in rural areas and >99% in urban areas[13,80].

However, over half of all households reported insufficient water supply across all rural ACs and Luganville. The majority of households (61%) in rural settings did not do anything to the water to make it safe to drink (Graph 6). Note that frequency or regularity of treatment was not captured amongst households who responded that they did take measures to improve their water supply quality.

Most households did not have a water source on the premises/piped into the dwelling, but it was within a 30-minute round trip (Graph 7 and Table 29 in Appendix 2).



Graph 6: Household Water Management

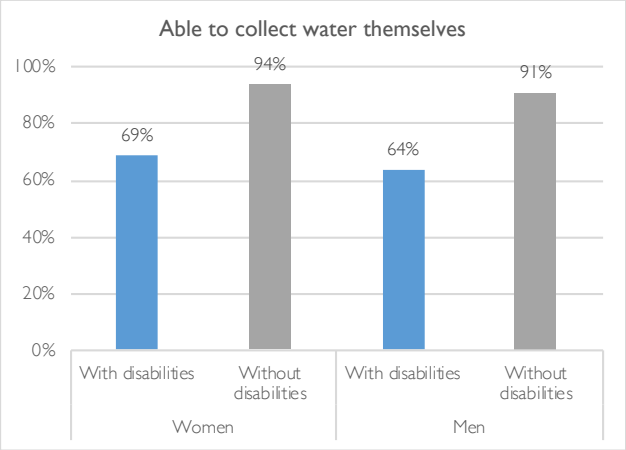


Graph 7: Water Source Location

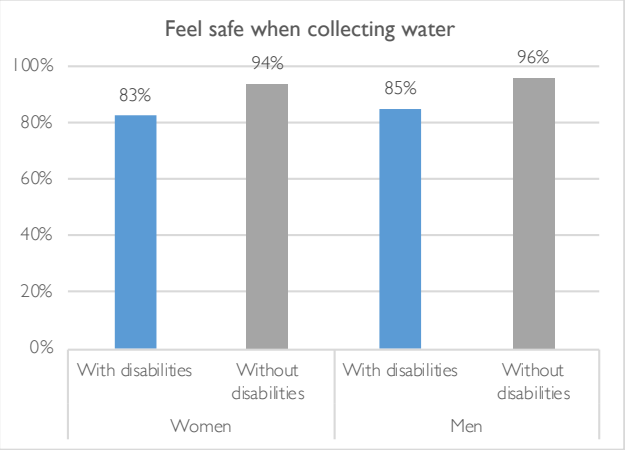
In Luganville and South East Santo, 75% of households (both with and without members with disabilities) are supplied by the Luganville Municipal Water Supply, with 98% of these households paying a fee for the water. In the rural sample, approximately half (53%) of households live in communities with a Water Committee, and 62% report that there are community members with the skills to fix problems with water source management if they arise.

INDIVIDUAL ACCESS TO WATER

People with disabilities were substantially less likely to collect water themselves compared to persons without disabilities (66% versus 93%, see Graph 8 and Table 30). This was true across age groups, by sex and by rural and urban location. Amongst those who did collect water, persons with disabilities were less likely to feel safe (84% vs 95%, Graph 9). In addition, 10% of people with disabilities reported not being able to access water at home when they needed it compared with <1% people without disabilities.



Graph 8: Water Collection



Graph 9: Safety when collecting water

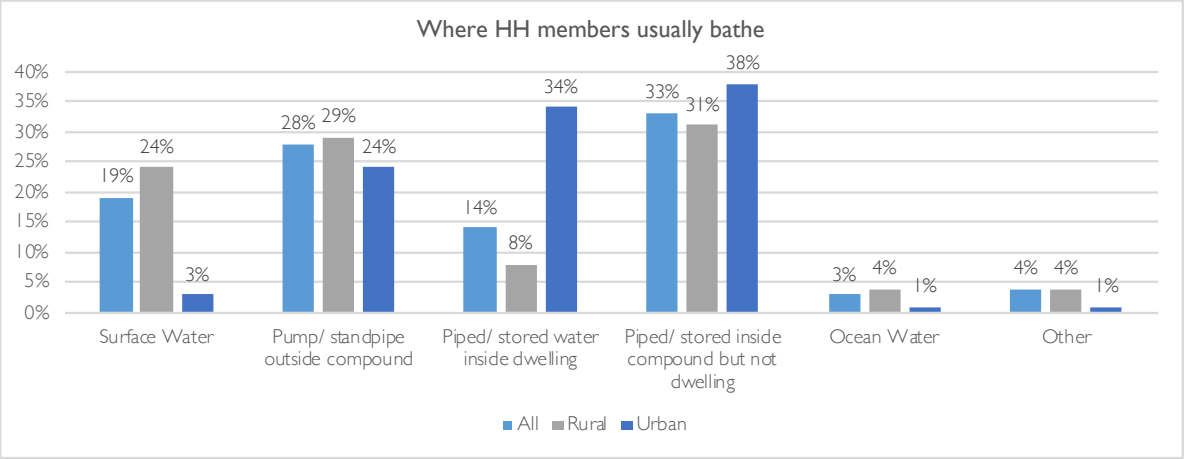
Amongst people with disabilities:

- Older adults (50+) and people with hearing, mobility and self-care limitations were least likely to collect water themselves
- People with mobility limitations were most likely to feel unsafe collecting water (no differences by sex)
- Main reasons reported for feeling unsafe collecting water included the distance to the water source, the fear of abuse from others, and inaccessibility of terrain
- People with mobility and self-care limitations were least likely to be able to access water at home when they needed it
- Main reasons for not being able to access water at home when needed included not having the physical strength or mobility to lift/balance the water container and not being able to see the container

See Table 30 in Appendix 2

Box 4: Likelihood of intra-household WASH barriers

BATHING



Graph 10: Where household members usually bathe

Most households in both the rural and urban areas bathed using piped or stored water inside the compound but not the dwelling (see Graph 10 and Table 32 in Appendix 2). 19% of people with disabilities use a different bathing source to other household members (compared with 3% of people without disabilities.)

Amongst people with disabilities:

- Older people with disabilities were twice as likely as younger people with disabilities to use a different bathing facility to other household members
- People with mobility and self-care limitations were five times and eight times respectively more likely to use a different bathing facility than people with other functional limitations
- There were no differences by sex or location

See Table 32 in Appendix 2

Box 5: Likelihood of using different bathing facilities

MENSTRUATION

MENSTRUAL BELIEFS AND TABOOS

Harmful menstrual beliefs and taboos are prevalent in Vanuatu, as in many other countries[81-83]. The taboos and level of exclusion experienced by menstruating women and girls in Vanuatu, depends on geographic location. For instance, participants reported that some women and girls living on islands in the TORBA Province live separately from their family when they are menstruating: menstrual huts are built for each household or for groups of menstruating females from the community where they sleep.

The most widespread beliefs across all participants in the qualitative study, are that: menstruating women and girls will kill crops if they touch them, must not work in the gardens, cook food, and lift heavy objects (or else the menstrual blood will flow more heavily). They must collect their own water for bathing and washing their reusable menstrual product, wash their own menstrual product and use separate latrines and bathing shelters.

Reasons for adhering to these are out of respect for men, because women do not want to make male relatives ill, because they are 'unclean', that it would not be hygienic to cook for others, and because these have always been practiced. These cultural beliefs are deeply held and practiced by women living in rural and urban areas. One woman explained that she sleeps separately from her husband because "the Holy Scripture says that when a woman menstruates, she is sick and wouldn't be allowed to live with her husband". She goes on to elaborate:

"When a woman menstruates, she mustn't live with her husband because she is sick. She can cause the husband to be sick with asthma, or they might have a pot belly or even get sick with intestinal gas. We women are different to men. This [menstruation] is a disease itself" (Woman, urban, seeing functional limitation).

A number of qualitative participants both with and without disabilities, living in rural and urban areas explained that they enjoyed "time out" when menstruating, as it was the one time they do not have to work in the gardens or cook for their families.

"When I get my period… for me, I feel good because when I get my period I take a break. I take a break from everything, such as cooking, going out… For me it's like a holiday for me" (woman, urban, seeing functional limitation).

The impacts of these menstrual beliefs more negatively affect women and girls with a disability who require support to collect water, bathe, and do the laundry, and for people who have difficulties accessing the latrine or bathing shelter. Without support or accessible WASH services, some people with disabilities experience increased levels of pain when they menstruate, as Liti Akimere captures in Figure 5.

Figure 5: Liti Akimere PhotoVoice images

© Liti Akimere Caption:

The water source is far. I want water closer to me so I can get it easily.

© Liti Akimere Caption:

I would like a better bathroom where I can sit properly.

© Liti Akimere Caption:

Washing for myself is hard.

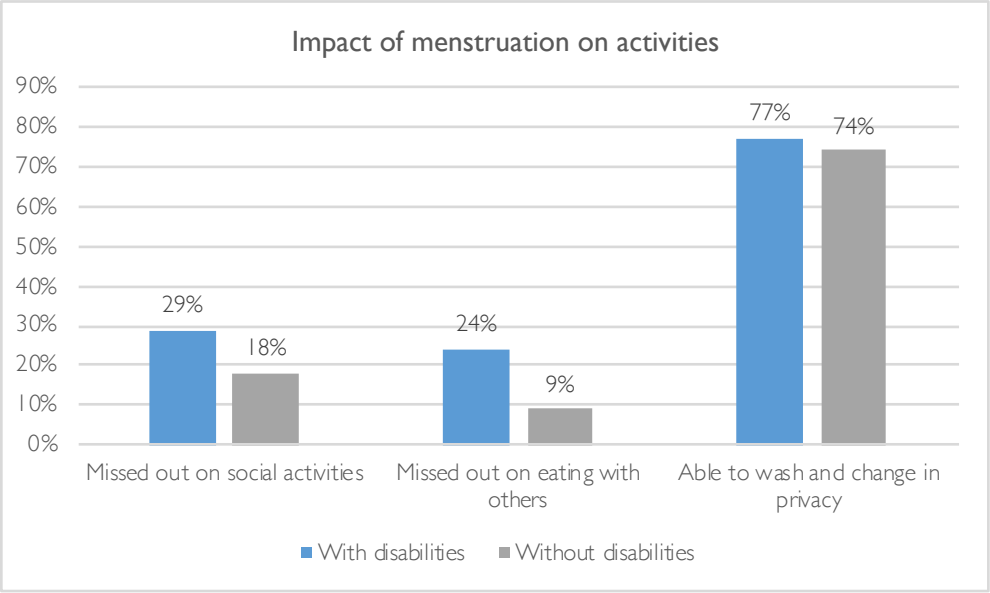
For people with disabilities who experience incontinence, menstruation brings additional challenges. One participant, who experiences faecal and urinary incontinence and has walking and self-care functional limitations, is unable to sit out of bed, relies on her four-year-old son to care for her. His tasks include collecting water, cleaning out faeces and urine from her bucket latrine and preparing her food. He does not go to pre-school. The participant does her best to manage her incontinence and menstruation as independently as possible, as she does not want to burden her son, by bathing with a flannel in bed and having a full shower once a month.

"And then he said, "Mama, I'm too tired now." And then he'll sleep without eating. I'll feel sorry for him. "Don't fetch water, just wet the towel at its end and bring it here." …. I clean my private parts – I use the towel to wipe from my bum to the front. But I don't wipe my full body because he's tired" (woman, urban, walking and self-care functional limitations).

IMPACT OF MENSTRUATION ON ACTVITIES

All women and girls in the case-control study aged 10+ were first asked when they last menstruated. 53% of women with disabilities and 46% of women without disabilities reported that they had either never menstruated or had last menstruated over a year ago. These are not population-representative estimates, but are similar to global estimates that 52% of the female population is of reproductive age (defined as 15 – 49)[30].

All women and girls who reported having menstruated less than a year ago were then asked the menstruation module. During their last menstrual period, women and girls with disabilities were statistically nearly twice as likely to miss out on social activities as women and girls without disabilities, and four times more likely to miss out on eating with others (Graph 11 and Table 34 in Appendix 2). There were no differences in likelihood of being able to wash and change in privacy for women and girls with and without disabilities.



Graph 11: Impact of menstruation on activities

Amongst women and girls with disabilities, there were no statistically significant predictors of missing out on social activities or eating with others, although this may be impacted by small numbers (see Table 36 Appendix 2).

Women and girls with and without a disability in the qualitative sample, managed pain by resting. Few participants took pain relief tablets, and there is a common misconception that these tablets cease the menstrual blood flow.

"I was in pain so I took Panadol. I thought that it would relieve the pain but what it did was actually stop my period. The flow that started just stopped. So since then, I haven't taken medicine anymore, I just let it happen" (Focus group discussion, urban, no disability).

Many people and without a disability tracked their menstrual cycle by monitoring physical signs (i.e. abdominal, back pain) and using the calendar system (paper based and by tracking the moon) if their cycle was regular.

Main reasons girls and women (with and without disabilities) miss social activities during menstruation:

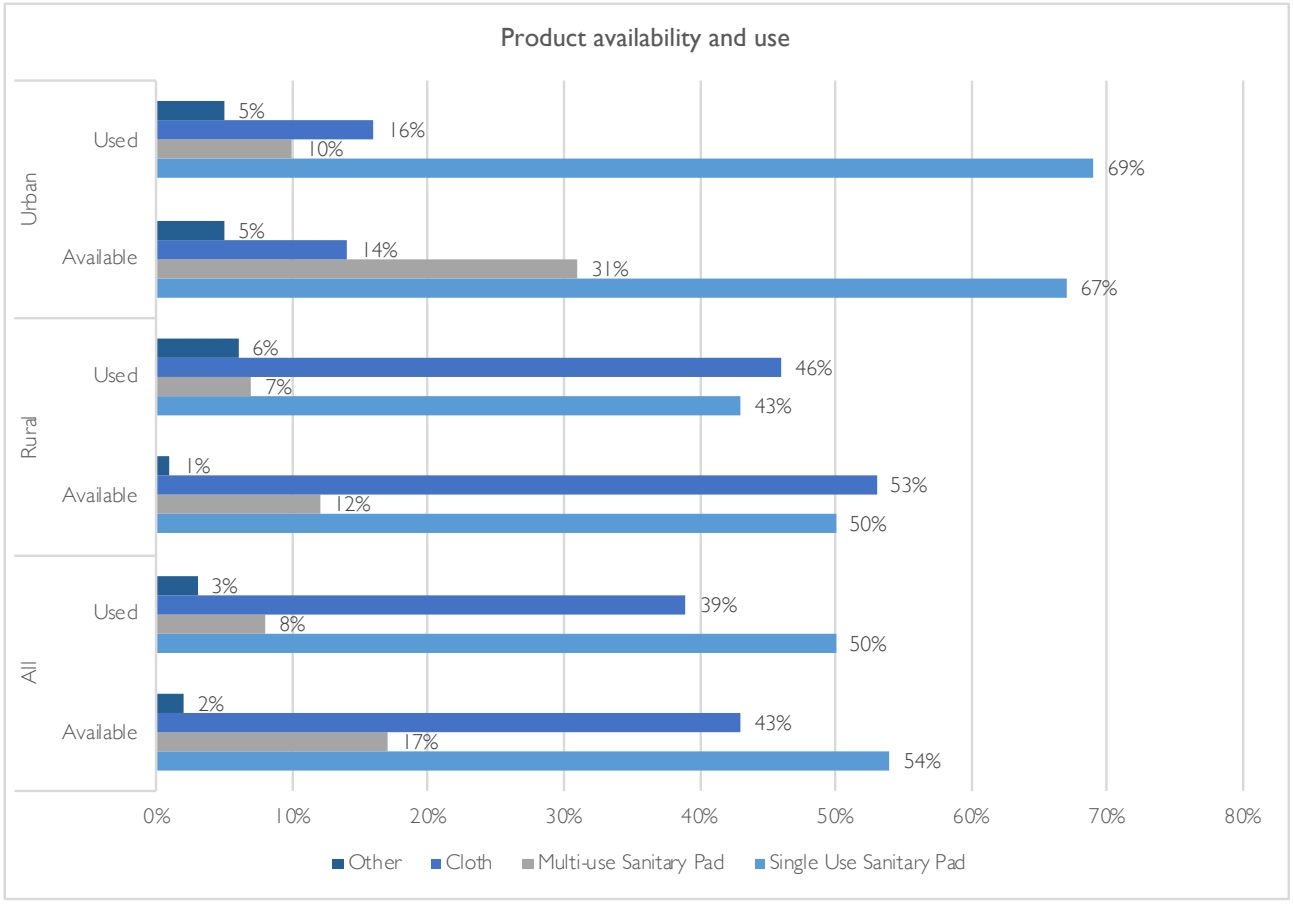
- Fear of menstrual leakage (37%)
- Pain/discomfort (20%)

Main reasons girls and women (with and without disabilities) miss out on eating with others during menstruation:

- Kastom (21%)
- Fear of menstrual leakage (18%)
- Pain/discomfort (16%)
- Not allowed (11%)
- Embarrassed/people would laugh (11%)

Box 6: Likelihood of missing activities on account of menstruation

MENSTRUAL PRODUCT USE AND SATISFACTION

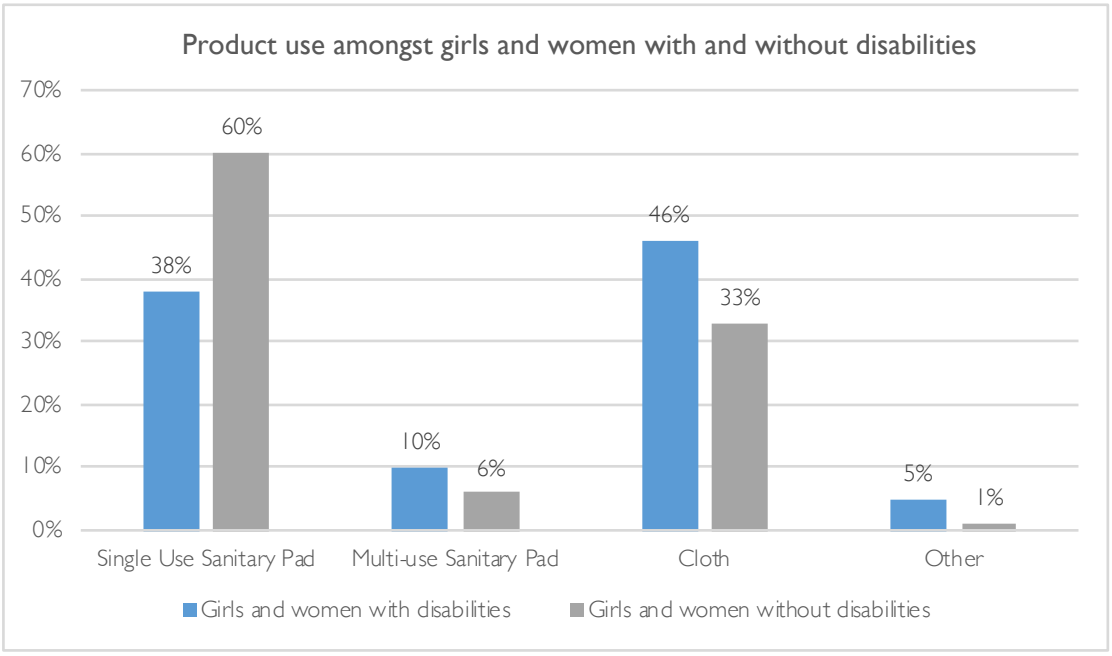


Graph 12: Product availability and use

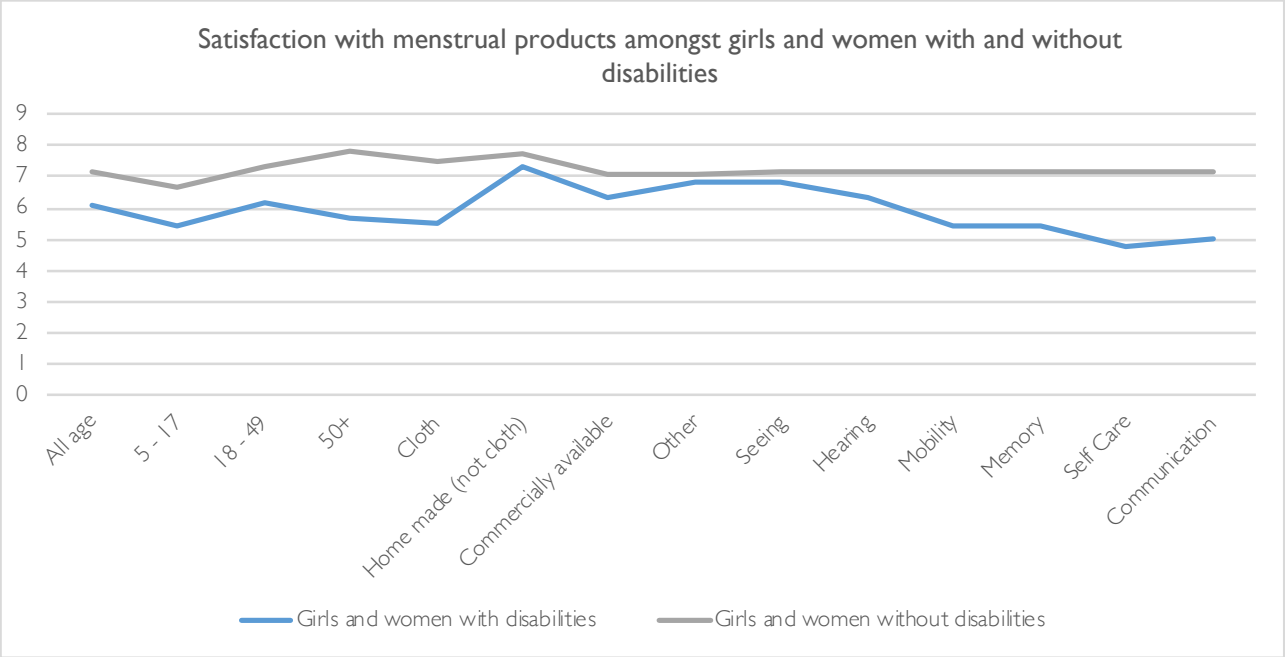
Sanitary pads (disposable and to a lesser degree reusable) were available to the majority of participants (Graph 12). Single-use sanitary pads were most frequently used by women and girls across the sample (50%), followed by cloth (39%). Women and girls in urban areas were twice as likely to use single-use pads compared to women and girls in rural areas, who were conversely twice as likely to use cloth (Table 35 in Appendix 2).

Accounting for age, location and socio-economic status, women and girls with disabilities were statistically almost three times more likely to use either a multi-use sanitary pad or cloth than a single-use pad, compared with women and girls without disabilities (Graph 13 below, and Table 37 in Appendix 2).

Girls and women with disabilities were statistically less satisfied on average with the products that they used than girls and women without disabilities (Table 38 in Appendix 2). In particular, girls and women with disabilities who used cloth as their primary menstrual product were less satisfied with this than girls and women without disabilities who used cloth, and women with disabilities aged 18-49, and women with mobility, memory and self-care limitations were less satisfied than other women with disabilities or women without disabilities (Table 38 in Appendix 2). Table 39 in Appendix 2 stratifies satisfaction by age group and disability type. Women with disabilities age 18-49 were statistically less likely to be satisfied with cloth or other homemade products than women without disabilities in this age group only.



