

# Funafuti Hygiene Behaviours and Practices Survey

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Finally, I would like to thank the citizens of Funafuti who took part in the survey for giving us your time and for your patience. We trust that your responses will guide and lead to improvements to health and wellbeing of future generations of Tuvaluans in Funafuti.

## ACRONYMS

ADB	Asian Development Bank
CCD	Climate Change Department
GoT	Government of Tuvalu
MHM	Menstrual Hygiene Management
MoH	Ministry of Health, Social Welfare and Gender Affairs
MPWIELD	Ministry of Public Works, Infrastructure, Environment, Labour,
NGO	Non-Governmental Organization
PWD	Public Works Department, Government of Tuvalu
RO	Reverse Osmosis
TA	Technical Assistance
TANGO	Tuvalu Association of Non-Governmental Organizations
TNCW	Tuvalu National Council of Women
TuFHA	Tuvalu Family Health Association
WASH	Water, Sanitation and Hygiene

## EXECUTIVE SUMMARY

The Funafuti Hygiene Behaviours and Practices Survey and the Funafuti Menstrual Hygiene Management Survey were conducted simultaneously by TuFHA in February 2022 on behalf of ADB. The purpose was to collect information from Funafuti residents to inform the design and implementation of a Hygiene Awareness Education Programme (HAEP). This in turn will support the health protection goals that the ensuing Funafuti Water and Sanitation Project (FWSP) promises.<sup>1</sup> The HAEP will address a wide range of WASH-related topics identified in the surveys, for example hand-hygiene, household rainwater and sanitation system maintenance, communicable disease awareness, menstrual hygiene management (MHM) and other hygiene related topics.

The Funafuti Hygiene Behaviours and Practices Survey finds that hygiene practices and behaviours in Funafuti are significantly impacted by the condition and access to sanitary facilities and adequate supplies of fresh water. Poor access to WASH facilities across all settings both at home and away affects a significant proportion of Funafuti residents. Limited supplies of water lead many residents to reduce the frequency of water use, impacting personal hygiene and even resulting in open defecation in some instances. Families impacted by low water levels will seek out support from neighbours and extended family members putting pressure on their neighbours' sanitary systems and accelerating the public health risks associated with community wide water shortages. This, along with overcrowding in many households provides the conditions for increased risk of community-wide outbreaks of disease.

Schools are a critical setting for concern in Funafuti. Facilities are poorly maintained, or even unavailable due to breakages, lack of water or because they are too unhygienic to use. Facilities for menstruating girls are very limited meaning girls will often need to return home to address their menstrual hygiene needs.<sup>2</sup> There are risk factors for community wide outbreaks of disease at schools also, as these are settings where individuals congregate in large numbers and disperse widely throughout the community at the end of the day.

Our findings indicate that there is basic understanding of the link between good hygiene practices and personal protection against disease but many important gaps and misunderstandings that still remain. It is recommended that effective and consistently delivered HAEP initiatives be implemented to raise hygiene awareness and improve health outcomes for all residents in Funafuti and nationally. These initiatives should be targeted at children, vulnerable individuals and their carer's.

It is recommended that agencies with interests in protecting health through hygiene awareness raising, such as the public health department, Red Cross, TuFHA and Live and Learn, utilise the findings from this survey to guide their community activities, and to coordinate efforts towards addressing the priority gaps and misunderstandings that we have identified.

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<sup>1</sup> The Asian Development Bank (ADB) funded Funafuti Water and Sanitation Project (FWSP) aims to improve access to water, sanitation and hygiene for the Funafuti community through a major upgrading of water and sanitation facilities and services.

<sup>2</sup> The Funafuti Menstrual Hygiene Management Survey, Feb 2022

## INTRODUCTION

The Asian Development Bank (ADB) funded Funafuti Water and Sanitation Project (FWSP)<sup>3</sup> aims to improve access to water, sanitation and hygiene for the Funafuti community. As part of this major upgrade a suite of hygiene awareness raising initiatives will be introduced to support the health protection improvements that the FWSP promises. In preparation for this, two hygiene surveys were conducted in early 2022: the Funafuti Hygiene Behaviours and Practices Survey, and; the Funafuti Menstrual Hygiene Management Survey. The surveys were implemented locally by the Tuvalu Family Health Association (TuFHA) in February and March, 2022 and were supported by the ADB Regional TA<sup>4</sup>.