Graph 13: Product use amongst girls and women with and without disabilities



Graph 14: Satisfaction with menstrual products

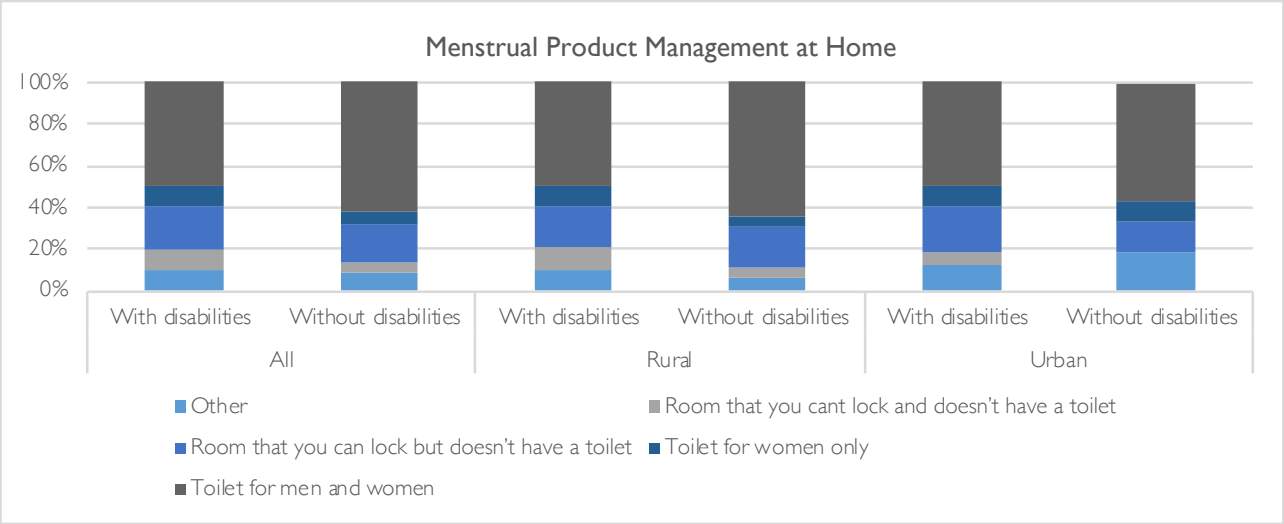
The qualitative study revealed that the cost of commercial menstrual pads is a major barrier for most people.

"The reason is because sometimes we have money while other times we don't. That is why I choose for her to use this [cloth] because it is reusable" (Proxy interview for a woman, rural, with remembering functional limitations).

Results from the market survey showed that cloth was predominantly used in rural areas because pads were unavailable and unaffordable. In urban areas, more girls and women with a disability used pads but felt they were too expensive

Girls and women without a disability living in rural areas explained that they use cloth in the day time and pads at night only to save money. For girls and women with and without a disability living in rural areas, availability of commercial pads was also an issue as they were not widely sold in rural shops.

Affordability was less of an issue for girls and women without a disability living in urban areas, who had greater access to commercial menstrual products, and the means to pay for them because they were all in formal employment. One person used a child sized diaper, as she felt they were comfortable, absorbable and do not leak, which meant she changed it twice a day. This was cheaper than commercial, single use menstrual pads which she would have to change more often. Many participants raised concerns about the Government of Vanuatu's forthcoming plastic ban, as they felt it may include commercially produced diapers and menstrual pads.



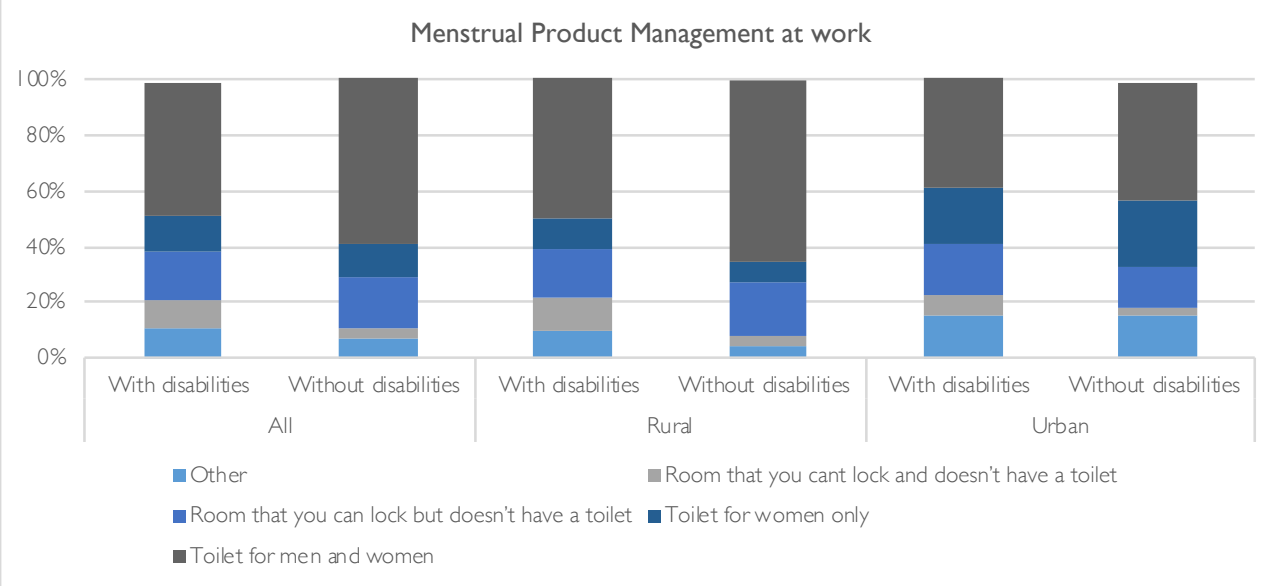
Graph 15: Menstrual Product Management at Home

The majority of girls and women with and without disabilities in both rural and urban areas changed their menstrual product in a toilet used by both men and women whilst at home (Graph 15 above, and Table 40 in Appendix 2).

Table 41 in Appendix 2 outlines how girls and women managed product reuse and disposal. In rural settings, reusable products were mostly washed with soap and water, and hung in direct sunlight to dry. Those who used non-reusable products disposed of them in the latrine. In urban settings, even reusable products were often disposed of after use, either in the latrine or in a bin with lid.

Only 6 girls with disabilities and 22 girls without disabilities who menstruated were currently enrolled in school at the time of the case-control data collection. Results for menstrual product management for this group are included in Table 42 but should be interpreted with caution given the small sample size.

Amongst those not enrolled in school, 78% of girls and women with disabilities who menstruated, and 76% without, were able to wash and change their product in privacy whilst undertaking their main livelihood activity (Table 43). For the majority, this was in a toilet used by men and women, although between 20% - 30% of women changed in a room that did not have a toilet (Table 43 and Graph 16 below).



Graph 16: Menstrual Product Management at work

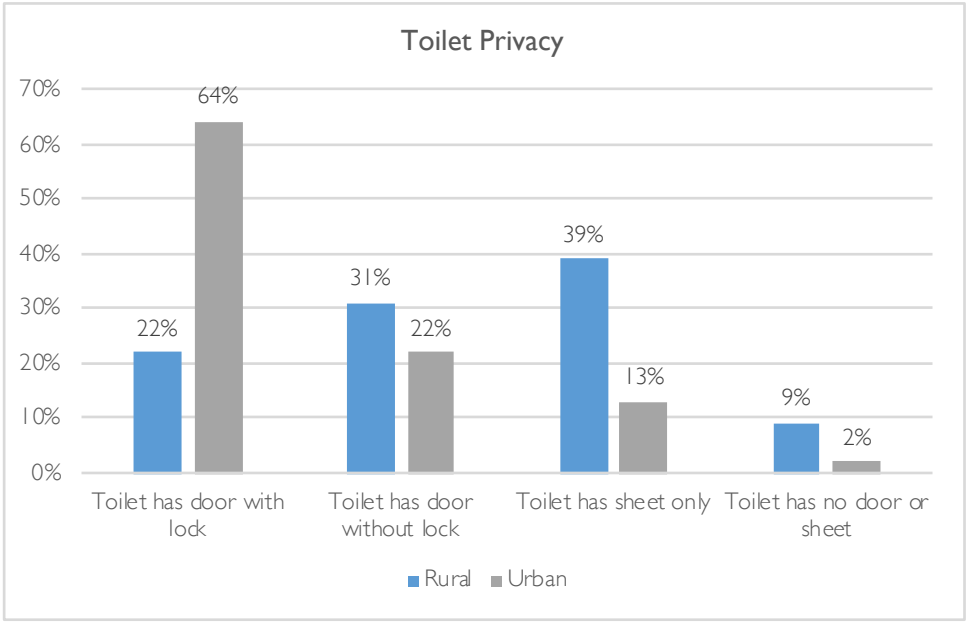
SANITATION

HOUSEHOLD-LEVEL SANITATION

As with household water supply, no difference was seen at the household level in terms of sanitation facility between households with and without a member with a disability. Results are therefore reported comparing rural and urban household sanitation facilities.

Results shared here are based on the JMP household questionnaire on reported sanitation facility. Results based on the World Vision Vanuatu diagnostic module will be shared elsewhere. It is anticipated that the reporting of ventilation improved pit latrines may be higher than confirmed by diagnostic questions.

Households in rural areas had lower access to improved facilities (73% improved versus 91% in Luganville), and were eight times more likely to reporting having a ventilation improved pit latrine or pit latrine with slab compared with households in urban areas (Table 44 in Statistical Appendix 2). In contrast, whilst almost all households had access to a toilet in the sample, approximately half (47%) in Luganville and a third (33%) in rural TORBA/SANMA shared this with other households (Table 44).

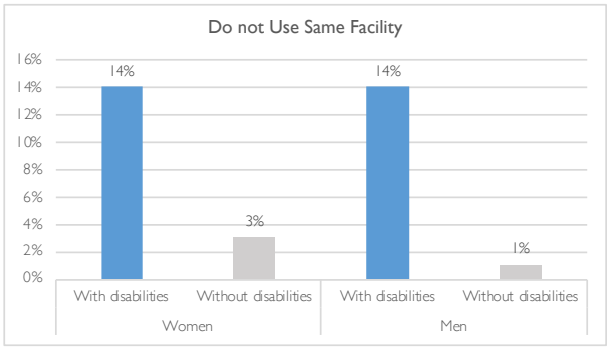


Graph 17: Toilet Privacy

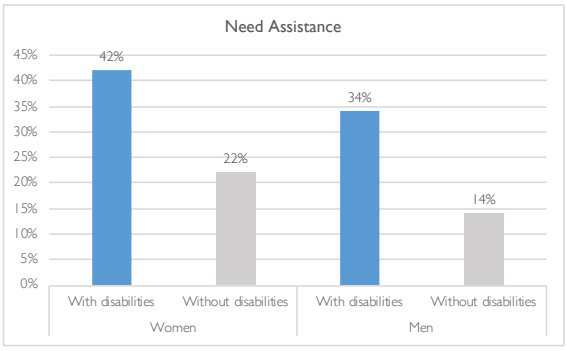
Few toilets had no door or sheet (Graph 17 above and Table 45 in Appendix 2), but less than a quarter of rural households, and two thirds of urban households, had a lock on the door to maintain privacy.

INDIVIDUAL SANITATION

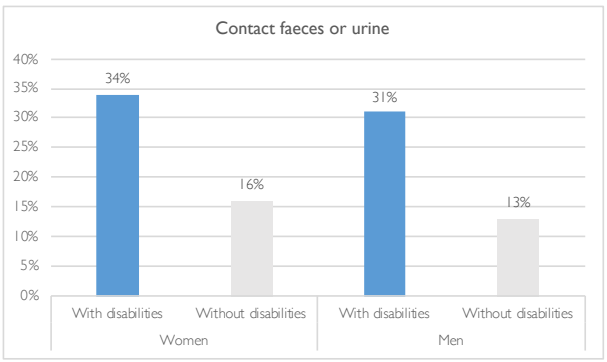
98% of persons without disabilities and 86% of persons with disabilities were able to use the same facility as other members of their family, but persons with disabilities experienced less independence and were less able to use the facility when they desired to, experienced more difficulty maintaining hygiene and took longer to reach the facility (see graphs below, and Table 46 in Appendix 2).



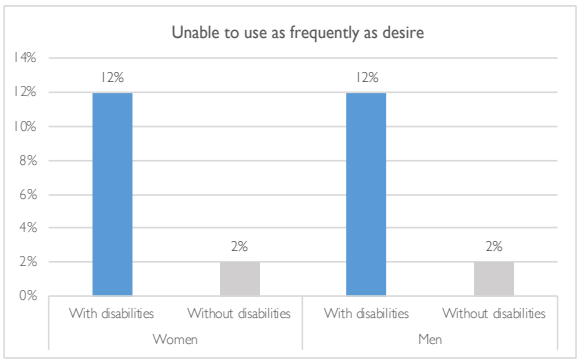
Graph 18: Use same facility



Graph 19: Need Assistance



Graph 20: Difficult to use without coming into contact



Graph 21: Unable to use as frequently as desire

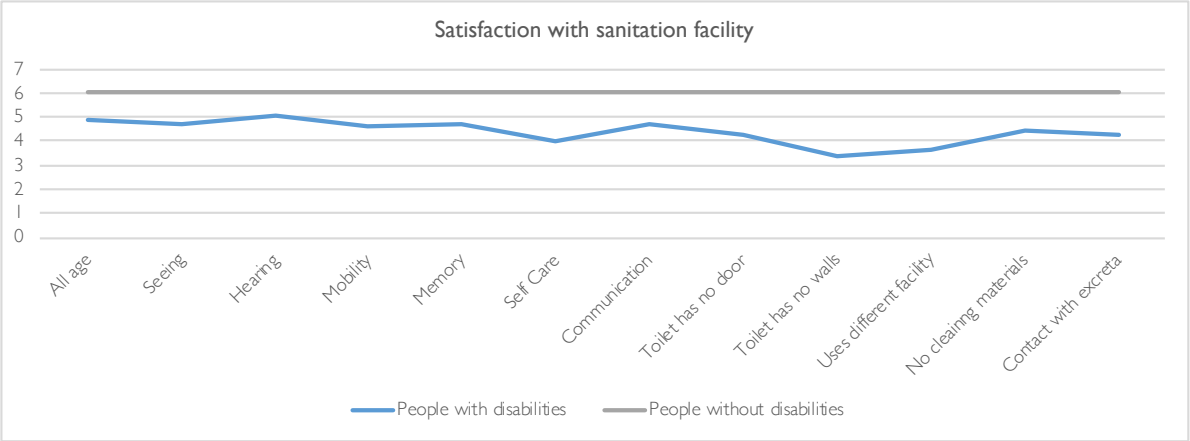
Participants were asked to report their overall satisfaction with their sanitation situation between 0 (not at all satisfied) and 10 (completely satisfied). Graph 22 shows the average satisfaction score (between 0 and 10) reported by people with and without disabilities, and amongst people with disabilities. On average, people with disabilities reported their satisfaction as 6/10, and people with disabilities reported their satisfaction score as 4.9/10. Average scores with 95% confidence intervals are provided in Table 48 and Table 49 in Appendix 2.

Amongst people with disabilities:

- Women with disabilities, and people (either sex) with mobility, memory or self-care limitations, are more likely to require or request assistance from others to use the toilet
- Older people and people with mobility and self-care limitations are more likely to come into contact with faeces or urine
- People with mobility, selfcare and remembering functional limitation are more likely not to be able to use the toilet as frequently as they desire.

See Table 41 in Appendix 2

Box 7: Likelihood of experiencing barriers to sanitation



Graph 22: Satisfaction with sanitation facility

During in-depth interviews, participants with disabilities cited the distance to the latrine, unsafe route to reach it, lack of lighting and privacy as major barriers. Others said that a lack of support structures inside the toilet made it difficult or impossible to use. The importance of having toilets that are safe to reach (i.e. free of natural environmental barriers)[84] are demonstrated by one participant who became disabled after slipping and falling enroute to her toilet. Fred Sewen and Liti Akimere capture these issues visually (Figure 6).

© Fred Sewen
Caption:

Accessing the toilet is impossible, unless I have someone with me.

© Liti Akimere
Caption:

I want a better way to use the toilet.

Figure 6: The impacts of inaccessible toilets

Inaccessible latrines are a more significant challenge for people who experience incontinence, who need to reach a toilet quickly. This indignity affects a person's ability to leave home and participate fully in daily life. This is compounded by the lack of affordable incontinence products on the mar-ket, such as bed pans and adult diapers, and information about management strategies.

"Occasionally, I'll try to get to the toilet but it will come before I reach the toilet, so I urinate on my clothes – and sometimes I can see other people watching me. So I'll be ashamed, then I'll cry and come back inside. Then I decided that I'll just urinate in the bed, because when I try to go outside I can't reach the toilet, so I decided to stay in the house" (woman, urban, walking and self-care functional limitations).

Without bedpans or commodes participants who are unable to sit unaided out of bed and experience incontinence use uncovered bucket latrines, which are placed next to their beds. Edline Elton captured how unhygienic this is through PhotoVoice (Figure 7).

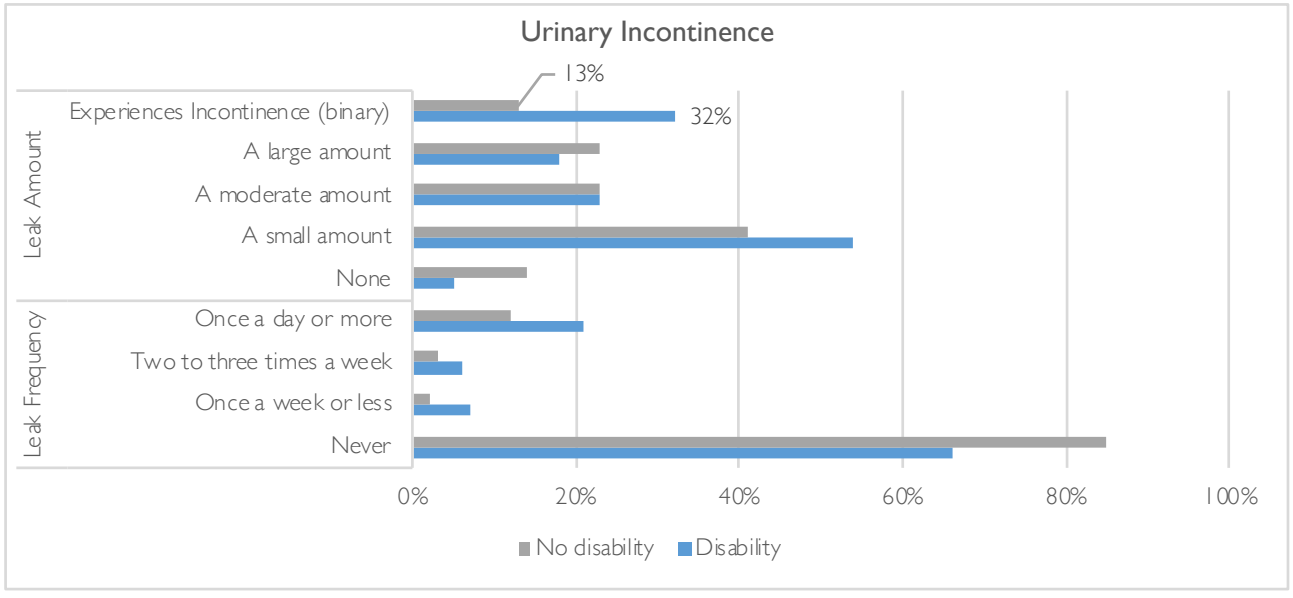
Another woman, who experiences faecal and urinary incontinence, lives on her own in a rural area, and does not have a bathroom, water or latrine, defecates and urinates in the same room that she sleeps. The health impacts for her, and the woman who visits to bathe her with her children, are significant.

"When her stomach is really sore, she has worms come out… sometimes they come out of her mouth, and sometimes out of her bum" (Proxy interview for woman, rural, hearing, walking, remembering functional limitations).

Figure 7: Bucket latrines

INCONTINENCE

URINARY INCONTINENCE



Graph 23: Urinary incontinence

Statistically, people with disabilities were almost three times more likely to experience urine leakage than people without disabilities, although some incontinence was experienced by people without disabilities as well (Graph 23 above, and Table 50 in Appendix 2). Numbers are small, so confidence intervals are wide as these analyses are underpowered.

Amongst people with disabilities who experience urinary incontinence:

- Women with disabilities, and people with mobility limitations are more likely to experience urinary incontinence than men or people with other types of functional limitations.

  People with disabilities who experience urinary incontinence report a medium level of interference in their lives (5.0 on a scale of 0 to 10), compared with 4.7 for people without disabilities.

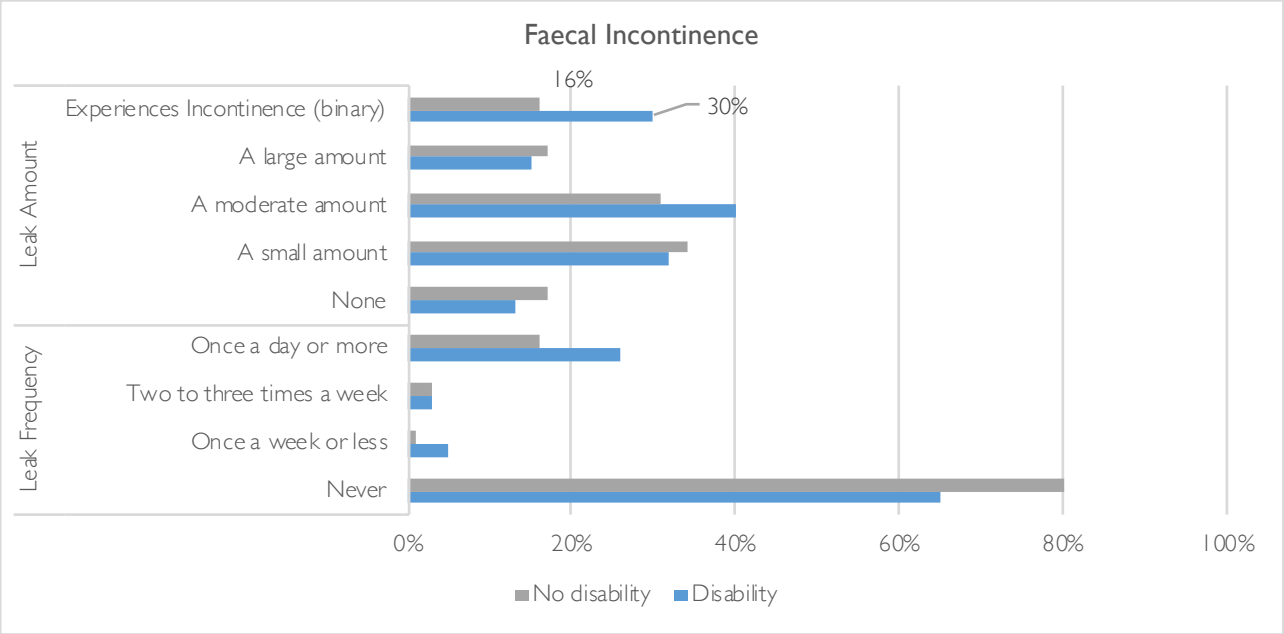
- 55% of girls and women and 67% of boys and men with disabilities who experience urinary incontinence miss out on social activities because of their incontinence.

  40% of girls and women and 39% of boys and men with disabilities who experience urinary incontinence miss out on eating with others because of their incontinence.

See Table 45 and Table 46, Appendix 2

Box 8: Likelihood and impact of urinary incontinence

FAECAL INCONTINENCE



Graph 24: Faecal incontinence

People with disabilities are statistically twice as likely to experience faecal incontinence than people without (Table 53, Appendix 2).

Amongst people with disabilities who experience faecal incontinence:

- People with mobility and self-care limitations were more likely to experience faecal incontinence than people with other limitation types. There were no other significant difference by age group, sex, or location.
- Approximately half (38% and 40%) of boys/men and girls/women who experienced faecal incontinence were excluded from social activities or eating with others as a result.
- Two thirds of people with disabilities affected were able to wash and change in privacy at home.
- People with disabilities who experience faecal incontinence report a medium level of interference in their lives (5.1 on a scale of 0 to 10), compared with 4.5 for people without disabilities.

See Table 48 and Table 49, Appendix 2

Box 9: Likelihood and impact of faecal incontinence

Participants with and without a disability who experience incontinence, reported that it disturbs sleep and affects them most during the night: they are not able to get up and to the bathroom in time, they need to urinate numerous times a night, or the urge to urinate or defecate may not wake them. Research shows that sleep disruption impairs long term memory, decision making, attention, and reduces quality of life in the person experiencing it[85,86].

"This is mainly at night. Managing me in the daytime is fine because its daylight and you're just walking around, you'll be awake and when the slightest urge gets upon you, you just get up and go. But it really disturbs you in your sleep when the urge is at night" (male, urban, no disability).

Management strategies applied by all participants who experience incontinence, include limiting water intake with and after the evening meal.

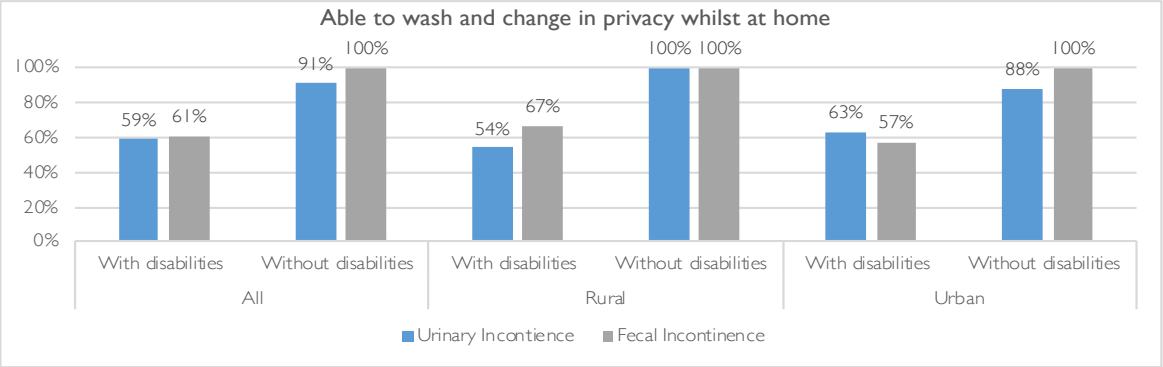
"When I drink too much water, then I'll urinate too much and my wife gets angry because she already washed for me" (male, urban, walking, remembering functional limitations).

Carers reported limiting people's consumption of food and water, in order to limit the number of times the person needs to urinate and to manage weight gain. This was a particularly concern for ageing parents of growing children with mobility functional limitations, who have no lifting devices.

"If he's [husband's] not here, and she needs to bathe or has soiled her underwear and I need to take her to the bathroom to wash her. If she moves a bit and I don't have the strength, we'll both fall down, and then I struggle to lift her up. [….] Because she's really heavy. When she eats… if she's happy about the food, she'll eat so much!" (Proxy interview for woman, urban, walking, remembering, self-care limitations).

Disability service providers also highlighted the issue of limiting a person with a disability's food intake and cited a lack of incontinence products as a possible root cause.

"And I see it as a problem when I visit [Cerebral Palsy] patients, that maybe… they all seem to be starving to death, because part of it is that the more they feed, the more they go to the bathroom. I don't think it's done in any kind of malicious way, I just think it's… you know, as the child gets heavier and heavier, so they feed just such a small amount and part of it is because resources are limited for diapers and things" (Disability Service Provider, Focus group discussion).



Graph 25: Able to wash and change in privacy whilst at home

People without disabilities almost all (91% - 100%) reported being able to wash and change in privacy when they experienced incontinence at home (Graph 25 above and Table 56 in Appendix 2). In contrast, approximately half of people with disabilities said that they were unable to wash and chance in privacy whilst at home.

INCONTINENCE PRODUCT USE

Numbers are low, but Table 56 suggests that 44% of people with disabilities who experience urinary incontinence, and 50% of people without, did not use any materials when they leaked. Comparatively, 39% of participants with disabilities, and 58% of participants without disabilities who experienced fecal incontinence reported using toilet paper when they leaked.

Results from the market survey with qualitative participants found that people with and without disabilities who experienced incontinence were unaware of the availability of certain products such as mattress protectors, or were aware of products but they were prohibitively expensive. Others felt that through frequent washing and changing their clothes, they were able to manage their incontinence without the use of products.

TABOOS AND SHAME DRIVE SILENCE AROUND INCONTINENCE AND MENSTRUAL HYGIENE MANAGEMENT

INCONTINENCE

There is no word for incontinence in Bislama or local dialects, demonstrating how taboo it is. A few people spoke to family members about their incontinence, but most people did not talk to anyone. This was borne from shame, a fear of what others would say and think, because they think it is a normal part of ageing and because they have never been asked about incontinence by a medical professionals or members of the family. One carer explained that she was scared and ashamed to mention the incontinence her grandson experiences at a healthcare centre, and staff did not raise it, even though he had urine on his clothes.

"I'm scared […] I'm scared to talk about it […] I'm also ashamed to mention it. When we went to the hospital and waiting to be attended to, urinary incontinence occurs almost always" (Proxy interview for a man, rural, walking, remembering, self-care, understanding functional limitations).

This may indicate how difficult healthcare workers find raising such sensitive topics with patients if they are not directly asked about it. One healthcare worker stated that menstrual hygiene management and incontinence is the 'family's business'. The other healthcare worker highlighted how the culture of reliance on the supportive family network can mask unintentional or intentional neglect of people with disabilities and people who experience incontinence.

"I'm glad that we talked about this topic because I hope it can cause some ripples for somebody out there to stop us pretending that everything is fine" (Healthcare worker).

MENSTRUAL HYGIENE MANAGEMENT

There were very few accounts of formal education in school about puberty and menstruation. As menstruation is linked to sex, which is a taboo topic, menstruation is not spoken about openly[87]. Information that was provided in schools was often unclear and fuelled confusion and misconceptions related sexual and reproductive health, including menstrual health.

There is a dearth of accurate information on the menstrual cycle or how to manage it hygienically. All participants with and without a disability had limited understanding of the biology of menstruation and many people with and without a disability asked researchers questions about how to hygienically use menstrual products. Information that was provided focused on the practical management of menstruation, such as using a menstrual product to soak up menstrual blood, but not how often to change the product, how to dispose of it in an environmentally friendly and hygienic way. The focus on practical management of menstrual blood demonstrates a need to cope, rather than feel pride in reaching puberty and an ability to reproduce.

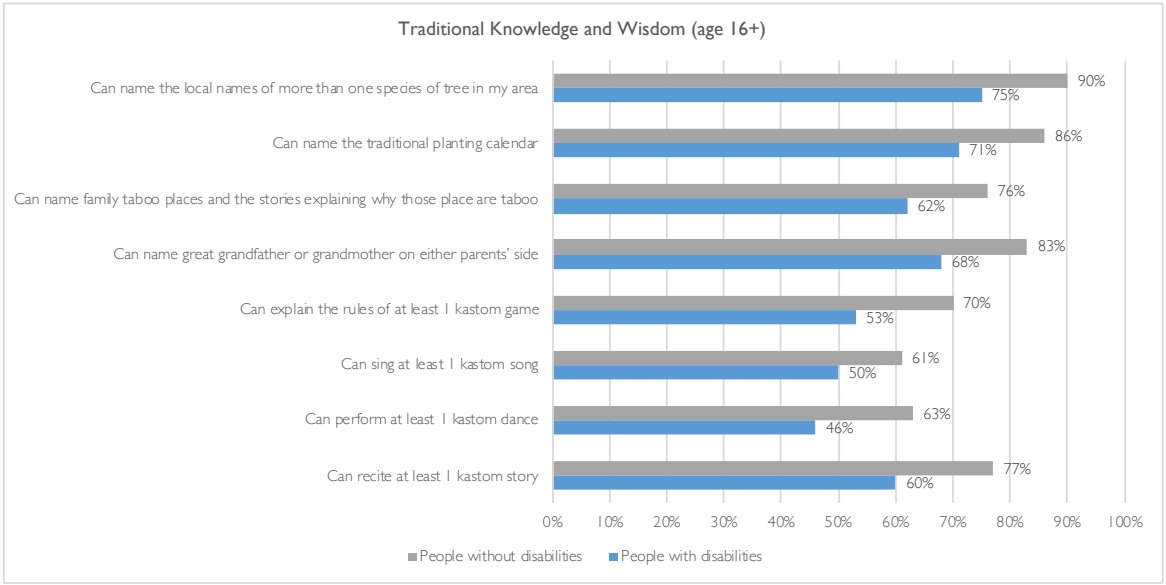
Many participants (with and without a disability, rural and urban) reported that they were not prepared for their first menstruation: they were not told it was going to happen or how to manage it in advance. Reasons given for this lack of communication between family members was respect. Without information, participants were scared, overwhelmed and worried when they first menstruated, fearing that they were ill.

"I was crying and my heart was beating very fast because I was scared I had contracted a terrible disease […] My mother explained to me that it's not a disease, rather it's the women's sickness. Then she gave me some calico [menstrual cloth] and explained how to use them" (woman, urban, seeing functional limitation).

Some participants (with and without a disability) were told they would menstruate by older sisters, mothers or grandmothers (these are key 'influencers'). Encouragingly, this included a mother telling her pre-pubescent daughter who has remembering functional limitation that she will menstruate. However, her daughter forgot the information by the time she first menstruated, showing how important it is to keep repeating information for pre-pubescent and pubescent girls who have difficulties remembering.

Some participants were told menstruation is normal, but it was always framed negatively as a 'problem' or 'women's sickness'. The negative language used to describe menstruation shows how menstrual taboos are passed down the generations.

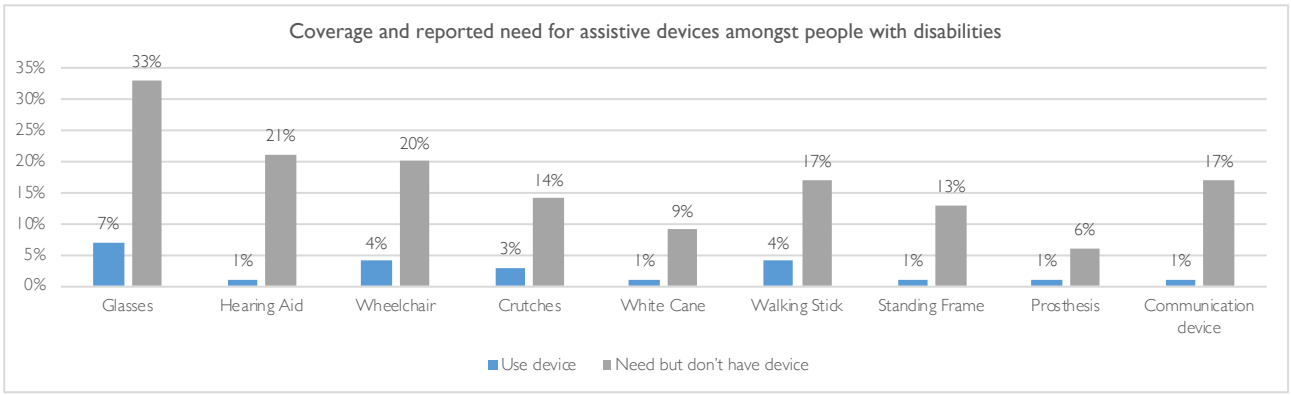
TRADITIONAL KNOWLEDGE, WISDOM, PRODUCTION SKILLS AND PARTICIPATION



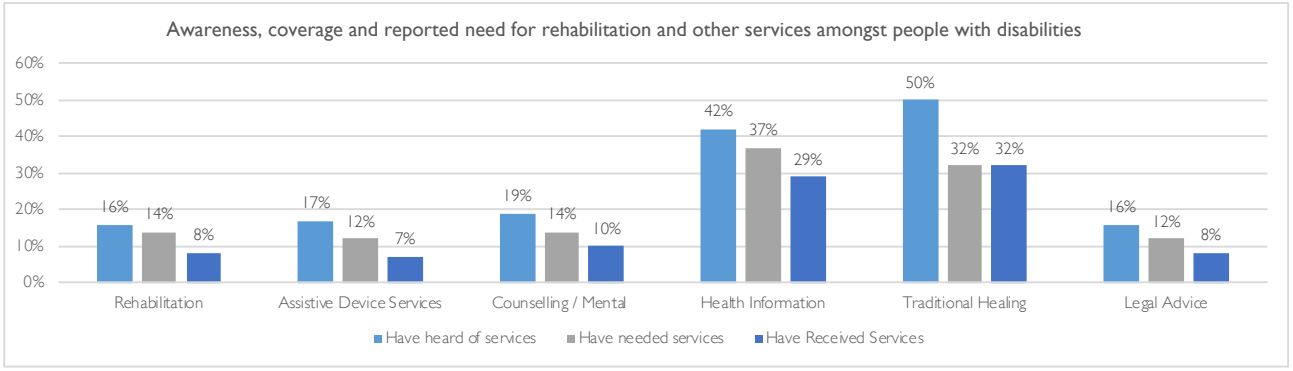
Graph 26: Traditional Knowledge and Wisdom

People with disabilities were statistically less likely to be able to complete each of eight traditional knowledge or wisdom tasks than people without disabilities (Graph 26 above and Table 57 in Appendix 2). In addition, they were statistically more likely to report not having production skills (Table 58, Appendix 2): both more likely to say that they don't have these skills, but other family members do, and more likely to say that neither they nor other members of their households do.

ASSISTIVE TECHNOLOGY, REHABILITATION AND OTHER SERVICES



Graph 27: Coverage and reported need for assistive devices amongst people with disabilities



Graph 28: Awareness, coverage and reported need for rehabilitation and other services amongst people with disabilities

Access to assistive technology, rehabilitation and other services was low amongst people with disabilities. Less than 10% had access to any type of assistive device/technology, or had received rehabilitation (Graph 27 and Graph 28, above, and Table 59 and Table 60 in Appendix 2). Less than 20% of people with disabilities had ever heard of rehabilitation or assistive device services, although more than half of those who reported needing rehabilitation and other services had received them (see Table 59 and Table 60 in Appendix 2).

PARTICIPATION

People with disabilities reported lower participation than their peers across the activities included (see Graph 29, next page, and Table 61 in Appendix 2). This included being 8 times more likely not to be able to visit other people in the community (24% of people with disabilities) and 9 times more likely not to be able to participate in religious or community affairs as much as they'd like to (23%).

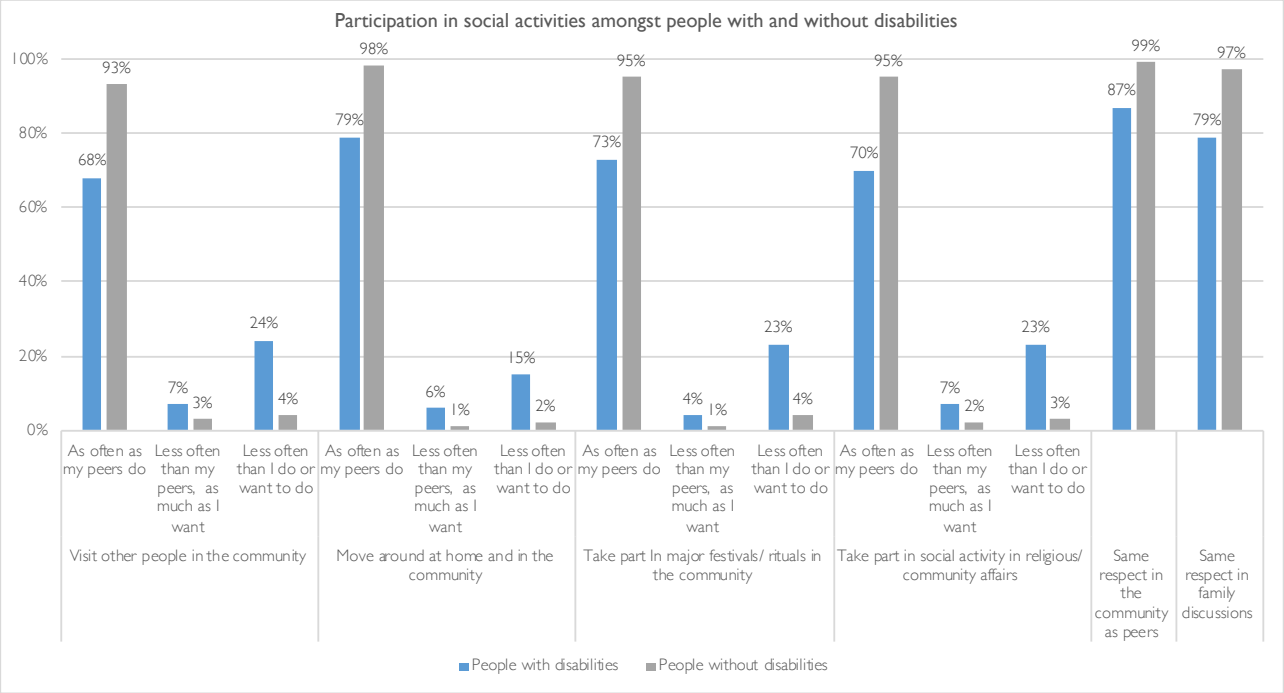
Interestingly, people with disabilities who reported not participating as much as their peers were also more likely to report that although they participate less, they participated as much as they want to.

Amongst people with disabilities:

- People who were poorer, and people with mobility, memory, self care and communication limitations were least likely to be able to visit others in the community as much as they would like to.
- People who were older, women, people who were poorer and conversely the wealthiest group of people, and people with mobility, memory, self care and communication limitations were least likely to be able to take part in religious or other community affairs as much as they would like to.

See Table 55, Appendix 2

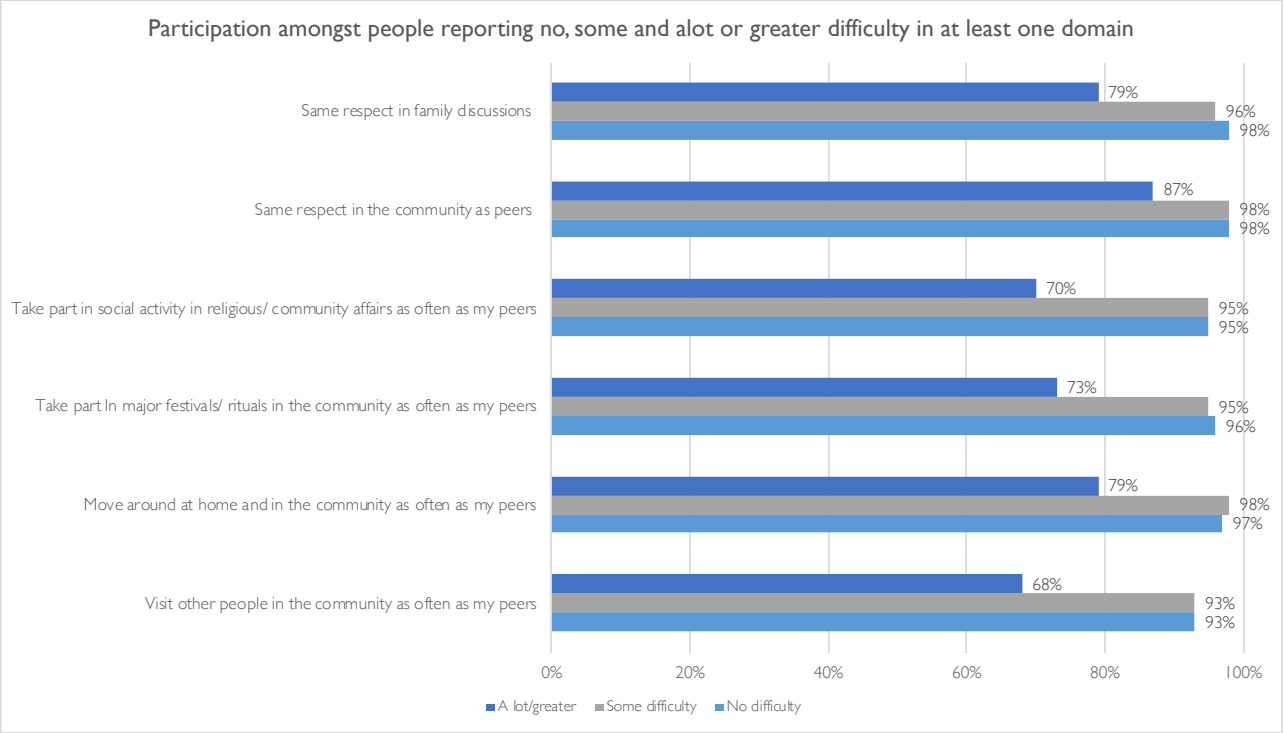
Box 10: Likelihood of participation restrictions



Graph 29: Participation in social activities amongst people with and without disabilities

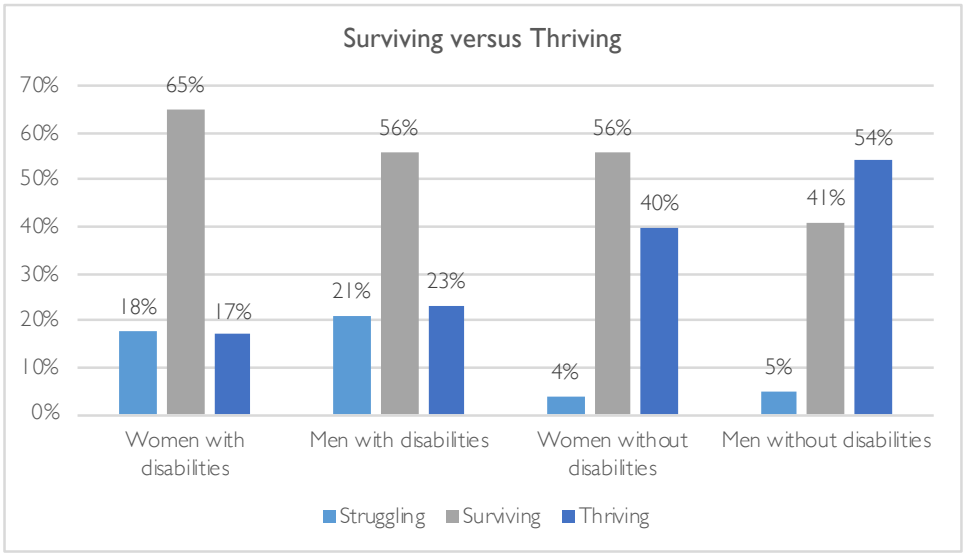
PARTICIPATION AMONGST PEOPLE WHO EXPERIENCE "SOME" DIFFICULTY IN ONE OR MORE DOMAIN

The prevalence of disability in the study using the standard Washington Group Short Set threshold of "a lot of difficulty or cannot do in one or more domain" was lower than had been anticipated based on estimates from other settings. In participatory dissemination workshops, participants discussed whether there may be cultural reasons why people who experience functional limitations that might be reported as "a lot" in other settings, only report "some" difficulty in Vanuatu. Graph 30 below shows participation restrictions experienced by people with disabilities (experiencing "a lot" or greater difficulty) and from control participants who reported "some" difficulty in one or more domain. No statistically significant participation restrictions were seen in participants reporting "some" difficulty compared with participants reporting "no" difficulty (see Table 63 in Appendix 2).



Graph 30: Participation amongst people reporting no, some and alot or greater difficulty in at least one domain

OVERALL WELLBEING: SURVIVING VERSUS THRIVING



Graph 31: Surviving versus Thriving

The Gallup World Poll Cantril Scale was used to assess overall wellbeing, based on reported satisfaction with life as a whole currently, and expected satisfaction with life as a whole in five years' time. According to the scale, women and men with disabilities were three times less likely to be thriving than women and men without disabilities (Graph 31, above).

Overall satisfaction with life as a whole was statistically lower for people with disabilities overall, and when stratified by age group, sex and location (Table 64, Appendix 2). People with disabilities were more likely to report their past life satisfaction as higher than their current satisfaction, but not more likely to report their future life satisfaction as lower than their current satisfaction, compared with people without disabilities (Table 65).