## WASH

While the focus was principally on hygiene, the Funafuti Hygiene Behaviours and Practices Survey necessarily touched on access to safe water and sanitation and related practices as these elements have a huge impact on an individual's hygiene experiences and behaviours. It should be noted, that in the context of WASH, and the recent COVID-19 pandemic, handwashing with soap and water is regarded as a top priority in all settings, and has been chosen as an indicator for national and global monitoring of hygiene access.<sup>5</sup> The purposes of providing access to WASH services include achieving public health gains, improving human dignity in the case of sanitation, implementing the human right to water and sanitation, reducing the burden of collecting drinking water for women, reducing risks of violence against women, improving education and health outcomes at schools and health facilities, and reducing water pollution. Access to WASH services is also an important component of water security<sup>6</sup>

## HYGIENE

Hygiene refers to conditions and practices that help to maintain health and prevent the spread of diseases. It therefore includes a set of practices associated with the protection of health, including hand hygiene, access to safe water and sanitation, environmental cleaning, menstrual hygiene management, safe disposal of waste, safe food handling and preparation, and the provision of soap and laundered towels.<sup>7</sup>

Individuals should understand the relationship between hygiene and infectious disease prevention to break the infectious disease transmission cycle. Infants and the elderly are the most vulnerable because their immune systems (the body's defences) are not as capable to fight off infections. When people understand the why of germ theory, they will realise when it is important to wash their hands and why it is important to wash and dry them hygienically. This should start with community and school education of basic germ theory, the understanding that some bacteria, viruses and protozoa are human pathogens (disease causing organisms), and that the source of these can be people, sewage, raw meat, and animals such as pigs. Pathogens can be transferred via contaminated water and surfaces, including hands.

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<sup>3</sup> ADB Grant 6031-TUV Funafuti Water and Sanitation Project, PRF: Preparing the Funafuti Water and Sanitation Project (formerly Integrated Urban Resilience Project) <https://www.adb.org/projects/53417-001/main>

<sup>4</sup> The ADB regional TA has the aim to strengthen WASH practices and improve hygiene behaviours in a number of Pacific Island countries including Tuvalu. TA-6551 REG: Strengthening WASH Practices and Hygiene Behavioral Change in the Pacific (54227-001) <https://www.adb.org/projects/54227-001/main>

<sup>5</sup> <https://washdata.org/sites/default/files/documents/reports/2019-05/JMP-2017-report-final.pdf>

<sup>6</sup> <https://reachwater.org.uk/resource/reach-global-strategy-2020-2024/>