Amongst people with disabilities:

- Women, people in the lowest 50% of socio-economic status and people with self-care limitations were the least likely to be thriving.
- People with mobility limitations, memory and self care limitations reported lowest current satisfaction with life.

See Table 58, Appendix 2

Box 11: Likelihood of thriving

INCONTINENCE AND WELLBEING

People without a disability who experience incontinence generally do not require support and are able to manage with difficulty, but independently. People with disabilities are more likely to require support and this differs depending on the functional difficulty experienced. For instance, people who have remembering limitations need constant reminders to go to the toilet; people with self-care functional limitations need support with toileting, bathing and dressing; people with mobility limitations may require support toileting, collecting water and doing laundry. People who experience functional limitations across a number of domains often require total and constant care.

People with and without a disability who experience incontinence cited a reliance on others as a major challenge, and this increased with age. Women and men who experience incontinence felt they were a burden to their families and carers, and some carers felt this too, which leads people to try to manage their incontinence silently. One woman, without a disability, explained that in the past she asked her daughters to help her with laundry after she soiled them, but as she often urinates on her clothes they no longer assist her.

"I won't say much - I don't want to explain it to them because even if I tell them they still won't take notice of me" (woman, urban, no disability).

Older people rely on their children to care for them, but they need to work and have their own children to support. Competing demands on carers' time and increasing support requirements from ageing parents can lead to children to view their parents as a burden, which can lead to neglect.

"I'm all alone [….] I'll just be here… if I'm hungry I'll go look for them, but they don't care for me" (woman, rural, walking functional limitation).

An ageing man with a disability who experiences incontinence explained that his family no longer buys him soap. When asked why, he said: "I don't know. They've been looking after me for a long time, they're probably tired of me". After the interview, it became clear that the man's family verbally and physically abuse him when he soils himself. Ageing, disability and incontinence discrimination inhibits a person's ability to thrive[88]. A supportive family is crucial for dignity, but this was mainly afforded to younger men who became disabled after getting married.

Some people with a disability who experience incontinence reported a deep sense of shame when family members have to support them with toileting. One woman explained that this led her to ask her adult son to stop assisting her.

"Don't come close to me anymore, you'll just come close when… I need you when I'm hungry. But to come and help me with the toilet, I explained that because I've become like a child again, you'll have to step away from me" (woman, urban, walking and self-care functional limitations).

There were many accounts across all participants who experience incontinence limiting their own participation, with a lack of public toilets and fear of soiling oneself being cited as a major concern. People without a disability and with more financial resources are able to have a greater degree of freedom, as they can drive home or get to a public toilet in urban areas, but this is stressful and requires forward planning. It also means that people cannot stay out of the home for as long as they would like.

People with a disability, who experience incontinence stay at home as they do not burden their carers, because of a fear that they will soil themselves in public and because they do not want to be teased or pitied.

"If I was in public and were to urinate, it'll look bad because if it occurs I don't know how am going to do it because of the public and I'm ashamed to have the public witness something like this from me. It is better I remain isolated and take care of myself separately from everyone" (man, urban, walking and self-care functional limitation).

Carers have experienced family members being teased and socially excluded when they have taken them out, so many choose to keep the person with a disability at home in order to protect them.

"People stare down on him whenever we attend such functions and laugh at him and so it makes me sad" (Proxy interview for a man, rural, remembering and self-care functional limitations).

Limited participation in daily life is also caused by disability discrimination as people with disabilities are viewed with pity and distain, and are verbally and physically abused.

"This [photo] is about my past when I was being teased before they know the rights of people with disability. I was teased, scolded and cursed at but I kept my head high. I was even physically assaulted but no matter the all that I kept my head up. The same happened in school when I was compared to a frog and I would be frightened and ashamed and get out of the class and go straight home. After that I wouldn't attend school and just be at home".

MENSTRUAL HYGIENE MANAGEMENT AND WELLBEING

People without a disability, living in rural and urban areas who have formal employment, continue to go to work when they are menstruating. If they did not they would be dismissed as menstrual discomfort is not an acceptable reason for not working. However, people without a disability living in rural areas, who work in gardens (farm labourers), do not work because of the menstrual belief that they will "spoil yam growth", which shows how internalised the menstrual taboos are.

People without a disability living in rural areas may self-limit participation if they have a heavy menstrual flow because they are concerned they will leak in a long church service. However, people without a disability living in urban areas did not restrict their movements. Carers of young women who have difficulties remembering and concentrating, understanding and communicating, reported keeping their daughters at home during menstruation because they would not wear a menstrual product and the mothers feared they would have blood stained clothes.

"When she gets her period […] I would tell her not to come outside but to stay inside and sleep instead. The problem with her is that when she menstruates, she doesn't like to use the calico or a sanitary pad" (Proxy interview for a woman, urban, remembering and understanding functional limitation).

POLICY CONTEXT

POLICY CONSULTATION WITH CIVIL SOCIETY ORGANIZATIONS

This section describes the policy context in Vanuatu based on analysis of key informant interviews. It is not a comprehensive overview of the Government of Vanuatu's WASH policies, planning or regulation procedures.

The Government of Vanuatu has a National Sustainable Development Plan (NSDP), which details how they will contribute to achieving the Sustainable Development Goals. Each government ministry has annual business plans, which is the mechanism for showing how their allocated funds will be spent and about how that ministry will contribute to achieving the policy targets within the NSDP. The Government of Vanuatu is progressing towards full fiscal decentralisation, whereby cost centres are held at the Provincial level. Cost centres are reported against on a quarterly basis to ensure implementation is within the Ministry's strategy.

Civil society organisations (CSOs) can contribute to the annual planning process. The government encourages joint action planning for more effective coordination of activities across development actors and government ministries. Ministry officials highlighted that it can be difficult to ensure that participation is meaningful across all different interest groups represented. For instance, gender equality, disability activists, WASH, health and education actors may have different interests, agendas and key asks; Ministry officials must review all inputs against their own priorities and available resources to develop the final business plan. Invariably civil society actors do not always feel that all of their interests and priorities are reflected in the final business plans. Furthermore, key informants from disability organisations feel that they are asked to contribute to policy discourse and development, but do not receive any further interaction from the government and donors.

POLITICAL RESPONSIBILITY FOR WATER, SANITATION AND HYGIENE

In Vanuatu, responsibilities for water, sanitation and hygiene sits across a number of ministries, with the Director of Public Health coordinating water and sanitation activities, but hygiene is less visible. The role of civil society to keep promoting the importance of hygiene within this context is vital.

"… hygiene is a topic that is quite often overlooked and not taken seriously. And it takes sometimes some champions […] to remind us that it's very important and that we can't ignore the H in the WASH." (Key informant interview, government official)

All ministries are chronically understaffed with officials covering multiple roles at the national and provincial levels. Within a context of humanitarian emergencies, provincial water officers are often pulled into such responses, as was recently seen in TORBA with the Ambae emergency response. A provincial water officer is in place in Luganville; recently a provincial water officer has been recruited in Sanma and Torba, with the recruitment of a water supervisor underway, which presents an opportunity to target that level with the research findings.

In terms of disability, key informants felt that the Ministry of Justice's disability desk lacks the necessary power to integrate disability within all other Ministry's priorities. However, progress is being made. For instance, the Government of Vanuatu's draft sanitation guidelines includes menstrual hygiene management and references the needs of 'some of disabilities types'; it also references inclusiveness as a guiding principle[89]. Inclusiveness is a guiding principle and this is defined as 'accessible and convenient solutions' with a focus on women and girls, older people and people with disabilities[89]. This indicates a more inclusive approach to ensuring sanitation services meet the requirements of users throughout the total life cycle. Draft technical standards for inclusive public latrines and school latrines exist, but they do not include disposal mechanisms for menstrual hygiene products (i.e. incinerators, bin with lid or place to wash / dry used menstrual cloth). If addressed in the final sanitation guidelines could create a good blueprint for inclusive sanitation services.

As health is such an important issue for people with disabilities, the Ministry of Health's priorities should include a specific focus on this group, so they should be a target to influence. The Ministry of Health's corporate services includes health information system, assets management, training and development, and planning and policies, so encouraging the ministry to include training for frontline healthcare workers on disability, incontinence and menstrual hygiene is important.

The Ministry of Health has the following key strategic directions[90]. Findings from this research could be used to promote the importance of disability, WASH, MHM and incontinence within the second and third priorities.

1. Strengthening health service management and information systems;

2. Improving population access to health services through integrated planning, and fair allocation of resources; and

3. Strengthening collaborative action across sectors and within the health sector to create a healthier environment and address major health issues.

Photo Credit: Mike Kaun (WVV)

07

BRINGING IT ALL TOGETHER

DISABILITY PREVALENCE

The all-age prevalence of disability in TORBA and SANMA estimated by the study was 2.6%. This is higher than the 2009 Vanuatu census (0.8%) but not directly comparable as the latter used modified response options for the Washington Group Short Set, excluding the "a lot of difficulty" option. The next Vanuatu Census is scheduled for November 2020.

Whilst this study's prevalence estimate is lower than estimates using the standardised Washington Group Short Set questions in other regions (e.g. 3.8% in Nepal[91], 5.9% in Cameroon[16], 7.4% in Guatemala[70] and 7.5% in India[16]), it is comparable to other findings in the Pacific[17]. Table 13 compares the disability prevalence from the study with a number of other Pacific estimates all using the WGSS. Similar estimates are seen across all settings except Fiji, which is the only estimate similar to the global aggregated estimate of 15%.

Table 13 Comparison of prevalence estimates with other data sources

	Total (age 5+)	5-17	18-49	50+	Total reporting SOME or more difficulty	Source	Notes
TORBA and SANMA (2019)	2.6%	1.5%	1.8%	8.2%	22.2%	Water, Women and Disability Study	Present study, not a government census but still complete listing of population
Vanuatu Census (2009)	0.8%	-	-	-	5.1%	Children, Men and Women with Disabilities in Vanuatu: What do the data say?[14]	Response options modified from standard WGSS – no option "a lot of difficulty" (3 options only) Age-group data not available/ identified
Fiji Census (2017)	13.7%	-	-	-	-	The Pacific Community(SPC) Website[92]	Age-group data not available/ identified
Samoa Census (2016)	2.7%	0.9%	0.7%	7.6%	7.1%	Samoa Disability Monograph (2018)[17]	
Tonga Census (2016)	4.6%	-	-	-	-	Tonga Disability Monograph (2019) [18]	Age-group data not available/ identified
Kiribati Census (2015)	3.1%	0.9%	2.1%	11.1%	-	Kiribati Disability Monograph (2017) [19]	Response options modified from standard WGSS ("no difficulty", "moderate difficulty", "severe difficulty", "cannot do")
Palau Census (2015)	2.4%	0.6%	0.8%	6.6%	7.8%	Palau Disability Monograph (2017) [20]	

Table 13: Comparison of prevalence estimates with other data sources

There are a number of reasons why the estimates derived in this study and other data collection using the WGSS in the Pacific might be lower than elsewhere. Firstly, disability is known to be associated with ageing, and Vanuatu (and other Pacific settings) has a relatively young population (42% under 18 versus 32% in the WHO Standard Population[93]). Comparatively, 13% of the Vanuatu listing population were age 50+, versus 22% in the WHO standard. Given the association with ageing, a younger population are likely to have a lower all-age estimate of disability. However, the age-stratified prevalence estimates in Table 13 above, and Statistical Appendix 2 Table 15 also show that estimates per age group are lower than similar studies from other settings have shown - for example 8.2% in the population 50+, compared with 25% in Cameroon, 39% in India and 22% in Guatemala all using the WGSS and the same cut off[94].

Participatory dissemination workshop discussions explored whether there might be cultural reasons behind these relatively low estimates compared to other settings. For example, the resilience and adaptability of small island communities across the Pacific has previously been seen in the face of challenges related to colonial occupation, successive natural disasters and, more recently, climate change[95]. Anecdotally it was felt that people in the study with functional limitations that may be reported as "a lot" of difficulty in other settings, might be more likely to consider these as "some" difficulty in this context.

The case-control data was used to explore whether people who reported "some" difficulty in one or more domain were more likely to also report restrictions in participation compared to people who reported "no difficulty". Statistical evidence of this was not found, but the Washington Group were approached directly to begin a dialogue about interpretation of the Washington Group response-options in the Pacific Region, which is ongoing. The proportion of participants reporting "some" difficulty was higher than in the two Pacific Monographs that reported this.

Disability prevalence was similar by sex and increased with age, as is seen in other settings. This latter finding is particularly important given that functional decline related to ageing is often perceived culturally as separate to disability, when in fact the restrictions on participation and implications on quality of life are the same[96].


Photo Credit: Mike Kaun (WVV)

HOUSEHOLD WASH

Whilst over 89% of rural households and 99% of urban households included in the case-control study had access to an improved water source, over half reported insufficiency of the water supply in the last month. Water availability is a critical public health concern, and addressing this is a mandatory foundational step in improving WASH-related outcomes for the whole population[97]. A reliable supply of safe and affordable water is needed to meet basic requirements of WASH for all, before the additional requirements of women who menstruate, people who experience incontinence, and people with disabilities can begin to be met. One technique to support households in increasing the security of their water supply is self-supply. The Rural Water Supply Network defines self-supply as 'an initiative which complements the conventional communal supply generally funded by the government, and later forms the backbone of rural water supply. It is an approach that aims to improve household or community water supply through user investment in water treatment, supply, construction and upgrading, as well as rainwater harvesting'[98]. Within this approach, the government is responsible for standardisation and regulation, capacity development and promotion, as well as targeting subsidies for the provision of water services. Self-supply does not refer to a specific technology and it does not need to be low-cost, but technologies that require lower up front investments tend to be favoured by end users[98].

The majority of Case-Control participants from Luganville (81%) reported that their household had access to an improved sanitation facility, compared with 47% of participants from rural ACs. The study did not collect data on waste water treatment, so is able to classify these facilities as basic, but not safely managed[1]. Half of the Luganville households and a third of rural households in the Case Control study shared these sanitation facilities with other households. Improved but shared facilities are classified as limited on the JMP sanitation ladder. Whilst there has been an increase in the acceptability of shared facilities by the JMP on account of improved hygiene and upkeep in some settings , increased numbers of individuals using the same facility may pose additional risks to vulnerable groups[99,100]. For example, a lack of privacy and safety when using household latrines was commonly reported in both the quantitative and qualitative research. The consequences of this lack of privacy and safety, particularly on adolescent girls and women who menstruate, has previously been reported as including experiences of harassment and abuse, and psychological distress[101].

WASH AND DISABILITY

Within households, women and men with disabilities frequently encountered additional barriers to WASH compared with other members of their households, or people without disabilities in their communities. These included attitudinal barriers preventing them from collecting water from the household's main water source, fear of violence and physical inaccessibility of household bathing or sanitation facilities.

Within the home, one in ten people with disabilities reported limited access to water, and one in three reported difficulty using household facilities without coming into contact with urine or excreta - both increasing their risk of various chronic diseases related to dehydration and faecal contamination, and increasing their risk of hygiene-related stigma[102,103]. Participants in the qualitative component reflected on how an inability to maintain their personal hygiene led to feelings of shame and indignity, and in some cases led to self-exclusion.

Amongst people with disabilities, people with mobility and self-care limitations, and older people with disabilities were often the most likely to experience barriers to WASH. Barriers to WASH experienced by people with disabilities have previously been explored in the literature, and a number of comprehensive resources exist to synthesise approaches to achieving inclusive WASH[104]. Importantly, these resources describe approaches that support people with different functional limitations, in appreciation that solutions may differ depending on functional limitation type.

MENSTRUAL HYGIENE MANAGEMENT

Women who menstruate reported an additional requirement for water to clean themselves and their menstrual products. Internalised harmful beliefs led women who menstruated to isolate themselves during their period, feel responsible for collecting their own water for bathing and washing their products and use separate latrines and bathing facilities. These beliefs had negative implications for women with disabilities, given the attitudinal and physical barriers to WASH they frequently experienced.

Women in urban areas were more likely to use disposable pads during menstruation, whilst those in rural areas were more likely to use reusable materials, such as cloth. Vanuatu plans to ban all single-use plastic (which many believe include disposable menstrual and incontinence products) by 2021[105], whilst key Informants flagged that current production of reusable menstrual products involved importing materials from overseas. There is a need to explore environmentally friendly and affordable alternatives for women who menstruate and people who experience incontinence in Vanuatu, with sustainable supply chains. In addition, women must be provided with viable options, developed and tested in full and meaningful participation with end users, so that they can make informed choices. Recent resources such as UNICEF's Guide to Menstrual Hygiene Materials, and full inclusion of people with disabilities who menstruate and their carers, can assist with MHM products[13,33]. Resources on incontinence products for the LMIC setting are also growing[106].

INCONTINENCE

Approximately one third of people with disabilities and one quarter of people without disabilities included in the case-control study reported experiencing incontinence (urinary or faecal, at least three times a week or more).

A recent review of the literature identified a prevalence estimate range of urinary incontinence of 5% - 70%, with most studies estimating the average prevalence as being between 25 – 45 %[107]. Similarly, a review of 38 prevalence studies of faecal incontinence reported a median prevalence of 7.7%[108]. Both reviews addressed the limitations of comparability between estimates, which are impacted by differing methodologies, cultural interpretations and stigma. In light of the associations between urinary incontinence and diabetes, and the current diabetes epidemic in the Pacific, it is plausible that incontinence prevalence is higher than in other settings[109,110].

There is no word in Bislama to describe incontinence, and this study experienced limitations in exploring incontinence as a result. Quantitative teams were re-trained part way through the data collection, to reinforce messages around how incontinence is conceptualized, and strengthen translation of the questionnaire. In spite of this, it is possible that not all participants understood the module focus on incontinence as separate to usual continence function. Key informants from the health sector described difficulties in discussing sensitive topics, perceived to be "family business". A lack of information available on incontinence was identified both in this study and in the literature as a driver the stigma that people who experience incontinence face, and limits their capacity to manage their condition with dignity and independence[111]. People with disabilities who experience incontinence therefore face additional or multiple layers of stigma and discrimination, requiring inclusive and supportive targeted interventions that are specific to their requirements.

HYGIENE

Maintenance of personal hygiene was explored in both the qualitative and quantitative components of the study. Not having access to soap, not being able to bathe as frequently as desired or required to prevent contamination, and carers' feeling underequipped to provide personal hygiene support were all identified in the study findings as issues faced by people with disabilities, people who experience incontinence, women who menstruate and, in particular, people with disabilities who menstruate or experience incontinence.

The promotion of hygiene within water and sanitation related policies, procedures and financing, is crucial. Whilst water and sanitation infrastructure provide the physical conditions for hygiene, good hygiene behaviours, such as handwashing with soap, and regular bathing can prevent disease[112]. Without hygiene, the benefits from water supply and sanitation infrastructure are limited, and menstrual hygiene and incontinence management should both be expressly included in hygiene policy discourse.

EXCLUSION OF PEOPLE WITH DISABILITIES

The quantitative and qualitative findings of the study highlight the isolation and stigma experienced by several interrelated vulnerable groups in TORBA and SANMA, Vanuatu: women who menstruate, women and men with disabilities, and women and men who experience incontinence. Whilst this study focused on vulnerabilities of these groups in relation to WASH, the results also exposed the negative implications of exclusion on wellbeing and satisfaction with life overall.

The study also identified examples of self-limitation – for example people with disabilities in the case-control study reporting that they participated in community events less than their peers, but as much as they wanted to; and participants in the qualitative study reflecting on the perceived burden they felt they were to their families. This speaks to Amartya Sen's argument that limited opportunities can damage individuals' expectations for themselves and for others' interactions with them[113].

Holistic, inclusive policy and programming is required to challenge cultural norms and support full and meaningful inclusion of these different vulnerable groups – not only via improved access to and quality of WASH, but more broadly across culturally valuable activities. This includes increasing the accessibility of public spaces for women who menstruate, people with disabilities and people who experience incontinence. Namely, accessible and private latrines and water supplies, covered bins for incontinence and menstrual hygiene management products, and availability of soap and other hygiene materials. Equally, the discourse should be led by Disabled Persons' organisations, reinforcing the statement "Nothing About Us Without Us" and ensuring that people with disabilities are front and centre of policy change.

08

STUDY RECCOMENDATIONS FOR WASH ACTORS IN VANUATU

The recommendations below were designed to inform the LDK intervention but are appropriate to be taken forward by all WASH actors n Vanuatu:

- Work with stakeholders to strengthen consistency of household water supply - without this fundamental WASH building block in place, women and men with and without disabilities will continue to face WASH challenges.
- Prioritise self-supply initiatives within the WASH programmes, especially targeting households with persons with disabilities, all older people and anyone experiencing incontinence.
- Destigmatise incontinence by giving it a name and providing clear messaging to communities around what it is and where people who experience it can get support.
- Destigmatise menstruation by celebrating it, challenging harmful beliefs and avoiding euphemisms.
- Champion hygiene as a core component of WASH activities, including capacity to bathe regularly with soap - this is particularly important for women and girls who menstruate.
- Work with stakeholders to build MHM, incontinence and disability into healthcare worker training, including how to discuss sensitive topics such as incontinence with people who experience it, and the links between urinary incontinence and the diabetes epidemic.
- For both MHM and incontinence management: Explore locally available, reusable, sustainable and cost-effective materials that can be used to make environmentally-friendly products that meet potentially different requirements of people with different impairment types.
- Support carers to understand incontinence and management strategies that can be applied at home, and how to support another person to manage their menstruation hygienically and with dignity.
- Work with Government Ministries to develop a single, comprehensive and fully inclusive Water, Sanitation and Hygiene Policy that explicitly includes people with disabilities, MHM and incontinence.

- Feed into current rural and urban sanitation plan development, by developing building regulations with stakeholders to ensure accessible public facilities (with bins with lids in female toilets for MHM) are built in both rural and urban settings.

- Complete accessibility and safety audits for all clients with disabilities and for all public facilities - remember, one size does not fit all in terms of WASH and disability.

- Work with Disabled Peoples Organisations to support full and meaningful inclusion of people with disabilities, and diminish attitudinal, institutional and structural barriers to participation that become internalized by people with disabilities.

Photo Credit: Mike Kaun (WVV)

09

STRENGTHS, LIMITATIONS AND CHALLENGES

STRENGTHS

This was a large, mixed methods study comprising of a two-province census, a quantitative case-control study, and an in-depth qualitative component. A study of this size has not previously been undertaken to explore issues of menstrual hygiene management, incontinence and disability in Vanuatu, the Pacific, or anywhere in the world.

Robust and previously validated techniques and best-practice methodologies were included in the study design, including the inclusion of the Washington Group Short Set plus questions on anxiety and depression for adults (ESF-Lt), and the WHO/UNICEF JMP questionnaires on WASH. Where validated quantitative tools were unavailable (e.g. to capture incontinence), these were developed by the research team in collaboration with an incontinence e-working group.

Recruitment of data collectors was rigorously conducted and inclusive of persons with disabilities. A bespoke and comprehensive two-week training programme for data collectors was developed and orchestrated by the study steam to support data collector understanding of the research protocols and themes.

The study was designed and implemented by a group representative of disabled peoples' organisations, international and national civil society organisations, government ministries and international and national researchers. Data collection was monitored with daily reporting on team progress towards data collection targets and key data outputs.
Results were shared first in dissemination workshops in Port Vila and Luganville with different groups including data collectors, LDK and WVV staff, the National Statistics Office and civil society representatives to incorporate contextualised interpretation into the study outputs.

The results provide in-depth data to support the development of the LDK project, and it is hoped that they will be of value far beyond the direct scope of the programme, Vanuatu and the Pacific region.

LIMITATIONS AND CHALLENGES

The study experienced a number of limitations and challenges, which are outlined here for transparency and for future research endeavours to consider.

Few English words or concepts have direct translations in Bislama. This poses challenges in the translation of pre-validated tools. All quantitative English-language tools were translated into Bislama and then back-translated into English by the in-country team. However, despite this, and despite in-depth training in Bislama on the questionnaire meanings and a comprehensive Field Manual, some data collectors struggled with interpretation of key themes.

The study explored a number of sensitive topics, in particular related to incontinence and menstruation, which were particularly difficult to translate into Bislama (for example, there is no word in Bislama for incontinence). There was also low familiarity with the concept of incontinence among the data collection team, and internalised stigma/taboo amongst data collectors. Consequently as the qualitative team began to conduct follow-up research about incontinence, it became clear that there was some misinterpretation of incontinence by community members and data collectors, resulting in false reports. As a result, the qualitative study was put on hold, while the translation of questions was further refined and tested. In addition, field teams underwent further training and mentoring to better understand incontinence and the questions. As data became available from the new incontinence management question set, the qualitative team resumed. The new questions/translations yielded positive results with fewer false identification of incontinence.

The scale of recruitment of enumerators cannot be understated, with the survey requiring a team of enumerators equivalent to the size of the WVV full-time staff. To ensure this process ran smoothly, WVV was supported by an Australian Volunteer (through AVI) to assist with the recruitment and on-boarding process. In addition, WVV was explicit in seeking to recruit women and people with disabilities in the enumeration team. This recruitment process, especially in relation to ensuring adequate representation of People with Disability, was formative for WVV, and provided some strong learnings which will be documented and shared widely.

For instance, the Vanuatu National Statistics Office has minimum requirements during Census recruitment including enumerators must have completed Grade 10, providing a base education and literacy level. WVV, however, recognised that people with disabilities, especially those in remote communities such as in SANMA and TORBA Provinces face considerable difficulties in accessing education opportunities, meaning this requirement would be prohibitive to many people with disabilities. To mitigate this, time for remedial training for those who had lower literacy levels and recorded below threshold test results was provided during the training to ensure both inclusion principles and survey quality were not compromised.

Finally, on account of changing personal circumstances within the research team, the planned in-country support from LSHTM throughout quantitative data collection was removed. Support was instead provided remotely, with daily monitoring of newly uploaded data collection (a daily narrative including real-time disability prevalence estimate, summary of household availability and composition per EA and queries as identified in the data; plus weekly review of progress per EA towards case-control sample completion). Whilst this benefited from time-zone differential (data was exported, summarised and queries raised in the Northern Hemisphere during evening hours in the Pacific) and responded to by the in-country team during evening hours in the North) this increased pressure on the WVV team to manage data collection alongside competing workloads, and without the background experience in management of surveys of this size.

APPENDICES

APPENDIX 1: INTERPRETING STATISTICS

ODDS RATIOS

An odds ratio (OR) is a measure of the association between an exposure and an outcome. The OR represents the odds that an outcome will occur given a particular exposure, compared to the odds of the outcome occurring in the absence of that exposure. An OR of 1.0 suggests no association between the exposure and outcome. An OR>1 suggests the exposure is associated with a higher odds of the outcome occurring. An OR <1 suggests the exposure is associated with a lower odds of the outcome occurring.

The 95% confidence interval shows the range of odds ratios that are likely, with 95% probability. If the confidence interval does not include 1, then the odds ratio is statistically significant (as in the example given below). Confidence intervals are also shown around estimates of prevalence, indicating the range within which we can be 95% sure that the true population estimate exists.

In a case-control study, we are interested in whether there are associations between various exposure variables and the outcome of interest (disability). In the example below, we are identifying whether there is an association between access to improved sanitation facilities (an exposure) and disability (the outcome of interest). Because the study happened at one point (cross sectional) rather than over time, we cannot say that the exposure led to the outcome, or is because of the outcome, only that they are associated.

As an example:

Table 14 Odds Ratios – An Example

	Households including people w/ disabilities	Households w/o people w/ disabilities	Total
improved sanitation	164 (53%)	144 (47%)	308 (100%)
unimproved sanitation	32 (71%)	13 (29%)	45 (100%)
total	196 (56%)	157 (44%)	353 (100%)

- Odds of having a person with a disability in the household amongst those with improved sanitation = 164/144 = 1.14
- Odds of having a person with a disability in the household amongst those with no improved sanitation = 32/13 = 2.46
- Odds ratio = 1.14/2.46 = 0.46, with a 95% confidence interval of 0.23 to 0.94.

This means that households including people with disabilities are half as likely (0.46) to have access to an improved sanitation facility, and that this result is statistically significant at the 95% confidence interval.

If there are more than two options, one option is used as the reference odds ("the baseline") and other odds ratios are each compared to this.

CONFOUNDING AND ADJUSTMENT

A confounding variable is one which affects both the likelihood of exposure and outcome. For example, people who are older may be both more likely to have access to an unimproved sanitation facility, and more likely to have a disability. Therefore, Odds Ratios are often adjusted to account for likely confounders: namely age, sex, location (whether rural or urban) and socio-economic status.

In the above example, adjusting for age and sex, the odds ratio of 0.46 remains the same but the confidence intervals become very marginally changed, at 0.23 – 0.92.

TESTS OF PROPORTIONS

Two tests – the student t-test and the Mann-Whitney Test measure the difference between two means (or averages) or two medians respectively, providing a p-value <0.001 or $p<0.005$ if the difference is significant.

UNDERSTANDING POWER AND SAMPLE SIZE

The statistical power of a study is its ability to detect a statistically significant difference when there is one. A study is under-powered, if a true difference exists in the population, but the sample size is not sufficient to show this.

For example, 34% of households with a person with a disability have an unimproved sanitation facility (Table 23) compared with 28% of households without a person with a disability. We can see that 34% is lower than 28%. The odds ratio of having a disability in the "Improved" group is 0.4, which we can interpret at meaning people with disabilities are approximately half as likely as people without to live in a household that has an improved facility. The 95% confidence interval does not include 1 (0.2 – 0.9). This means that we can be 95% certain that the true value is significant. IE, we have enough power to detect this difference with 95% confidence. In contrast, if we were under powered, we might see this difference but the 95% confidence interval would be wider or non-significant due to not having enough people in each group to detect a difference. This is the case for example in Table 32 (Factors associated with missing social activities during menstruation). We can see that older women are more likely to miss activities during menstruation (67%) versus younger women (32%), but our sample size for this is small and the odds ratio of 2.7 has a 95% confidence interval of 0.2 – 38.6, which is not significant. It might be the case that there is a true difference in this group, but we are underpowered to show this with statistical significance.

APPENDIX 2: STATISTICAL APPENDIX

HOUSEHOLD LISTING AND DISABILITY PREVALENCE TABLES

DISABILITY PREVALENCE

Table 15 Disability Prevalence (Washington Group Short Set Standard Definition)

	Rural (n=36,655)		Urban (n=11,821)		Total (n=48,476)	
	n	% (95% CI)	n	% (95% CI)	n	% (95% CI)
All	860	2.3 (2.2 – 2.5)	413	3.5 (3.2 – 3.8)	1,273	2.6 (2.5 – 2.8)
Province						
TORBA (n=8,569)	257	3.0 (2.7 – 3.4)	-	-	257	3.0 (2.7 – 3.4)
SANMA (n=39,907)	603	2.1 (2.0 – 2.3)	413	3.5 (3.2 – 3.8)	1,016	2.5 (2.4 – 2.7)
Sex						
Male (n=24,808)	469	2.5 (2.3 – 2.7)	212	3.5 (3.1 – 4.0)	681	2.7 (2.5 – 3.0)
Female (n=23,668)	391	2.2 (2.0 – 2.4)	201	3.5 (3.0 – 4.0)	592	2.5 (2.3 – 2.7)
Age group						
5-17 years (n=17,322)	182	1.4 (1.2 – 1.6)	82	2.1 (1.7 – 2.6)	264	1.5 (1.4 – 1.7)
18-35 years (n=16,978)	179	1.4 (1.2 – 1.6)	73	1.7 (1.4 – 2.1)	252	1.5 (1.3 – 1.7)
36-49 years (n=7,504)	116	2.1 (1.8 – 2.5)	79	4.0 (3.2 – 5.0)	195	2.6 (2.3 – 3.0)
50+ years (n=8,955)	383	7.4 (6.7 – 8.2)	179	10.5 (9.1 – 12.1)	562	8.2 (7.6 – 8.9)
18+ years (n=31,363)	678	2.9 (2.7 – 3.1)	331	4.2 (3.7 – 4.6)	1,009	3.2 (3.0 – 3.4)

Table 16 Disability Prevalence Comparison approaches						
	Rural (n=36,655)		Urban (n=11,821)		Total (n=48,476)	
	n	% (95% CI)	n	% (95% CI)	n	% (95% CI)
Inclusive of "Some Difficulty" + Uses an assistive device in any SS domain						
All	937	2.6 (2.4 – 2.7)	440	3.7 (3.4 – 4.1)	1,377	2.8 (2.7 – 3.0)
Province						
TORBA (n=8,569)	274	3.2 (2.8 – 3.6)	-	-	274	3.2 (2.8 – 3.6)
SANMA (n=39,907)	663	2.4 (2.2 – 2.5)	440	3.7 (3.4 – 4.1)	1,103	2.8 (2.6 – 2.9)
Sex						
Male (n=24,808)	511	2.7 (2.5 – 3.0)	226	3.8 (3.3 – 4.3)	737	3.0 (2.8 – 3.2)
Female (n=23,668)	426	2.4 (2.2 – 2.6)	214	3.7 (3.2 – 4.2)	640	2.7 (2.5 – 2.9)
Age group						
5-17 years (n=17,322)	185	1.4 (1.2 – 1.6)	83	2.1 (1.7 – 2.7)	268	1.6 (1.4 – 1.8)
18-35 years (n=16,978)	188	1.5 (1.3 – 1.7)	74	1.7 (1.4 – 2.2)	262	1.5 (1.4 – 1.7)
36-49 years (n=7,504)	131	2.4 (2.0 – 2.8)	84	4.3 (3.5 – 5.3)	215	2.9 (2.5 – 3.3)
50+ years (n=8,955)	433	8.4 (7.7 – 9.2)	199	11.7 (10.2 – 13.3)	632	9.2 (8.5 – 9.9)
18+ years (n=31,363)	752	3.2 (3.0 – 3.5)	357	4.5 (4.1 – 5.0)	1,109	3.5 (3.3 – 3.8)
Inclusive of "Some Difficulty" in any SS domain						
	Rural (n=36,655)		Urban (n=11,821)		Total (n=48,476)	
All	8,016	21.9 (21.4 – 22.3)	2,756	23.3 (22.6 – 24.1)	10,772	22.2 (21.9 – 22.6)
Province						
TORBA (n=8,569)	1,992	23.2 (22.4 – 24.2)	-	-	1,992	23.2 (22.4 – 24.2)
SANMA (n=39,907)	6,024	21.4 (21.0 – 21.9)	2,756	23.3 (22.6 – 24.1)	8,780	22.0 (21.6 – 22.4)
Sex						
Male (n=24,808)	4,156	22.1 (21.5 – 22.7)	1,355	22.5 (21.5 – 23.6)	5,511	22.2 (21.7 – 22.7)
Female (n=23,668)	3,860	21.6 (21.0 – 22.2)	1,401	24.1 (23.0 – 25.2)	5,261	22.2 (21.7 – 22.8)
Age group						
5-17 years (n=17,322)	1,234	9.3 (8.8 – 9.8)	459	11.9 (10.9 – 12.9)	1,693	9.9 (9.4 – 10.3)
18-35 years (n=16,978)	1,879	14.8 (14.2 – 15.5)	703	16.4 (15.3 – 17.5)	2,582	15.2 (14.7 – 15.8)
36-49 years (n=7,504)	1,796	32.5 (31.2 – 33.7)	639	32.6 (30.6 – 34.7)	2,435	32.5 (31.5 – 33.6)
50+ years (n=8,955)	3,107	60.1 (58.8 – 61.5)	955	56.0 (53.7 – 58.4)	4,062	59.1 (58.0 – 60.3)
18+ years (n=31,363)	6,782	29.0 (28.5 – 29.6)	2,297	28.9 (27.9 – 29.9)	9,079	29.0 (28.5 – 29.5)

Table 17 Prevalence by functional domain

	All ages (n=48,476)		Male (n=24,808)		Female (n=23,668)		5-17 (n=17,322)		18-35 (n=16,978)		36-49 (n=7,504)		50+ (n=8,955)	
	n	% (95% CI)	n	% (95% CI)	n	% (95% CI)	n	% (95% CI)	n	% (95% CI)	n	% (95% CI)	n	% (95% CI)
Seeing														
A lot/ Can't	381	0.8 (0.7 – 0.9)	204	0.8 (0.7 – 0.9)	177	0.7 (0.6 – 0.9)	48	0.3 (0.2 – 0.4)	65	0.4 (0.3 – 0.5)	58	0.8 (0.6 – 1.0)[¥]	210	3.1 (2.7 – 3.5) [¥]
Some	4,618	9.5 (9.3 – 9.8)	2,325	9.4 (9.0 – 9.7)	2,293	9.7 (9.3 – 10.1)	152	0.9 (0.8 – 1.0)	622	3.7 (3.4 – 4.0)[¥]	1,275	17.0 (16.2 – 17.9)[¥]	2,569	37.4 (36.3 – 38.5) [¥]
Hearing														
A lot/ Can't	320	0.7 (0.6 – 0.7)	170	0.7 (0.6 – 0.8)	150	0.6 (0.5 – 0.7)	86	0.5 (0.4 – 0.6)	54	0.3 (0.2 – 0.4)	44	0.6 (0.4 – 0.8)	136	2.0 (1.7 – 2.3)[¥]
Some	2,533	5.2 (5.0 – 5.4)	1,347	5.4 (5.2 – 5.7)	1,186	5.0 (4.7 – 5.3)	594	3.5 (3.2 – 3.7)	465	2.7 (2.5 – 3.0)	403	5.4 (4.9 – 5.9)[¥]	1,071	15.6 (14.7 – 16.5) [¥]
Mobility														
A lot/ Can't	542	1.1 (1.0 – 1.2)	286	1.2 (1.0 – 1.3)	256	1.1 (1.0 – 1.2)	85	0.5 (0.4 – 0.6)	71	0.4 (0.3 – 0.5)	77	1.0 (0.8 – 1.3)[¥]	309	4.5 (4.0 – 5.0)
Some	3,332	6.9 (6.7 – 7.1)	1,561	6.3 (6.0 – 6.6)	1,771	7.5 (7.2 – 7.8)[†]	219	1.3 (1.1 – 1.5)	703	4.1 (3.9 – 4.5)[¥]	782	10.4 (9.8 – 11.2)[¥]	1,628	23.7 (22.7 – 24.7) [¥]
Memory														
A lot/ Can't	240	0.5 (0.4 – 0.6)	138	0.6 (0.5 – 0.7)	102	0.4 (0.4 – 0.5)	71	0.4 (0.3 – 0.5)	78	0.5 (0.4 – 0.6)	24	0.3 (0.2 – 0.5)	67	1.0 (0.8 – 1.2) [¥]
Some	3,198	6.7 (6.4 – 6.8)	1,651	6.7 (6.4 – 7.0)	1,547	6.5 (6.2 – 6.9)	482	2.8 (2.6 – 3.1)	954	5.6 (5.3 – 6.0)[¥]	691	9.2 (8.6 – 9.9) [¥]	1,071	15.6 (14.7 – 16.5) [¥]
Self Care														
A lot/ Can't	211	0.4 (0.4 – 0.5)	120	0.5 (0.4 – 0.6)	91	0.4 (0.3 – 0.5)	64	0.4 (0.3 – 0.5)	36	0.2 (0.2 – 0.3)	15	0.2 (0.1 – 0.3)	96	1.4 (1.1 – 1.7) [¥]
Some	321	0.7 (0.5 – 0.7)	173	0.7 (0.6 – 0.8)	148	0.6 (0.5 – 0.7)	81	0.5 (0.4 – 0.6)	72	0.4 (0.3 – 0.5)	40	0.5 (0.4 – 0.7)	128	1.9 (1.6 – 2.2) [¥]
Comm.														
A lot/ Can't	204	0.4 (0.4 – 0.5)	105	0.4 (0.3 – 0.5)	99	0.4 (0.3 – 0.5)	74	0.4 (0.3 – 0.5)	69	0.4 (0.3 – 0.5)	29	0.4 (0.3 – 0.6)	32	0.5 (0.3 – 0.7)
Some	477	1.0 (0.9 – 1.1)	232	0.9 (0.8 – 1.1)	245	1.0 (0.9 – 1.2)	177	1.0 (0.9 – 1.2)	147	0.9 (0.7 – 1.0)	56	0.7 (0.6 - 1.0)	97	1.4 (1.2 – 1.7) [¥]
Affect domains: not included in prevalence estimate NB adult (18+) only														
Anxiety	388	1.7 (1.6 – 1.9)	149	1.4 (1.2 – 1.7)	239	2.0 (1.8 – 2.3)[†]	-	-	122	1.1 (0.9 – 1.3)	119	2.1 (1.8 – 2.6)[¥]	147	2.7 (2.3 – 3.2)
Depression	534	2.4 (2.2 - 2.6)	246	2.3 (2.1 – 2.6)	288	2.4 (2.1 – 2.7)	-	-	253	2.2 (1.0 – 2.5)	148	2.6 (2.3 – 3.1)	133	2.5 (2.1 – 2.9)

[†]Statistically different by sex

[¥]Statistically different compared to age group below

Table 18 Characteristics of households with and without members with a disability						
	Rural		Urban		Total	
	Households without members with a disability (n=8,041)	Households with members with a disability (n=769)	Households without members with a disability (n=2,270)	Households with members with a disability (n=346)	Households without members with a disability (n=10,336)	Households with members with a disability (n=1,118)
	Mean (95% CI)	***Mean (95% CI)***	***Mean (95% CI)***	***Mean (95% CI)***	***Mean (95% CI)***	***Mean (95% CI)***
Av. household size	4.8 (4.8 – 4.8)	5.2 (5.0 – 5.4)†	5.0 (5.0 – 5.1)	6.3 (6.0 – 6.7)†	4.9 (4.8 – 4.9)	5.5 (5.4 – 5.7) †
Av. age (amongst 5+)	29.7 (29.4 – 30.0)	37.0 (35.8 – 38.2)†	29.5 (29.1 – 30.0)	33.9 (32.6 – 35.2)†	29.7 (29.4 – 29.9)	36.0 (35.1 – 37.0) †
% female (5+)	0.5 (0.5 – 0.5)	0.5 (0.5 – 0.5)	0.5 (0.5 – 0.5)	0.5 (0.5 – 0.5)	0.5 (0.5 – 0.5)	0.5 (0.5 – 0.5)
SES index score	-0.49 (-0.53 – -0.44)	-0.79 (-0.53 – -0.44)†	1.75 (1.69 – 1.80)	1.60 (1.45 – 1.74)††	0.06 (-0.04 – 0.48)	-0.05 (-0.19 – 0.08)
No. dependents	1.43 (1.41 – 1.46)	1.83 (1.73 – 1.92)†	1.30 (1.25 – 1.35)	1.86 (1.71 – 2.01)†	1.40 (1.38 – 1.43)	1.84 (1.76 – 1.92) †
No. independents	2.69 (2.66 – 2.72)	2.84 (2.71 – 2.96)††	3.05 (2.98 – 3.11)	3.81 (3.60 – 4.02)†	2.77 (2.74 – 2.80)	3.14 (3.03 – 3.25) †
Dependency ratio[a]	0.59 (0.58 – 0.60)	0.73 (0.68 – 0.77)†	0.50 (0.47 – 0.52)	0.64 (0.57 – 0.72)†	0.57 (0.56 – 0.58)	0.70 (0.66 – 0.74) †
	Median (SD)	***Median (SD)***	***Median (SD)***	***Median (SD)***	***Median (SD)***	***Median (SD)***
% working age working	0.50 (0.36)	0.50 (0.37)	0.5 (0.33)	0.33 (0.30)¥	0.50 (0.35)	0.50 (0.35)
% all ages working	0.25 (0.25)	0.29 (0.24)¥	0.25 (0.24)	0.17 (0.18)¥	0.25 (0.25)	0.18 (0.22)¥
	% HH	***% HH***	***% HH***	***% HH***	***% HH***	***% HH***
Female Head	10.4%	17.3%¤	15.4%	21.3%¤	11.5%	18.6%¤
Displaced	3.4%	3.6%	7.9%	7.7%	4.4%	4.9%
Access to indigenous lands	75.2%	70.8%	67.4%	63.3%	73.5%	68.5%¤

† $p<0.001$ or †† $p<0.05$ using student t-test; ¥ $p<0.001$ using Mann-Whitney Test; ¤ $p<0.001$ using chi^2 test

[a] Dependency Ratio: ratio of dependents (<15 years and >65 years) to independents (15-64 years) living in the household

Note: 99% households identify as Melanesian so not included in HH Characteristics

Table 19 Factors associated with being in the poorest SES quartile

	Rural (n=8,791)					Urban (2,611)					Total (n=11,402)				
	Not in poorest SES quartile		In poorest SES quartile		Location adjusted Odds Ratio (95% CI)	Not in poorest SES quartile		In poorest SES quartile		Location adjusted Odds Ratio (95% CI)	Not in poorest SES quartile		In poorest SES quartile		Location adjusted Odds Ratio (95% CI)
	N	(%)	N	(%)		N	(%)	N	(%)		N	(%)	N	(%)	
Household Head															
Male w/o disability	5,311	70%	2,294	30%	Baseline	2,063	98%	35	2%	Baseline	7,374	76%	2,329	24%	Baseline
Female w/o disability	522	58%	385	42%	1.7 (1.5- 2.0)‡	372	95%	18	5%	2.9 (1.6 – 5.1)‡	894	69%	403	31%	1.8 (1.5 – 2.0)‡
Male w/ disability	139	63%	81	37%	1.3 (0.9 0 1.8)	92	99%	1	1%	0.7 (0.1 – 5.6)	231	74%	82	26%	1.3 (0.9 – 1.7)
Female w/ disability	23	39%	36	61%	1.6 (0.9 – 2.9)	28	93%	2	7%	2.3 (0.2 – 28.2)	51	57%	38	43%	1.6 (0.9 – 2.8)
Household Composition															
HH w/o member w/ disability	5,509	69%	2,517	31%	Baseline	2,218	98%	48	2%	Baseline	7,727	75%	2,565	25%	Baseline
HH w/ member w/ disability	486	64%	279	36%	1.1 (0.9 0 1.3)	337	98%	8	2%	1.0 (0.4 – 2.6)	823	74%	287	26%	1.1 (0.9 – 1.3)
Location															
Rural											5,995	68%	2,796	32%	Baseline
Urban											2,555	98%	56	2%	0.04 (0.03 – 0.06)‡

‡ p<0.001 or ‡‡ p<0.05 multivariate logistic regression, all variables included in model

CHARACTERISTICS OF RESPONDENTS

Table 20 Socio-economic characteristics of people with and without disabilities					
	People with disabilities (n=811)		People without disabilities (n=700)		Age, Sex, Location, SES adjusted Odds Ratio (95% CI)
	N	(%)	N	(%)	
SES					
1st Quartile (poorest)	231	28%	183	26%	Baseline
2nd Quartile	200	25%	183	26%	0.9 (0.7 – 1.2)
3rd Quartile	198	24%	162	23%	0.9 (0.7 – 1.3)
4th Quartile (richest)	182	22%	171	24%	0.8 (0.7 – 1.1)
Female headed household	151	19%	77	11%	1.9 (1.4 – 2.6)ǂ
SES – female headed households only					
1st Quartile (poorest)	65	43%	30	39%	Baseline
2nd Quartile	20	13%	16	21%	0.6 (0.3 – 1.4)
3rd Quartile	35	23%	21	28%	0.9 (0.4 – 2.0)
4th Quartile (richest)	30	20%	9	12%	1.6 (0.6 – 4.3)
Highest Education[a] (16+)					
No school	266	33%	82	12%	Baseline
Primary	440	54%	469	67%	0.3 (0.2 – 0.4)ǂ
Secondary or higher	109	13%	150	21%	0.2 (0.1 – 0.3)ǂ
Has attended a skilled training course	265	41%	297	55%	0.6 (0.4 -0.7)ǂ
Literacy (16+)					
Can read at least one indigenous language	374	58%	388	72%	0.5 (0.4 – 0.6)ǂ
Can read English or French	335	52%	407	76%	0.3 (0.2 – 0.4)ǂ
Can read Bislama	454	71%	485	90%	0.2 (0.2 – 0.3)ǂ
Can write in at least one indigenous language	323	50%	354	66%	0.5 (0.4 – 0.6)ǂ
Can write English or French	321	50%	394	73%	0.3 (0.3 – 0.4)ǂ
Can write Bislama	428	67%	474	88%	0.2 (0.2 – 0.3)ǂ
Marital Status (18+)					
Married/living together	326	53%	385	76%	Baseline
Widowed/divorced	127	21%	71	14%	1.7 (1.2 – 2.4)ǂǂ
Never married/lived with a partner	165	27%	50	10%	7.0 (4.7 – 10.7)ǂ
ǂ p<0.001 or ǂǂ p<0.05 multivariate logistic regression					