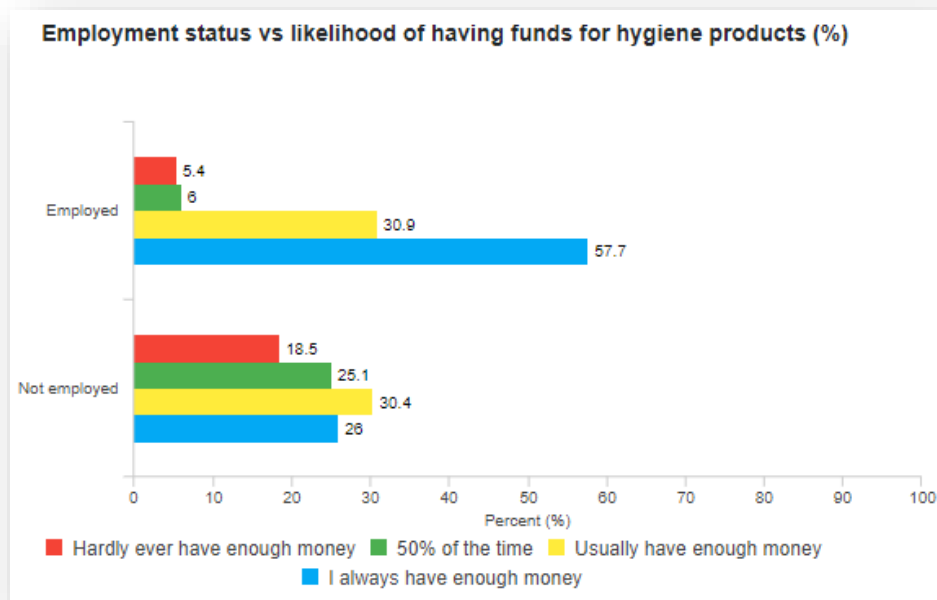
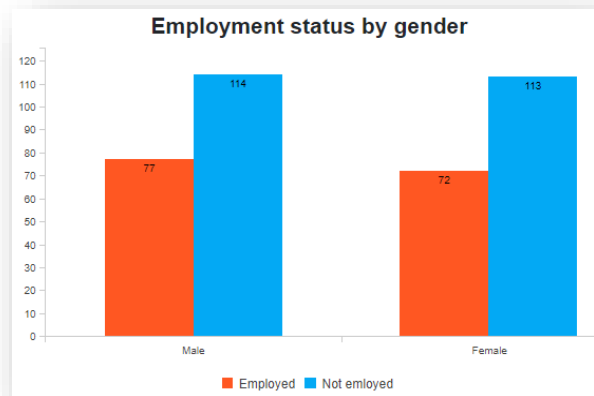
<sup>7</sup> <https://www.afro.who.int/health-topics/hygiene>

## FINDINGS

The survey was conducted on the Solstice/mWater platform.<sup>8</sup> Solstice builds and hosts a cloud-based and fully supported data collection, analysis, and visualization software platform. The system includes a web portal for managing and visualizing data and mobile smartphone apps for data collection that are available on Android, iOS, and via a web browser. This allowed the team to fully interact with collected data in real time from remote locations overseas. Planning and training on the system occurred using the Zoom video conferencing platform.

### DEMOGRAPHIC AND SOCIO-ECONOMIC

Three hundred and seventy-six respondents were questioned for this survey, more or less evenly split between male and female. Sixty per cent of respondents said they were not in paid employment and there was little proportional difference between genders. Thirteen per cent were students (49) and of these, 26 were university students, 19 attended school, and four were studying elsewhere. Our survey reflects a net unemployed rate of 47%. Notwithstanding the limitations of our survey (confined to Funafuti) this figure is significantly higher than the World Bank's most recent 2016 estimate of 8.5% unemployment<sup>9</sup>.