Table 21 Socio-economic characteristics of women with disabilities versus women without disabilities and men with disabilities										
	Women with disabilities (n=393)		Women without disabilities (n=351)		Men with disabilities (n=422)		Men without disabilities (n=351)		Women w/ disabilities compared to women w/o disabilities	Women w/ disabilities compared to men w/ disabilities
	N	%	N	%	N	%	N	%	Age, Sex, Location, SES adjusted Odds Ratio (95% CI)	
Highest Education[a] (16+)										
No school	135	34%	36	10%	131	31%	46	13%	Baseline	Baseline
Primary	213	54%	234	67%	227	54%	236	67%	0.2 (0.2 – 0.4)[ǂ]	0.9 (0.7 – 1.2)
Secondary or higher	45	11%	81	23%	64	15%	69	20%	0.1 (0.1 – 0.3)[ǂ]	0.6 (0.4 – 1.0)
Literacy (16+) – Can read or write										
At least one indigenous language	153	50%	191	69%	225	68%	204	77%	0.4 (0.3 – 0.6)[ǂ]	0.4 (0.3 – 0.6)[ǂ]
English or French	149	48%	203	74%	194	58%	210	79%	0.3 (0.2 – 0.5)[ǂ]	0.6 (0.4 – 0.8)[ǂǂ]
Bislama	149	48%	246	89%	252	76%	244	92%	0.2 (0.1 – 0.4)[ǂ]	0.6 (0.4 – 0.9)[ǂǂ]
Marital Status (18+)										
Married/living together	140	47%	190	73%	186	58%	196	79%	Baseline	Baseline
Widowed/divorced	81	27%	48	18%	46	14%	23	9%	1.8 (1.1 – 2.8)[ǂǂ]	2.8 (1.8 – 4.4)[ǂ]
Never married/lived together	79	26%	22	8%	86	27%	28	11%	8.6 (4.7 – 15.6)[ǂ]	0.9 (0.6 – 1.5)

[ǂ] p<0.001 or [ǂǂ] p<0.05 multivariate logistic regression, all variables included in model

Table 22 School attendance amongst children with and without disabilities (5-17)					
	Children with disabilities (n=198)		Children without disabilities (n=194)		Age, Sex, Location, SES adjusted Odds Ratio (95% CI)
	N	%	N	%	
All children	91	46%	169	87%	0.1 (0.06 – 0.2)‡
Age (years)					
5-8	40	57%	62	93%	0.1 (0.03 – 0.3)‡
9-12	30	48%	56	93%	0.1 (0.02 – 0.2)‡
13-17	21	32%	51	76%	0.1 (0.06 – 0.3)‡
Sex					
Male	46	44%	86	84%	0.1 (0.06 – 0.2)‡
Female	45	48%	83	91%	0.1 (0.03 -0.2)‡
Location					
Rural	69	44%	132	85%	0.1 (0.07 – 0.2)‡
Urban	22	55%	37	95%	0.05 (0.01 – 0.3)‡
Same grade as children same age if enrolled	70	77%	159	94%	0.2 (0.1 – 0.4) ‡
Missed 3+ days of school in past month	39	43%	54	32%	1.6 (0.9 – 2.7)
‡ p<0.001 or ‡‡ p<0.05 multivariate logistic regression, all variables included in model					

Table 23 Main activity amongst people with and without disabilities (16+)					
	Adults with disabilities (n=642)		Adults without disabilities (n=540)		Age, Sex, Location, SES adjusted Odds Ratio (95% CI)
	N	%	N	%	
Main Activity					
Farming, Raising Animals or Fishing	110	17%	205	38%	Baseline
Working in another sector	37	6%	52	10%	1.6 (0.8 – 2.6)
Household Activities	186	29%	169	31%	2.8 (1.9 – 4.3)‡
Not working due to illness	186	29%	21	4%	18.3 (10.8 – 31.1)‡
Other◊	123	19%	93	17%	2.8 (1.9 – 4.1)‡
Worked in past week (paid)	133	21%	202	37%	0.4 (0.3 – 0.6)‡
Engaged in productive work in past 12 months if not paid∝	201	39%	264	78%	0.2 (0.1 – 0.3)‡
Engaged in reproductive work in past 12 months∝	392	61%	476	88%	0.2 (0.2 – 0.3)‡
‡ p<0.001 or ‡‡ p<0.05					
◊ Includes studying, looking for work, voluntary work					
∝ Productive work includes working in the gardens, looking after livestock, fishing, selling produce at the market or working in a job or business. Reproductive work includes engaging in caregiving or domestic tasks that are not paid and may be undertaken as well as, or instead of, productive work					

Table 24 Main activity amongst women with disabilities versus women without disabilities and men with disabilities (16+)

	Women with disabilities (n=310)		Women without disabilities (n=275)		Men with disabilities (n=332)		Men without disabilities (n=265)		Women w/ disabilities compared to women w/o disabilities	Women w/ disabilities compared to men w/ disabilities
	N	%	N	%	N	%	N	%	Age, Sex, Location, SES adjusted Odds Ratio (95% CI)	
Main Activity										
Farming, Raising Animals or Fishing	22	7%	47	17%	88	27%	158	60%	Baseline	Baseline
Working in another sector	10	3%	22	8%	27	8%	30	11%	1.1 (0.4 – 2.7)	1.3 (0.5 – 3.2)
Household Activities	145	47%	151	55%	41	12%	18	7%	2.0 (1.1 – 3.6)ǂǂ	14.1 (7.8 – 25.5)ǂ
Not working due to illness	81	26%	14	5%	105	32%	7	3%	10.8 (4.9 – 23.6)ǂ	3.1 (1.7 – 5.4)ǂ
Other◊	52	17%	41	15%	71	21%	52	20%	2.4 (1.2 – 4.8)ǂ	2.8 (1.5 – 5.2)ǂǂ
Worked in past week (paid)	58	19%	95	35%	75	23%	107	40%	0.5 (0.3 – 0.7)ǂ	0.7 (0.4 – 1.1)
Engaged in productive work in past 12 months if not paid∝	111	44%	131	73%	90	35%	133	84%	0.3 (0.2 – 0.5)ǂ	1.5 (1.0 – 2.2)ǂǂ
Engaged in reproductive work in past 12 months∝	203	65%	248	90%	189	57%	228	86%	0.2 (0.1 – 0.4)ǂ	1.5 (1.1 – 2.1)ǂǂ

ǂ p<0.001 or ǂǂ p<0.05 multivariate logistic regression, all variables included in model

◊ Includes studying, looking for work, voluntary work

∝ Productive work includes working in the gardens, looking after livestock, fishing, selling produce at the market or working in a job or business. Reproductive work includes engaging in caregiving or domestic tasks that are not paid and may be undertaken as well as, or instead of, productive work

Table 25 Working in the past week amongst adults with and without disabilities (16+)					
	Adults with disabilities (n=642)		Adults without disabilities (n=540)		Age, Sex, Location, SES adjusted Odds Ratio (95% CI)
	N	%	N	%	
All adults	133	21%	202	37%	0.4 (0.3 – 0.6)†
Age (years)					
16-34	48	26%	67	36%	0.7 (0.4 – 1.0)
35-49	34	25%	57	41%	0.4 (0.2 – 0.7)†
50-64	27	21%	53	44%	0.3 (0.2 – 0.6)†
65+	24	12%	25	27%	0.3 (0.2 – 0.7)†
Sex					
Male	75	22%	107	40%	0.4 (0.3 – 0.6)†
Female	58	19%	95	35%	0.5 (0.3 – 0.7)†
Location					
Rural	88	18%	145	35%	0.4 (0.3 – 0.6)†
Urban	45	29%	57	45%	0.5 (0.3 – 0.9)†
† p<0.001 or †† p<0.05 multivariate logistic regression, all variables included in model					

Table 26 Factors associated with undertaking paid work in the last 7 days amongst people with disabilities (n=642)			
	n	%	Age, Sex, Location, SES adj Odds Ratio (95% CI)
Age (years)			
16-34	48	26%	Baseline
35-49	34	25%	0.8 (0.5 – 1.4)
50-64	27	21%	0.9 (0.5 – 1.6)
65+	24	12%	0.5 (0.3 – 0.9)††
Sex			
Male	75	23%	Baseline
Female	58	19%	0.7 (0.4 – 1.0)
Location			
Rural	88	18%	Baseline
Urban	45	29%	1.7 (1.0 – 2.8)††
Limitation type			
Seeing	41	21%	0.6 (0.3 – 1.1)
Hearing	41	30%	1.1 (0.6 – 2.0)
Mobility	30	10%	0.2 (0.1 – 0.4)†
Memory	22	19%	0.6 (0.3 – 1.1)
Self Care	8	8%	0.4 (0.2 – 0.9)††
Communication	22	23%	0.9 (0.5 – 1.7)
† p<0.001 or †† p<0.05 multivariate logistic regression Notes: All variables in table included in one multivariate model. Functional limitation variables are binary (does have vs does not have) and are not mutually exclusive, as people may have more than one limitation			

Table 27 Other sources of income amongst women with disabilities versus women without disabilities and men with disabilities (16+)										
	Women with disabilities (n=310)		Women without disabilities (n=275)		Men with disabilities (n=332)		Men without disabilities (n=265)		Women w/ disabilities compared to women w/o disabilities	Women w/ disabilities compared to men w/ disabilities
	N	%	N	%	N	%	N	%	Age, Sex, Location, SES adjusted Odds Ratio (95% CI)	
Vanuatu National Provident Fund	30	10%	32	12%	39	12%	54	20%	0.9 (0.5 – 1.6)	0.7 (0.4 – 1.3)
Other Govt support	5	2%	5	2%	12	4%	9	4%	1.0 (0.3 – 3.5)	0.4 (0.1 – 1.1)
Cash Transfer/Cash for Work	10	3%	21	8%	30	9%	38	14%	0.4 (0.2 – 0.9)‡‡	0.3 (0.1 – 0.7)‡‡
Overseas Remittances	60	19%	73	27%	66	20%	56	21%	0.7 (0.5 – 1.1)	1.0 (0.7 – 1.5)
‡ p<0.001 or ‡‡ p<0.05 multivariate logistic regression, all variables included in model										

Table 28 Household Level Access to Drinking Water							
	All Households (n=1516)		Urban Households (n=348)		Rural Households (n= 1,168)		SES adjusted Odds Ratio (95% CI)
	N	(%)	N	(%)	N	(%)	
Water source							
Improved	1387	91%	345	99%	1042	89%	0.2 (0.1 – 0.5)ǂǂ
Unimproved	129	9%	3	1%	126	11%	Baseline
Drinking Water Ladder Level							
Basic	1393	86%	340	98%	963	82%	Baseline
Limited	84	6%	5	1%	79	7%	0.7 (0.1 – 8.7)
Unimproved	33	2%	1	1%	32	3%	0.3 (0.1 – 1.9)
Surface Water	96	6%	2	1%	94	8%	0.1 (0.1 – 0.6)ǂǂ
Sufficiency of water supply¥							
Always sufficient	651	43%	156	45%	495	42%	Baseline
Sometimes sufficient	619	41%	147	42%	472	40%	0.9 (0.7 – 1.2)
Never sufficient	229	15%	39	11%	190	16%	1.1 (0.7 – 1.8)
Don't know	17	1%	6	2%	11	1%	0.5 (0.2 – 1.8)
Water Safety Management							
None	851	56%	136	39%	715	61%	2.0 (1.5 – 2.6))ǂ
Boil	534	35%	184	53%	350	30%	0.5 (0.4 – 0.7)ǂ
Add bleach/chlorine/aqua tablets	3	1%	3	1%	0	-	-
Strain it through a cloth	186	12%	73	21%	113	10%	0.5 (0.3 – 0.7) ǂ
Use water filter (ceramic/sand)	22	1%	11	3%	11	1%	0.2 (0.1 – 0.7) ǂǂ
Solar disinfection	3	1%	1	1%	2	1%	0.8 (0.1 – 11.8)
Let it stand/settle	72	5%	16	5%	56	5%	1.2 (0.6 – 2.2)
Other/ don't know	39	3%	9	3%	30	3%	0.8 (0.3 – 2.0)

¥In the last month

ǂ p<0.001 or ǂǂ p<0.05 multivariate logistic regression

Table 29 Household Level Water Source					
	Urban Households (n=347)		Rural Households (n= 1,163)		SES adjusted Odds Ratio (95% CI)
	N	(%)	N	(%)	
Main Source water					
Piped into dwelling	90	26%	20	2%	Baseline
Piped into yard or plot	173	50%	316	27%	5.2 (2.9 – 9.4)ǂ
Public tap/standpipe	17	5%	215	18%	28.3 (13.3 – 60.1)ǂ
Tubewell/Borehole	0	-	12	1%	-
Protected dug well	3	1%	49	4%	46.9 (12.5 – 175.8)ǂ
Unprotected dug well	1	1%	14	1%	27.8 (2.1 – 250.9)ǂ
Protected spring	0	-	9	1%	-
Unprotected spring	0	-	18	2%	-
Rainwater Collection	51	15%	347	30%	23.0 (12.2 – 43.1)ǂ
Pre-Bottled water	1	1%	2	1%	9.6 (0.9 – 130.1)
Cart with small tank/drum	3	1%	11	1%	11.1 (2.5 – 49.8) ǂǂ
Tanker truck	2	1%	10	1%	19.4 (3.6 – 104.2) ǂǂ
Surface water	2	1%	94	8%	72.9 (15.7 – 338.8) ǂ
Other	5	1%	51	4%	46.6 (14.3 – 151.5)
Water Source Location					
On premises/ piped into dwelling	145	42%	62	5%	Baseline
Less than 30 Minutes round trip	198	57%	976	84%	8.1 (5.5 – 11.8) ǂ
More than 30 minutes round trip	5	1%	130	11%	19.7 (7.3 – 53.0) ǂ
Alternative Water Source					
None	131	38%	479	41%	Baseline
Piped into dwelling	36	10%	9	1%	0.1 (0.1 – 0.3) ǂ
Piped into yard or plot	38	11%	85	7%	0.8 (0.5 – 1.3)
Public tap/standpipe	4	1%	94	8%	7.2 (2.5- 20.6)ǂ ǂ
Tubewell/Borehole	0	-	7	1%	-
Protected dug well	9	3%	30	3%	1.2 (0.5 – 2.7)
Unprotected dug well	3	1%	6	1%	0.1 (0.1 – 0.6) ǂǂ
Protected spring	1	1%	10	1%	3.1 (0.4 -27.3)
Unprotected spring	1	1%	28	2%	5.1 (0.6 – 41.5)
Rainwater Collection	105	30%	214	18%	0.7 (0.5 – 1.0)
Pre-Bottled water	10	3%	9	1%	0.2 (0.1 – 0.7) ǂǂ
Cart with small tank/drum	5	1%	26	2%	1.6 (0.5 – 4.4)
Tanker truck	0	-	10	1%	-
Surface water	1	1%	110	9%	20.9 (2.8 – 154.4) ǂǂ
Other	4	1%	51	4%	8.6 (2.0 – 36.9) ǂǂ

ǂ p<0.001 or ǂǂ p<0.05 multivariate logistic regression

Table 30 Water Collection – Individual					
	People with disabilities (n=756)		People without disabilities (n=634)		Age, Sex, Location, SES adjusted Odds Ratio (95% CI)
	N	%	N	%	
% Collect water themselves (all)§	502	66%	589	93%	0.2 (0.1 – 0.2)ǂ
Age Group (years)					
5 – 17	126	70%	154	88%	0.3 (0.2 – 0.6)ǂ
18 – 49	208	76%	256	96%	0.1 (0.1 – 0.3)ǂ
50+	168	56%	179	93%	0.1 (0.1 – 0.2 ǂ
Sex					
Male	252	64%	283	91%	0.2 (0.1 – 0.3)ǂ
Female	250	69%	306	94%	0.1 (0.1 – 0.2)ǂ
Location					
Rural	408	66%	492	93%	0.2 (0.1 – 0.2)ǂ
Urban	94	67%	97	94%	0.1 (0.1 -0.3ǂ
Feel safe when collecting water∝	451	84%	602	95%	0.3 (0.2 – 0.4) ǂ
Access Water at home when need it	734	90%	697	99%	0.1 (0.1 – 0.2) ǂ
Household harvests rain water (primary or secondary source)	336	41%	314	45%	0.9 (0.7 – 1.1)
§Excludes 59 cases and 67 controls whose drinking water supply is piped directly into the dwelling ∝ amongst those who collect water themselves ǂ p<0.001 or ǂǂ p<0.05 multivariate logistic regression					

Table 31 Factors associated with collecting and using water amongst people with disabilities (n=642)									
	Don't Collect water themselves			Don't Feel Safe collecting water§			Cant access water at home when need it		
	n	%	Age, Sex, Location, SES adj Odds Ratio (95% CI)	n	%	Age, Sex, Location, SES adj Odds Ratio (95% CI)	n	%	Age, Sex, Location, SES adj Odds Ratio (95% CI)
Age Group									
5 – 17	54	30%	Baseline	20	15%	Baseline	24	12%	Baseline
18 – 49	67	24%	1.0 (0.6 – 1.7)	39	18%	1.2 (0.6 – 2.2)	19	6%	0.7 (0.3 – 1.4)
50+	133	44%	2.0 (1.2 – 3.3) ††	27	15%	0.9 (0.4 – 1.8)	36	11%	1.0 (0.5 – 2.0)
Sex									
Male	140	36%	Baseline	40	15%	Baseline	47	11%	Baseline
Female	114	31%	0.8 (0.5 – 1.1)	46	17%	1.1 (0.7 – 1.8)	32	8%	0.7 (0.4 – 1.2)
Location									
Rural	207	34%	1.0 (0.6 – 1.6)	74	18%	0.7 (0.4 – 1.6)	55	9%	2.0 (1.0 – 4.1)
Urban	47	34%	Baseline	12	10%	Baseline	24	13%	Baseline
Limitation type									
Seeing	58	28%	0.9 (0.6 – 1.5)	21	13%	1.0 (0.5 – 1.8)	14	6%	0.8 (0.4 – 1.6)
Hearing	27	15%	0.4 (0.3 – 0.7)††	19	12%	0.8 (0.4 – 1.5)	9	5%	0.7 (0.3 -1.5)
Mobility	179	52%	3.0 (2.0 – 4.6) †	42	24%	2.4 (1.3 – 4.4) ††	64	17%	4.0 (2.1 – 7.7) †
Memory	53	35%	1.1 (0.7 – 1.9)	21	20%	1.6 (0.8 – 3.1)	25	15%	1.1 (0.5 – 2.2)
Self Care	107	76%	10.0 (6.0 – 16.8) †	8	21%	1.0 (0.4 – 2.6)	46	30%	4.9 (2.8 – 8.6)†
Communication	39	28%	0.6 (0.3 – 1.0)	16	16%	0.8 (0.4 – 1.6)	25	17%	2.0 (1.0 – 4.1)

† p<0.001 or †† p<0.05 multivariate logistic regression

§Amongst people with disabilities who collect water themselves

Notes: All variables in table included in one multivariate model. Functional limitation variables are binary (does have vs does not have) and are not mutually exclusive, as people may have more than one limitation

Table 32 Household Bathing

	All Households (n=1515)		Rural Households (n= 1,168)		Urban Households (n=347)		SES adjusted Odds Ratio (95% CI)
	N	%	N	%	N	%	
Household Bathing Location							
Surface Water	293	19%	284	24%	9	3%	4.6 (2.2 – 9.7)†
Pump or standpipe outside compound	421	28%	339	29%	82	24%	Baseline
Piped or stored water inside the dwelling	207	14%	89	8%	118	34%	0.3 (0.2 – 0.4)†
Piped or stored water inside compound but not dwelling	493	33%	361	31%	132	38%	0.7 (0.5 – 1.0)
Ocean Water	46	3%	45	4%	1	1%	10.9 (1.4 – 82.4)††
Other	55	4%	50	4%	5	1%	2.1 (0.8 – 5.6)

† p<0.001 or †† p<0.05 multivariate logistic regression

Table 33 Factors associated with using the same bathing facility as other household members amongst people with disabilities (n=642)

	n	%	Age, Sex, Location, SES adj Odds Ratio (95% CI)
Age (years)			
5 – 17	31	16%	Baseline
18 – 35	27	16%	1.9 (1.0 – 3.8)
36 – 49	18	14%	1.7 (0.8 – 3.6)
50+	76	24%	2.0 (1.1 – 3.6)††
Sex			
Male	81	19%	Baseline
Female	71	18%	0.9 (0.6 – 1.4)
Location			
Rural	123	20%	Baseline
Urban	29	15%	0.9 (0.5 – 1.5)
Limitation type			
Seeing	33	15%	1.1 (0.6 – 1.8)
Hearing	19	10%	0.8 (0.4 – 1.5)
Mobility	121	33%	4.9 (2.9 – 8.0)†
Memory	37	22%	0.9 (0.5- 1.7)
Self Care	80	52%	7.9 (4.8 – 12.8)†
Communication	31	21%	1.0 (0.5- 1.9)

† p<0.001 or †† p<0.05 multivariate logistic regression

Notes: All variables in table included in one multivariate model. Functional limitation variables are binary (does have vs does not have) and are not mutually exclusive, as people may have more than one limitation

Table 35 Product Availability and Use as reported by women and girls							
	All (n=333)		Rural (n=252)		Urban (n=81)		Age, SES adjusted Odds Ratio (95% CI)¤
	Available	Used	Available	Used	Available	Used	
Product Type							
Single Use Sanitary Pad	54%	50%	50%	43%	67%	69%	Baseline
Multi-use Sanitary Pad	17%	8%	12%	7%	31%	10%	1.2 (0.4 – 3.3)
Cloth	43%	39%	53%	46%	14%	16%	0.4 (0.2 – 0.8)ǂǂ
None available	1%	1%	1%	1%	1%	0	-
Other¥	2%	3%	1%	6%	5%	5%	4.6 (0.9 - 2.4.6)
Commercial or homemade product if used							
Cloth	39%		46%		16%		0.4 (0.2 – 0.8)ǂǂ
Homemade product (not cloth)	8%		7%		10%		1.3 (0.5 – 3.7)
Commercially available product	50%		44%		69%		Baseline
Other	3%		2%		5%		2.4 (0.5 – 11.4)

¤ Odds of use, urban versus rural
¥ Other includes diapers/nappies, toilet paper and underwear only
ǂ p<0.001 or ǂǂ p<0.05 multivariate logistic regression

Table 34 Last Menstruation: girls/women with and without disabilities													
	All					Rural					Urban				
	Girls and women with disabilities (n=164)		Girls and women without disabilities (n=169)		Age, Location, SES adjusted Odds Ratio (95% CI)	Girls and women with disabilities (n=122)		Girls and women without disabilities (n=130)		Age, Location, SES adjusted Odds Ratio (95% CI)	Girls and women with disabilities (n=42)		Girls and women without disabilities (n=39)		Age, Location, SES adjusted Odds Ratio (95% CI)
	n	%	n	%		n	%	n	%		n	%	n	%	
Missed out on social activities	48	29%	31	18%	1.8 (1.1 – 3.1)ǂǂ	32	26%	23	18%	1.7 (0.9 – 3.2)	16	38%	8	21%	2.0 (0.7 – 6.1)
Missed out on eating with others	40	24%	16	9%	4.0 (1.6 – 5.7) ǂ	27	22%	13	10%	2.5 (1.2 – 5.2)ǂǂ	13	31%	3	8%	5.7 (0.1 – 1.8) ǂǂ
Able to wash and change in privacy at home	127	77%	125	74%	1.2 (0.7 – 2.0)	92	75%	91	70%	1.4 (0.8 – 2.4)	35	83%	34	87%	0.5 (0.1 – 2.1)

ǂ p<0.001 or ǂǂ p<0.05 multivariate logistic regression

Table 36 Factors associated with missing social activities and/or eating with others during menstruation amongst women and girls with disabilities (n=57)			
	n	%	Age, Location, SES adj Odds Ratio (95% CI)
Age Group (years)			
10 – 17	12	43%	Baseline
18 – 49	43	32%	0.7 (0.3 – 1.7)
50+	2	67%	2.7 (0.2 – 38.6)
Location			
Rural	39	32%	Baseline
Urban	18	43%	1.4 (0.6 – 3.3)
Limitation type			
Seeing	11	29%	0.8 (0.3 – 2.2)
Hearing	14	33%	1.1 (0.4 – 2.8)
Mobility	24	44%	1.6 (0.7 – 4.0)
Memory	14	37%	0.9 (0.3 – 2.2)
Self Care	13	59%	2.8 (1.0 – 8.2)
Communication	15	33%	1.0 (0.4 – 2.5)
ǂ p<0.001 or ǂǂ p<0.05 multivariate logistic regression Notes: All variables in table included in one multivariate model. Functional limitation variables are binary (does have vs does not have) and are not mutually exclusive, as people may have more than one limitation			

Table 37 Product Use amongst women and girls with and without disabilities					
	Product most typically used in last period during day				
	Girls and women with disabilities (n=164)		Girls and women without disabilities (n=169)		Age, Location, SES adjusted Odds Ratio (95% CI)
	n	%	n	%	
Product Type					
Single Use Sanitary Pad	63	38%	102	60%	Baseline
Multi-use Sanitary Pad	16	10%	10	6%	2.9 (1.2 – 6.9)ǂǂ
Cloth	75	46%	55	33%	2.8 (1.6 – 4.8)ǂ
None available	2	1%	0	-	-
Other	8	5%	2	1%	6.3 (1.3 – 31.8)ǂǂ
Commercial or homemade product					
Cloth	75	46%	55	33%	Baseline
Homemade product (not cloth)	16	10%	9	5%	1.2 (0.5 – 2.9)
Commercially available product	64	39%	104	62%	0.4 (0.2 – 0.6) ǂ
Other	9	6%	1	1%	5.5 (0.7 – 45.2)

ǂ p<0.001 or ǂǂ p<0.05 multivariate logistic regression

¥Includes toilet paper, bark, underwear only

Table 38 Menstrual product satisfaction		
	Girls and women with disabilities (n=164)	Girls and women without disabilities (n=169)
	Average Score (95% CI)	Average Score (95% CI)
Any product		
All age	6.1 (5.6 – 6.5)	7.2 (6.9 – 7.6) ¤
10 – 17	5.4 (4.3 – 6.5)	6.7 (5.8 – 7.7)
18 - 49	6.2 (5.7 – 6.7)	7.3 (6.9 – 7.7) ¤
50+	5.7 (0.5 – 10.8)	7.8 (6.0 – 9.5)
Commercial or homemade product		
Cloth	5.5 (4.9 – 6.2)	7.5 (7.0 – 8.1) ¤
Homemade product (not cloth)	7.3 (6.1 – 8.6)	7.7 (5.6 – 9.7)
Commercially available product	6.3 (5.6 – 7.0)	7.1 (6.6 – 7.5)
Other	6.8 (4.1 – 9.5)	-
Limitation type		
Seeing	6.8 (6.1 – 7.6)	
Hearing	6.3 (5.4 – 7.1)	
Mobility	5.4 (4.6 – 6.3)	-
Memory	5.4 (4.5 – 6.3)	
Self Care	4.8 (3.5 – 6.2)	
Communication	5.0 (4.1 – 6.0)	
¤ Significant difference in proportions between women and girls with and without disabilities (p<0.001 using student ttest)		

Table 39 Menstrual product satisfaction by agegroup		
	Girls and women with disabilities (n=164)	Girls and women without disabilities (n=169)
	Average Score (95% CI)	Average Score (95% CI)
10 - 17		
Cloth	4.5 (2.6 – 6.3)	4.0 (-8.7 – 16.7)
Homemade product (not cloth)	6.0 (-0.6 – 12.6)	6.7 (-0.9 – 14.3)
Commercially available product	5.8 (3.9 – 7.8)	7.2 (6.1 – 8.2)
Other	-	-
18 - 49		
Cloth	6.2 (5.7 – 6.7)	7.3 (6.9 – 7.7)¤
Homemade product (not cloth)	5.7 (5.0 – 6.4)	7.6 (7.0 – 8.2)¤
Commercially available product	7.6 (6.2 – 9.0)	9.0 (6.8 – 11.2)
Other	6.4 (5.6 - 7.2)	7.0 (6.5 – 7.6)
50+		
Cloth	5.7 (0.5 – 10.8)	7.8 (6.0 – 9.5)
Homemade product (not cloth)	4.5 (-1.9 – 10.9)	8.3 (6.9 – 9.7)
Commercially available product	-	-
Other	-	-
-Signifies insufficient cell size to run ttest ¤ Significant difference in proportions between women and girls with and without disabilities (p<0.001 using student ttest)		

Table 40: Menstrual Product Management: girls/women with and without disabilities														
	All					Rural					Urban				
	Girls and women with disabilities (n=164)		Girls and women without disabilities (n=169)		Age, Location, SES adjusted Odds Ratio (95% CI)	Girls and women with disabilities (n=122)		Girls and women without disabilities (n=130)		Age, Location, SES adjusted Odds Ratio (95% CI)	Girls and women with disabilities (n=42)		Girls and women without disabilities (n=39)		Age, Location, SES adjusted Odds Ratio (95% CI)
	n	%	n	%		n	%	n	%		n	%	n	%	
Where product is changed at Home															
Toilet for men and women	81	50%	106	63%	Baseline	60	50%	84	65%	Baseline	21	50%	22	56%	Baseline
Toilet for women only	16	10%	10	6%	2.2 (0.9 – 5.2)	12	10%	6	5%	2.6 (0.9 – 7.4)	4	10%	4	10%	1.7 (0.3 – 8.7)
Room that you can lock but doesn't have a toilet	32	20%	32	19%	1.3 (0.7 – 2.3)	23	19%	26	20%	1.3 (0.7 – 2.5)	9	21%	6	15%	1.9 (0.5 – 7.6)
Room that you cant lock and doesn't have a toilet	16	10%	6	4%	3.7 (1.4 – 10.1) ††	13	11%	6	5%	3.1 (1.1 – 8.8) ††	3	7%	0	-	-
Other	17	10%	15	9%	1.5 (0.7 – 3.1)	12	10%	8	6%	2.1 (0.8 – 5.5)	5	12%	7	18%	0.6 (0.1 – 2.5)

Table 41: Product management at home: girls/women with and without disabilities												
	All				Rural				Urban			
	Girls and women with disabilities (n=164)		Girls and women without disabilities (n=169)		Girls and women with disabilities (n=122)		Girls and women without disabilities (n=130)		Girls and women with disabilities (n=42)		Girls and women without disabilities (n=39)	
	n	%	n	%	n	%	n	%	n	%	n	%
How reusable products are managed after use¤												
Washed with soap and water	59	61%	38	57%	55	69%	35	59%	4	25%	3	38%
Washed with water only	11	11%	9	13%	10	13%	9	15%	1	6%	0	-
Other	26	27%	20	30%	15	19%	15	25%	11	69%	5	63%
How reusable products are dried after washing¥												
Hang inside, out of view	21	30%	16	34%	20	30%	15	34%	1	20%	1	33%
Hang inside, in view	14	20%	6	13%	13	20%	6	14%	1	20%	0	-
Hang outside in direct sunlight	33	46%	25	53%	31	47%	23	52%	2	40%	2	67%
Other	3	4%	0	-	2	3%	0	-	1	20%	0	-
How non-reusable products are disposed§												
Bin with lid	8	12%	15	15%	1	3%	1	1%	7	25%	14	44%
Bin without lid	2	3%	0	-	1	3%	0	-	1	4%	0	-
In the latrine	36	53%	60	58%	27	68%	50	70%	9	32%	10	31%
Burning	13	19%	16	16%	7	18%	13	18%	6	21%	3	9%
Burying	2	3%	3	3%	0	-	3	4%	2	7%	0	-
In a field	0	-	0	-	0	-	0	-	0	-	0	-
In a body of water	1	1%	2	2%	1	2%	1	1%	0	-	1	3%
Other	6	9%	7	9%	3	8%	3	4%	3	11%	4	13%

¤ Amongst women and girls who used reusable products during their last period
¥ Amongst women and girls who reported washing their reusable products during their last period
§ Amongst women and girls who reported using disposable products during their last period

Table 42: Product management at school: girls with and without disabilities												
	All				Rural				Urban			
	Girls with disabilities (n=6)		Girls without disabilities (n=22)		Girls with disabilities (n=5)		Girls without disabilities (n=17)		Girls with disabilities (n=1)		Girls without disabilities (n=5)	
	n	%	n	%	n	%	n	%	n	%	n	%
Able to wash and change in privacy whilst at school	6	100%	20	91%	5	100%	15	88%	1	100%	5	100%
Where product is changed whilst at school												
Toilet for men and women	3	50%	11	50%	2	40%	11	65%	1	100%	0	-
Toilet for women only	2	33%	5	23%	2	40%	2	12%	0	-	3	60%
Room that you can lock but doesn't have a toilet	1	17%	5	23%	1	20%	4	24%	0	-	1	20%
Room that you cant lock and doesn't have a toilet	0	-	0	-	0	-	0	-	0	-	0	-
Other	0	-	1	5%	0	-	0	-	0	-	1	20%
How reusable products are managed after use¤												
Washed with soap and water	2	33%	2	9%	2	40%	2	12%	0	-	0	-
Washed with water only	0	-	0	-	0	-	0	-	0	-	0	-
Disposed of	2	33%	13	59%	2	40%	10	59%	0	-	3	60%
Other	2	33%	7	32%	1	20%	5	29%	1	100%	2	40%
How reusable products are dried after washing¥												
Hang inside, out of view	1	50%	0	-	1	50%	0	-	0	-	0	-
Hang inside, in view	1	50%	0	-	1	50%	0	-	0	-	0	-
Hang outside in direct sunlight	0	-	2	100%	0	-	2	100%	0	-	0	-
Other	0	-	0	-	0	-	0	-	0	-	0	-
How non-reusable products are disposed§												
Bin with lid	1	25%	4	20%	0	-	0	-	1	100%	4	80%
Bin without lid	0	-	0	-	0	-	0	-	0	-	0	-
In the latrine	2	50%	14	70%	2	67%	13	87%	0	-	1	20%
Burning	0	-	1	5%	0	-	1	7%	0	-	0	-
Burying	0	-	0	-	0	-	0	-	0	-	0	-
In a field	0	-	0	-	0	-	0	-	0	-	0	-
In a body of water	0	-	0	-	0	-	0	-	0	-	0	-
Other	1	25%	1	5%	1	33%	1	7%	0	-	0	-

¤ Amongst women and girls who used reusable products during their last period
¥ Amongst women and girls who reported washing their reusable products during their last period
§ Amongst women and girls who reported using disposable products during their last period

Table 43: Product management at work/main activity: girls and women with and without disabilities												
	All				Rural				Urban			
	Girls/women with disabilities (n=6)158		Girls/women without disabilities (n=147)		Girls/women with disabilities (n117)		Girls/women without disabilities (n=113)		Girls/women with disabilities (n=41)		Girls without disabilities (n=34)	
	n	%	n	%	n	%	n	%	n	%	n	%
Able to wash and change in privacy whilst at work/main activity	123	78%	111	76%	86	74%	84	74%	37	90%	27	79%
Where product is changed whilst at work/main activity												
Toilet for men and women	74	48%	87	60%	58	51%	73	65%	16	40%	14	42%
Toilet for women only	20	13%	17	12%	12	11%	9	8%	8	20%	8	24%
Room that you can lock but doesn't have a toilet	26	17%	26	18%	19	17%	21	19%	7	18%	5	15%
Room that you cant lock and doesn't have a toilet	16	10%	6	4%	13	12%	5	4%	3	8%	1	3%
Other	17	11%	10	7%	11	10%	5	4%	6	15%	5	15%
How reusable products are managed after use¤												
Washed with soap and water	51	34%	40	28%	46	41%	37	33%	5	13%	3	9%
Washed with water only	11	7%	6	4%	10	9%	6	5%	1	3%	0	-
Disposed of	63	42%	72	50%	38	34%	54	48%	25	63%	18	55%
Other	26	17%	27	19%	17	15%	15	13%	9	23%	12	36%
How reusable products are dried after washing¥												
Hang inside, out of view	18	28%	12	26%	17	29%	12	27%	1	17%	0	-
Hang inside, in view	11	17%	6	13%	10	17%	6	14%	1	17%	0	-
Hang outside in direct sunlight	29	45%	28	60%	28	48%	25	57%	1	17%	3	100%
Other	6	9%	1	2%	3	5%	1	2%	3	50%	0	-
How non-reusable products are disposed§												
Bin with lid	9	10%	15	15%	3	5%	3	4%	6	17%	12	39%
Bin without lid	1	1%	1	1%	0	-	0	-	1	3%	1	3%
In the latrine	53	56%	60	60%	40	68%	50	72%	13	37%	10	32%
Burning	13	14%	15	15%	8	14%	11	16%	5	14%	4	13%
Burying	2	2%	2	2%	0	-	2	3%	2	6%	0	-
In a field	0	-	0	-	0	-	0	-	0	-	0	-
In a body of water	0	-	1	1%	0	0	1	1%	0	-	0	-
Other	16	17%	6	6%	8	14%	2	3%	8	23%	4	13%

¤ Amongst women and girls who used reusable products during their last period
¥ Amongst women and girls who reported washing their reusable products during their last period
§ Amongst women and girls who reported using disposable products during their last period

Table 44 Household Level Access to Sanitation

	All Households (*n*=1,515)		Rural Households (*n*= 1,163)		Urban Households (*n*=347)		SES adjusted Odds Ratio (95% CI)
	N	%	N	%	N	%	
Sanitation Facility							
Improved	1,121	77%	811	73%	310	91%	Baseline
Unimproved	333	23%	301	27%	32	9%	0.5 (0.3 – 0.8)‡‡
Sanitation Facility Type							
Flush to septic tank	299	21%	101	9%	198	58%	Baseline
Flush to pit	79	5%	47	4%	32	9%	2.2 (1.3 – 3.8)‡‡
Flush to other/don't know	3	1%	2	1%	1	1%	3.0 (0.2 – 36.3)
Ventilation Improved Pit Latrine	180	12%	159	14%	21	6%	8.1 (4.7 – 13.9)‡
Pit Latrine with Slab	387	27%	338	30%	49	14%	7.9 (5.2 – 11.9)‡
Composting Toilet	173	12%	164	15%	9	3%	15.3 (7.3 – 32.1‡
Pit Latrine without slab	248	17%	230	21%	18	5%	9.1 (5.1 – 16.1)‡
No facility, bush or field	57	4%	46	4%	11	3%	3.4 (1.5 – 7.8)‡‡
Other	28	2%	25	2%	3	1%	8.1 (2.3 – 29.2)‡‡
Sanitation Facility Use¤							
Used only by the household	920	64%	742	67%	178	53%	Baseline
Shared with 1 – 2 other households	286	20%	200	18%	86	26%	0.6 (0.4 – 0.8) ‡‡
Shared with 3 – 5 households	137	10%	100	9%	37	11%	0.5 (0.3 – 0.9) ‡‡
Shared with 6 or more households	92	6%	58	5%	34	10%	0.3 (0.2 – 0.6) ‡
Sanitation Ladder Level							
Basic	716	49%	547	49%	169	49%	Baseline
Limited	405	28%	264	24%	141	41%	0.5 (0.4 – 0.7)‡
Unimproved	276	19%	255	23%	21	6%	1.9 (1.1 – 3.2)‡‡
Open Defecation	57	4%	46	4%	11	3%	0.7 (0.3 – 1.6)

‡ p<0.001 or ‡‡ p<0.05 multivariate logistic regression

¤ Excludes households with no toilet

Table 45 Household Sanitation Facility Privacy/safety					
	Urban Households (n=347)		Rural Households (n= 1,163)		SES adjusted Odds Ratio (95% CI)
	n	%	n	%	
Toilet Door					
Toilet has a door with lock	220	64%	254	22%	Baseline
Toilet has a door without a lock	75	22%	351	31%	3.0 (2.2 – 4.3)ǂ
Toilet has a sheet	45	13%	444	39%	5.5 (3.8 – 8.1)ǂ
Toilet has no door or sheet	6	2%	100	9%	5.0 (2.0 – 12.3)ǂ
Toilet Walls					
Toilet has solid walls of any material	320	92%	1018	87%	Baseline
Toilet screened by leaves or other	26	7%	131	11%	1.1 (0.6 – 1.8)
No walls/screen	1	1%	15	1%	2.1 (0.2 – 18.7)
All household members able to access and use it day and night	335	97%	1115	96%	1.2 (0.6 – 2.5)
All household members able to feel safe and comfortable using it day and night	316	91%	1057	91%	1.2 (0.8 – 2.0)
All household members able to feel safe and comfortable using it day and night (female respondent)	167	97%	547	96%	0.8 (0.3 – 2.4)
All household members able to feel safe and comfortable using it day and night (male respondent)	168	96%	568	96%	1.7 (0.6 – 4.8)
All household members able to feel safe and comfortable using it day and night (female respondent)					

Table 46 Individual Sanitation Facility Use					
	People with disabilities (n=809)		People without disabilities (n=700)		Age, Sex, Location, SES adjusted Odds Ratio (95% CI)
	n	%	n	%	
Use the same facility as other members of household	694	86%	684	98%	0.1 (0.1 – 0.2)ǂ
Materials are available to clean self after using the toilet	599	75%	521	74%	1.0 (0.8 – 1.2)
Need Assistance to use toilet	307	38%	127	18%	2.9 (2.2 – 3.7)ǂ
Difficult to use toilet without coming into contact with faeces or urine	261	32%	99	14%	3.0 (2.3 – 3.9)ǂ
Able to use toilet as frequently as desire	713	88%	688	98%	0.1 (0.1 – 0.2)ǂ
Time it takes to get to Facility					
In house	56	7%	48	7%	Baseline
<1 minute	233	29%	220	31%	0.9 (0.6 – 1.5)
1 – 5 minutes	350	43%	302	43%	1.1 (0.7 – 1.7)
6 – 10 minutes	103	13%	86	12%	1.1 (0.6 – 1.9)
>10 minutes	67	8%	44	6%	1.4 (0.8 – 2.6)
ǂ p<0.001 or ǂǂ p<0.05 multivariate logistic regression					

Table 47 Factors associated with accessing the toilet amongst people with disabilities (n=809)									
	Need assistance			Difficult to use without coming into contact with faeces or urine			Not able to use as frequently as desire		
	n	%	Age, Sex, Location, SES adjusted Odds Ratio (95% CI)	n	%	Age, Sex, Location, SES adjusted Odds Ratio (95% CI)	n	%	Age, Sex, Location, SES adjusted Odds Ratio (95% CI)
Age Group (years)									
5 – 17	109	56%	Baseline	91	46%	Baseline	33	17%	Baseline
18 – 49	81	27%	0.3 (0.2 – 0.5)ǂ	73	25%	0.4 (0.3 – 0.6)ǂ	27	9%	0.7 (0.4 – 1.4)
50+	117	37%	0.5 (0.3 – 0.7)ǂ	97	31%	0.5 (0.3 – 0.7)ǂǂ	35	11%	0.8 (0.4 – 1.5)
Sex									
Male	143	34%	Baseline	128	31%	Baseline	50	12%	Baseline
Female	164	42%	0.6 (1.2 – 2.2)ǂ	133	34%	1.3 (0.9 – 1.8)	47	12%	1.1 (0.7 – 1.8)
Location									
Rural	235	38%	1.0 (0.7 – 1.5)	207	33%	0.8 (0.5 – 1.2)	74	12%	0.8 (0.4 – 1.6)
Urban	72	38%	Baseline	54	29%	Baseline	21	11%	Baseline
Limitation type									
Seeing	70	31%	0.8 (0.6 – 1.3)	60	27%	1.1 (0.7 – 1.6)	18	8%	0.8 (0.5 – 1.5)
Hearing	52	28%	0.6 (0.4 – 1.0)	46	25%	0.8 (0.5 – 1.3)	13	7%	0.7 (0.4 – 1.4)
Mobility	170	47%	1.5 (1.1 – 2.4) ǂǂ	156	43%	2.2 (1.5 – 3.3) ǂ	69	19%	2.5 (1.4 – 4.3) ǂ
Memory	89	53%	1.7 (1.1 – 2.6) ǂǂ	73	44%	1.5 (1.0 – 2.3)	37	22%	1.8 (1.0 – 3.3) ǂǂ
Self Care	109	72%	4.1 (2.7 – 6.3)ǂ	96	63%	3.4 (2.2 – 5.1) ǂ	56	37%	5.7 (3.4 – 9.5)ǂ
Communication	71	48%	1.1 (0.7 – 1.8)	63	63%	1.3 (0.8 – 2.0)	33	22%	1.6 (0.8 – 2.9)

ǂ p<0.001 or ǂǂ p<0.05 multivariate logistic regression

Notes: All variables in table included in one multivariate model. Functional limitation variables are binary (does have vs does not have) and are not mutually exclusive, as people may have more than one limitation

Table 48 Satisfaction with sanitation facilities between people with and without disabilities		
	People with disabilities (n=809)	People without disabilities (n=700)
	Av score (95% CI)	Av score (95% CI)
All age	4.9 (4.7 – 5.1)	6.0 (5.9 – 5.2)
Age Group (years)		
5 – 17	4.9 (4.5 – 5.3)	6.3 (6.0 – 6.6) ¤
18 – 49	4.9 (4.5 – 5.1)	5.8 (5.5 – 6.2) ¤
50+	5.0 (4.7 – 5.3)	6.1 (5.7 – 6.4) ¤
Sex		
Male	5.0 (4.8 – 5.3)	6.0 (5.7 – 6.3) ¤
Female	4.8 (4.5 – 5.0)	6.1 (5.8 – 6.3) ¤
Location		
Rural	4.9 (4.7 – 5.1)	6.1 (5.9 – 6.3) ¤
Urban	4.9 (4.5 – 5.3)	6.0 (5.5 – 6.4) ¤
¤ Significant difference in proportions between people with and without disabilities (p<0.001 using student ttest)		

Table 49 Satisfaction with sanitation facilities amongst people with disabilities (n=809)	
	Av score (95% CI)
Limitation type	
Seeing	4.7 (4.4 – 5.1)
Hearing	5.1 (4.8 – 5.5)
Mobility	4.6 (4.3 – 4.9)
Memory	4.7 (4.2 – 5.1)
Self Care	4.0 (3.6 – 4.5)
Communication	4.7 (4.3 – 5.2)
Facility Characteristics	
Toilet has a door	5.3 (5.1 – 5.6) ¥
Toilet has no door, but does have a sheet	4.6 (4.3 – 4.9)
Toilet has no door or sheet	3.6 (3.0 – 4.2) ¥
Toilet has walls	4.9 (4.8 – 5.1)
Toilet has no walls	3.4 (1.5 – 5.2)
Toilet Access Characteristics	
Use the same facility as other household members	5.1 (4.9 – 5.3) ¥
Does not use the same facility as other household members	3.6 (3.1 – 4.0) ¥
Materials are available to clean self	5.1 (4.9 – 5.3) ¥
Materials are not available to clean self	4.4 (4.0 – 4.7) ¥
Does not need assistance	6.0 (5.6 – 6.4)
Needs Assistance	6.0 (5.8 – 6.3)
Not difficult to use toilet without coming into contact with excreta	4.3 (3.9 – 4.5) ¥
Difficult to use toilet without coming into contact with excreta	5.2 (5.0 – 5.4) ¥
¥ Significant difference in proportions amongst people with disabilities (p<0.001 using student ttest)	

Table 50 Urinary Incontinence					
	People with disabilities (n=178)		People without disabilities (n=147)		Age, Sex, Location, SES adjusted Odds Ratio (95% CI)
	N	%	N	%	
Numbness/Tingling between legs	67	38%	28	19%	2.6 (2.0 – 3.3)ǂ
Numbness/Tingling or sensation loss in buttock region/back	79	44%	34	23%	2.2 (1.7 – 2.8)ǂ
Urine Leak					
Never	117	66%	125	85%	Baseline
Once a week or less	13	7%	2	2%	3.9 (2.1 – 7.3)ǂ
Two to three times a week	11	6%	3	3%	4.8 (2.3 – 1.0.0)ǂ
Once a day or more	37	21%	17	12%	2.5 (1.8 – 3.3)ǂ
Urine Leak Amount§					
A small amount	36	59%	12	55%	Baseline
A moderate amount	14	23%	5	23%	1.3 (0.7 – 2.2)
A large amount	11	18%	5	23%	1.4 (0.7 – 2.8)
At least once a week and at least a small amount	58	32%	19	13%	2.6 (1.9 – 3.7) ǂ
	Av Score (95% CI)		Av Score (95% CI)		
Urinary incontinence interference score	4.7 (3.9 – 5.5)		5.0 (3.9 – 6.1)		-

ǂ p<0.001 or ǂǂ p<0.05 multivariate logistic regression

§Amongst those reporting urine leak more frequently than "never"

Table 51 Factors associated with experiencing urinary incontinence amongst people with disabilities (n=180)			
	n	%	Age, Location, SES adj Odds Ratio (95% CI)
Age Group (years)			
5 – 17	13	36%	Baseline
18 – 49	22	30%	0.9 (0.3 – 2.4)
50+	23	32%	1.0 (0.3 – 2.7)
Sex			
Male	18	20%	Baseline
Female	40	43%	3.3 (1.6 – 7.0)ǂ
Location			
Rural	26	25%	Baseline
Urban	32	41%	1.8 (0.8 – 4.2)
Limitation type			
Seeing	16	33%	1.5 (0.6 – 3.7)
Hearing	14	33%	1.5 (0.6 – 3.7)
Mobility	33	42%	2.3 (1.0 – 5.4) ǂǂ
Memory	14	31%	0.8 (0.3 – 1.9)
Self Care	17	46%	1.7 (0.7 – 6.0)
Communication	11	42%	2.1 (0.7 – 6.0)
ǂ p<0.001 or ǂǂ p<0.05 multivariate logistic regression			

Table 52 Impact of Urinary Incontinence amongst people with disabilities (n=58)					
	Girls and women with disabilities (n=40)		Boys and men with disabilities (n=18)		Age, Location, SES adjusted Odds Ratio (95% CI)
	n	%	n	%	
Missed out on social activities	22	55%	12	67%	0.4 (0.1 – 1.8)
Missed out on eating with others	16	40%	7	39%	0.7 (0.1 – 2.9)
Able to wash and change in privacy at home	26	65%	9	50%	1.5 (0.4 – 5.3)
ǂ p<0.001 or ǂǂ p<0.05 multivariate logistic regression					

Table 53 Faecal Incontinence					
	People with disabilities (n=178)		People without disabilities (n=147)		Age, Sex, Location, SES adjusted Odds Ratio (95% CI)
	N	%	N	%	
Problems with bowel control	30	17%	5	3%	3.5 (2.3 – 5.3) ǂ
Bowel Leak					
Never	116	65%	118	80%	Baseline
Once a week or less	9	5%	1	1%	6.4 (2.2 – 18.6) ǂǂ
Two to three times a week	6	3%	4	3%	3.5 (1.6 –7.4) ǂǂ
Once a day or more	47	26%	24	16%	1.7 (1.3 – 2.2) ǂ
Bowel Leak Amount[§]					
A small amount	28	45%	15	52%	Baseline
A moderate amount	25	40%	9	31%	1.3 (0.8 – 2.2)
A large amount	9	15%	5	17%	1.6 (0.8 – 3.3)
At least once a week and at least a small amount	54	30%	24	16%	2.0 (1.4 – 2.8) ǂ
	Av Score (95% CI)		Av Score (95% CI)		
Faecal incontinence interference score	5.1 (4.3 – 5.8)		4.5 (3.4 – 5.5)		-

ǂ p<0.001 or ǂǂ p<0.05 multivariate logistic regression

§Amongst those reporting faeces leak more frequently than "never", includes 13 participants reclassified from "none" to "small amount" based on previous answers

Table 54 Factors associated with experiencing faecal incontinence amongst people with disabilities (n=180)			
	n	%	Age, Location, SES adj Odds Ratio (95% CI)
Age Group (years)			
5 – 17	10	28%	Baseline
18 – 49	18	25%	1.5 (0.5 – 4.3)
50+	26	37%	2.1 (0.7 – 6.4)
Sex			
Male	24	27%	Baseline
Female	30	33%	1.4 (0.7 – 2.9)
Location			
Rural	25	25%	Baseline
Urban	29	37%	1.6 (0.7 – 3.8)
Limitation type			
Seeing	14	29%	1.1 (0.5 – 2.7)
Hearing	10	24%	1.0 (0.4 – 2.5)
Mobility	35	45%	2.5 (1.1 – 5.7) ǂǂ
Memory	12	27%	0.6 (0.3 – 1.7)
Self Care	20	54%	3.6 (1.4 – 9.6) ǂǂ
Communication	8	31%	1.1 (0.4 – 3.4)

ǂ p<0.001 or ǂǂ p<0.05 multivariate logistic regression

Table 55 Impact of Faecal Incontinence amongst people with disabilities (n=54)					
	Girls and women with disabilities (n=30)		Boys and men with disabilities (n=24)		Age, Location, SES adjusted Odds Ratio (95% CI)
	n	%	n	%	
Missed out on social activities	12	40%	9	38%	0.9 (0.3 – 3.3)
Missed out on eating with others	13	40%	8	33%	1.1 (0.3 – 3.5)
Able to wash and change in privacy at home	19	63%	16	67%	0.7 (0.2 – 2.6)

ǂ p<0.001 or ǂǂ p<0.05 multivariate logistic regression

Table 56: Product use amongst people with and without disabilities who experience incontinenceº												
	All				Rural				Urban			
	People with disabilities (n=80)		People without disabilities (n=31)		People with disabilities (n=36)		People without disabilities (n=11)		People with disabilities (n=44)		People without disabilities (n=20)	
	n	%	n	%	n	%	n	%	n	%	n	%
Urinary Incontinence (n=83)												
Able to wash and change in privacy whilst at home	36	59%	20	91%	14	54%	5	100%	22	63%	15	88%
Product Used in case of incontinence												
Toilet Paper	10	16%	4	18%	3	12%	1	20%	7	20%	3	18%
Cloth or other homemade product	13	21%	3	14%	5	19%	1	20%	8	23%	2	12%
Other	11	18%	4	18%	6	23%	1	20%	5	14%	3	18%
Nothing	27	44%	11	50%	12	46%	2	40%	15	43%	9	53%
Fecal Incontinence (n=91)												
Able to wash and change in privacy whilst at home	38	61%	29	100%	18	67%	10	100%	20	57%	19	100%
Product Used in case of incontinence												
Toilet Paper	21	39%	14	58%	7	28%	4	50%	14	48%	10	63%
Cloth or other homemade product	3	6%	2	8%	3	12%	1	13%	0	-	1	6%
Other	17	31%	1	4%	7	28%	0	-	10	34%	1	6%
Nothing	13	24%	7	29%	8	32%	3	38%	5	17%	4	25%
º Using binary cut off of at least once a week and at least a small amount either urinary or fecal incontinence												

Table 57 Traditional knowledge and wisdom (age 16+)

	People with disabilities (n=641)		People without disabilities (n=540)		Age, Sex, Location, SES adjusted Odds Ratio (95% CI)
	N	%	N	%	
Can recite at least 1 kastom story	385	60%	418	77%	0.4 (0.3 – 0.5) ǂ
Can perform at least 1 kastom dance	298	46%	338	63%	0.5 (0.4 – 0.6) ǂ
Can sing at least 1 kastom song	320	50%	331	61%	0.6 (0.4 – 0.7) ǂ
Can explain the rules of at least 1 kastom game	341	53%	377	70%	0.4 (0.3 – 0.5) ǂ
Can name great grandfather or grandmother on either parents' side	437	68%	446	83%	0.4 (0.3 – 0.5) ǂ
Can name family taboo places and the stories explaining why those place are taboo	397	62%	412	76%	0.4 (0.3 – 0.6) ǂ
Can name the traditional planting calendar	455	71%	462	86%	0.3 (0.2 – 0.5) ǂ
Can name the local names of more than one species of tree in my area	478	75%	488	90%	0.3 (0.2 – 0.4) ǂ

ǂ p<0.001 or ǂǂ p<0.05 multivariate logistic regression, all variables included in model

Table 58 Traditional production skills (age 16+)					
	People with disabilities (n=641)		People without disabilities (n=540)		Age, Sex, Location, SES adjusted Odds Ratio (95% CI)
	N	%	N	%	
Weave a mat					
Can personally	220	34%	255	47%	Baseline
Cant but someone in my household can	321	50%	243	45%	2.0 (1.4 – 2.7) †
Neither me nor a member of my family can	99	15%	42	8%	3.2 (2.1 – 4.9) †
Weave roofing materials					
Can personally	411	64%	454	84%	Baseline
Cant but someone in my household can	175	27%	73	14%	3.2 (2.3 – 4.4) †
Neither me nor a member of my family can	44	9%	13	2%	5.5 (2.9 – 10.4)
Weave bamboo or wild cane for house walls					
Can personally	297	46%	341	63%	Baseline
Cant but someone in my household can	241	38%	142	26%	2.3 (1.8 – 3.1) †
Neither me nor a member of my family can	103	16%	57	11%	2.5 (1.7 – 3.7) †
Plant food crops					
Can personally	532	83%	531	98%	Baseline
Cant but someone in my household can	83	13%	5	1%	17.5 (7.0 – 43.7) †
Neither me nor a member of my family can	26	4%	4	1%	6.5 (2.3 – 19.0) ††
Roast Food for Eating					
Can personally	547	85%	529	98%	Baseline
Cant but someone in my household can	73	11%	8	1%	9.3 (4.4 – 19.6) †
Neither me nor a member of my family can	21	3%	3	1%	7.2 (2.1 – 24.4) ††
Make traditional medicines or perform traditional massage					
Can personally	414	65%	427	79%	Baseline
Cant but someone in my household can	139	22%	64	12%	2.5 (1.8 – 3.5) †
Neither me nor a member of my family can	88	14%	49	9%	1.9 (1.3 – 2.8) ††
† p<0.001 or †† p<0.05 multivariate logistic regression, all variables included in model					

Table 59 Access to rehabilitation and other services (n=803)							
	Have heard of services		Have needed services		Have Received Services		
	n	%	n	%	n	%[a]	%[b]
Rehabilitation	127	16%	109	14%	68	8%	62%
Assistive Device Services	138	17%	99	12%	57	7%	58%
Counselling / Mental	149	19%	114	14%	79	10%	69%
Health Information	339	42%	301	37%	232	29%	77%
Traditional Healing	400	50%	260	32%	255	32%	98%
Legal Advice	131	16%	94	12%	64	8%	68%
[a] % of all cases who have received service; [b] proportion of cases who received the service out of those who reported they needed it.							

Table 60 Access to assistive technology amongst people with disabilities (n=803)								
	Use device		Have but don't use device		Need but don't have device		Neither have nor need device	
	n	%	n	%	n	%	n	%
Glasses	55	7%	21	3%	266	33%	461	57%
Hearing Aid	4	<1%	4	<1%	165	21%	631	79%
Wheelchair	33	4%	6	<1%	159	20%	605	75%
Crutches	21	3%	5	<1%	111	14%	666	83%
White Cane	3	<1%	2	<1%	69	9%	729	91%
Walking Stick	30	4%	6	<1%	138	17%	629	78%
Standing Frame	4	<1%	4	<1%	107	13%	688	86%
Prosthesis	3	<1%	0	-	48	6%	752	94%
Communication device	3	<1%	1	<1%	138	17%	661	82%

Table 61 Participation (16+)					
	People with disabilities (n=641)		People without disabilities (n=540)		Age, Sex, Location, SES adjusted Odds Ratio (95% CI)
	N	%	N	%	
Visit other people in the community					
As often as my peers do	438	68%	504	93%	Baseline
Less often than my peers do, but as much as I want to	46	7%	14	3%	3.8 (2.1 – 7.1) ǂ
Less often than I do or want to do	157	24%	22	4%	7.9 (5.0 – 12.7) ǂ
Move around at home and in the community					
As often as my peers do	506	79%	527	98%	Baseline
Less often than my peers do, but as much as I want to	36	6%	3	1%	11.9 (3.6 – 39.2) ǂ
Less often than I do or want to do	99	15%	10	2%	9.8 (5.1 – 19.1) ǂ
Take part in major festivals/ rituals in the community					
As often as my peers do	467	73%	515	95%	Baseline
Less often than my peers do, but as much as I want to	24	4%	5	1%	5.4 (2.0 – 14.5) ǂǂ
Less often than I do or want to do	150	23%	20	4%	8.3 (5.1 – 13.5) ǂ
Take part in social activity in religious/ community affairs					
As often as my peers do	448	70%	513	95%	Baseline
Less often than my peers do, but as much as I want to	43	7%	9	2%	5.5 (2.6 – 11.5) ǂ
Less often than I do or want to do	150	23%	18	3%	9.4 (5.7 – 15.8) ǂ
Same respect in the community as peers	556	87%	532	99%	0.1 (0.1 – 0.2) ǂ
Same respect in family discussions	505	79%	524	97%	0.1 (0.1 – 0.2) ǂ
ǂ p<0.001 or ǂǂ p<0.05 multivariate logistic regression, all variables included in model					

Table 62 Factors associated with participation restrictions amongst people with disabilities (n=641)						
	Visit other people as much as peers			Take part in social, religious or community affairs as much as peers		
	n	%	Age, Location, SES adj Odds Ratio (95% CI)	n	%	Age, Location, SES adj Odds Ratio (95% CI)
Age Group (years)						
5 – 17	19	79%	Baseline	20	83%	Baseline
18 – 49	219	74%	0.5 (0.1 – 1.8)	224	76%	0.4 (0.1 – 1.4)
50+	200	62%	0.3 (0.1 – 1.0)	204	64%	0.2 (0.1 – 0.7)ǂǂ
Sex						
Male	236	71%	Baseline	249	75%	Baseline
Female	202	65%	0.7 (0.5 – 1.1)	199	64%	0.5 (0.3 – 0.8)ǂǂ
Location						
Rural	332	69%	Baseline	342	71%	Baseline
Urban	106	68%	1.0 (0.6 – 1.6)	106	68%	0.8 (0.5 – 1.3)
Limitation type						
Seeing	147	75%	1.1 (0.7 – 1.8)	152	78%	1.5 (0.9 - 2.4)
Hearing	105	78%	1.4 (0.8 – 2.3)	103	76%	1.1 (0.7 – 1.9)
Mobility	167	55%	0.3 (0.2 – 0.5)ǂ	178	59%	0.5 (0.3 – 0.8)ǂǂ
Memory	60	52%	0.4 (0.2 – 0.7)ǂǂ	65	56%	0.5 (0.3 – 0.9)ǂǂ
Self Care	42	40%	0.4 (0.2 – 0.6) ǂ	43	41%	0.3 (0.2 – 0.5)ǂ
Communication	51	54%	0.4 (0.2 – 0.8)ǂ	54	57%	0.5 (0.3 – 0.9)ǂǂ
ǂ p<0.001 or ǂǂ p<0.05 multivariate logistic regression						

Table 63 Participation (16+) amongst people reporting a maximum of "no", "some" and "a lot/cant do "difficulties (n=1181)			
	N	%	Age, Sex, Location, SES adjusted Odds Ratio (95% CI)
Visit other people in the community as often as my peers			
No difficulty in any domain	286	93%	Baseline
Some difficulty in one or more domain	224	93%	1.1 (0.6 – 2.3)
A lot or greater difficulty in one or more domain	432	68%	0.2 (0.1 – 0.3)†
Move around at home and in the community as often as my peers			
No difficulty in any domain	298	97%	Baseline
Some difficulty in one or more domain	235	98%	1.4 (0.5 – 4.5)
A lot or greater difficulty in one or more domain	500	79%	0.1 (0.1 – 0.2)†
Take part in major festivals/ rituals in the community as often as my peers			
No difficulty in any domain	293	96%	Baseline
Some difficulty in one or more domain	228	95%	1.1 (0.5 – 2.4)
A lot or greater difficulty in one or more domain	461	73%	0.1 (0.1 – 0.2)†
Take part in social activity in religious/ community affairs as often as my peers			
No difficulty in any domain	292	95%	Baseline
Some difficulty in one or more domain	227	95%	1.0 (0.4 – 2.2)
A lot or greater difficulty in one or more domain	442	70%	0.1 (0.1 – 0.2)†
Same respect in the community as peers			
No difficulty in any domain	300	98%	Baseline
Some difficulty in one or more domain	236	98%	0.9 (0.2- 3.2)
A lot or greater difficulty in one or more domain	552	87%	0.1 (0.1 – 0.2)
Same respect in family discussions			
No difficulty in any domain	299	98%	Baseline
Some difficulty in one or more domain	230	96%	0.3 (0.1 – 0.9)††
A lot or greater difficulty in one or more domain	500	79%	0.1 (0.03 – 0.1)
† p<0.001 or †† p<0.05 multivariate logistic regression, all variables included in model Participation questions re-imaged as binary "yes – as often as my peers" versus "no – not as often as my peers"			

Table 64 Life Satisfaction Scores (age 16+)		
	People with disabilities (n=642)	People without disabilities (n=540)
	Av score (95% CI)	Av score (95% CI)
Overall satisfaction with life as a whole	5.4 (5.2 – 5.6)	7.1 (6.9 – 7.2) ¤
Age Group (years)		
16 – 17	5.3 (4.5 – 6.1)	7.6 (6.8 – 8.3) ¤
18 – 49	5.5 (5.3 – 5.8)	7.2 (6.9 – 7.4) ¤
50+	5.2 (4.9 – 5.5)	6.8 (6.5 – 7.1) ¤
Sex		
Male	5.4 (5.2 – 5.7)	7.2 (7.0 – 7.5) ¤
Female	5.3 (5.0 – 5.6)	6.9 (6.6 – 7.1) ¤
Location		
Rural	5.3 (5.1 – 5.6)	7.1 (6.9 – 7.3) ¤
Urban	5.5 (5.1 – 5.9)	7.0 (6.6 – 7.4) ¤
Functional limitation type		
Seeing	5.3 (5.0 – 5.7)	-
Hearing	5.8 (5.4 – 6.3)	-
Mobility	5.0 (4.7 – 5.3)	-
Memory	4.9 (4.4 – 5.4)	-
Self Care	4.5 (4.0 – 5.0)	-
Communication	5.5 (4.9 – 6.0)	-
¤ Significant difference in proportions between people with and without disabilities (p<0.001 using student test)		

Table 65 Life Satisfaction as a whole (age 16+)						
	People with disabilities (n=809)		People without disabilities (n=700)		Age, Sex, Location, SES adjusted Odds Ratio (95% CI)
	Av score (95% CI)		Av score (95% CI)		
Overall satisfaction with life as a whole	5.4 (5.2 – 5.6)		7.1 (6.9 – 7.2) ¤		
Overall satisfaction with life 5 years ago	5.6 (5.4 – 5.8)		6.6 (6.5 – 6.8) ¤		
Past satisfaction higher than present satisfaction	275	33%	183	26%	1.4 (1.1 – 1.7) ǂǂ
Past satisfaction same or lower than present satisfaction	540	66%	519	74%	Baseline
Overall expected satisfaction with life in five years time	5.6 (5.4 – 5.8)		7.3 (7.0 – 7.5) ¤		
Future satisfaction higher than present satisfaction	273	34%	249	35%	0.9 (0. 7 – 1.1)
Future satisfaction same or lower than present satisfaction	542	67%	453	65%	Baseline

¤ Significant difference in proportions between people with and without disabilities ($p<0.001$ using student ttest)
ǂ $p<0.001$ or ǂǂ $p<0.05$ multivariate logistic regression

APPENDIX 3: COMMUNITY SENSITISATION NETWORKS AND MESSAGING

COMMUNITY INFLUENCERS:

Network	Community Influencer	Survey participants reached
WVV projects	WVV staff	Program participants, focusing on women and people with disabilities
Area Councils	Area Council Secretary	Community leaders and general public, particularly men
Vanuatu Christian Council, Ministers' Fraternal, Inter-Church Women's Fellowship (Santo)	Local church pastors, women leaders, youth representatives	Congregations, focusing on people with disabilities and women (via women's groups)
Vanuatu Disability Promotion and Advocacy Association (VDPA)	Local DPOs	People with disabilities
Malvatumauri Council of Chiefs	Local chiefs in relevant areas (via higher chiefs if necessary)	General public, particularly men
Vanuatu National Council of Women	Local representatives	Women and women's groups
Vanuatu Women's Centre	Local Committees Against Violence Against Women (CAVAW)	Women and women's groups
Vanuatu National Youth Council	Local representatives	Young people

Information was also be provided to key partners within the Vanuatu Government and their support will be sought in distributing survey messaging through community-based networks such as schools, health centers and police posts. Key Government partners included:

- Ministry of Health
- Ministry of Justice and Community Services (MJCS)
- Ministry of Education and Training (MoET)
- Ministry of Lands and Department of Water Resources
- SANMA provincial government – including Planning and Project Officers
- TORBA provincial government – including Planning and Project Officers

The media, including radio, print and online news services, also played an important role in informing and influencing survey participants and so were a key target audience. Outlets with coverage in Torba and Sanma included:

- Radio Vanuatu
- FM107

Key Messages

1. Between March and May, World Vision will visit every community in Torba and Sanma provinces, including yours.
2. World Vision data collectors are coming to find out about the water and sanitation in your community, and what makes it difficult to get water and other things you need to stay clean and healthy.
3. Being able to drink water, use the toilet and wash yourself safely is important – it keeps you healthy so you can work, go to school, work in the garden and live life well.

4. Different people have different water and sanitation needs – and it can be harder for some people, like women and those living with disabilities, to get what they need.
5. To understand everyone's needs, we need you! World Vision will talk to each man and woman in your communi ty – community leaders and family heads, but also every member of the household over 18.
6. The information from this survey will help World Vision to work with communities like yours over the next 4 years to help everyone get the water and sanitation they need to stay healthy. It will also help the provincial and national governments understand the needs of your community so we can all work together to make things better.
7. Look out for World Vision researchers visiting your community between March and May – your answers will help make your community healthier for everyone!

APPENDIX 4: WEB-LINK TO QUESTIONNAIRES

Qualitative Topic Guides [weblink]

Quantitative Household Listing Questionnaire [weblink]

Quantitative Case Control Questionnaire [weblink]

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