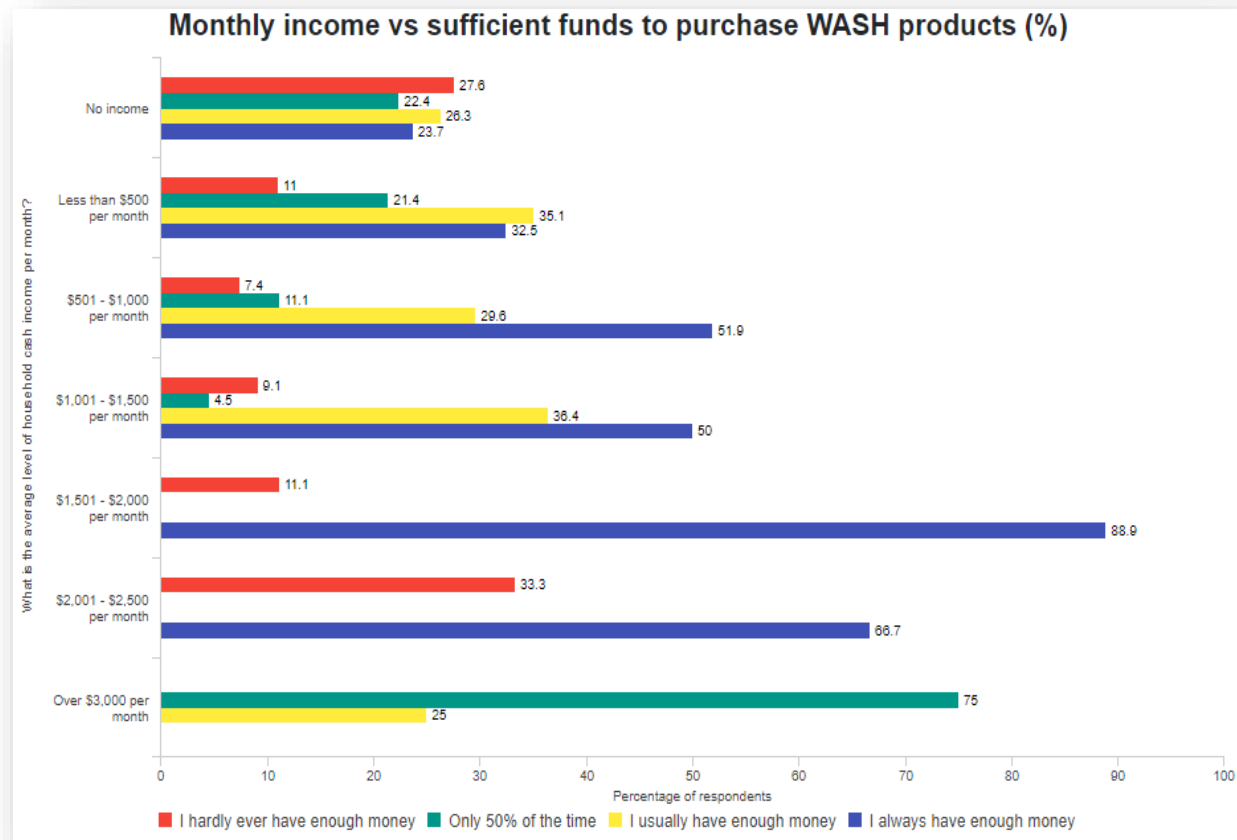


<sup>8</sup> [https://portal.mwater.co/#/resource\\_center/about\\_mwater](https://portal.mwater.co/#/resource_center/about_mwater)

<sup>9</sup> International Labour Organisation, ILOSTAT Database. (1994–2022, June). *Unemployment, total (% of total labor force) (national estimate)-Tuvalu* [Dataset]. The World Bank.



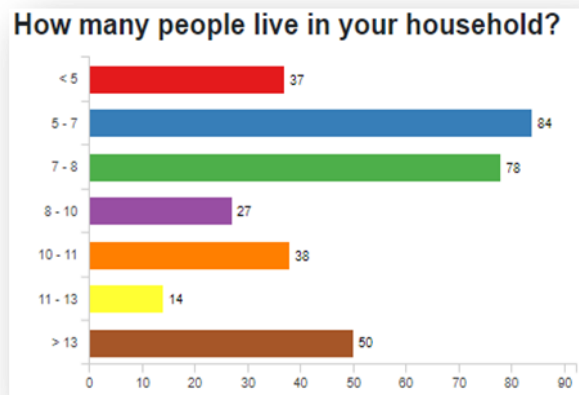
Ninety per cent of respondents reported an income of less than \$1,000 per month. One-fifth of respondents have no cash income at all, two-fifths of respondents reported receiving between nil and \$500 of pay per month, and nearly 30% said they received between \$500 and \$1,000 cash income per month. One per cent of respondents earned over \$3,000 per month.



This cash income translates into material hardship for many. When asked: “Do you always have enough money to purchase hygiene products when you need them?” two-fifths said they always did, 30% said they usually did but 18% said they only had enough money half the time. Thirteen per cent said they hardly ever had enough money. As expected, we can see when comparing monthly income against the reported availability of sufficient funds for WASH products (see above) that there is a correlation between having less income and reporting a lack of funds for WASH products.

### Overcrowding

Overcrowding is a widely acknowledged problem in Funafuti. This is almost invariably other immediate and extended family members. Overcrowding is a significant problem from a public health perspective because it increases the likelihood of disease transmission within a family, and also each family member will have networks with the wider community. This means that a family member may initially succumb to an environmental source (such as faecal contamination of their water supply, household surfaces, failed septic tanks, or sanitation facilities), but then quickly become a source of person to person spread within and beyond the family.



## WATER SUPPLY

### Main source for drinking

Three hundred and sixteen respondents told us that they rely on their roof water supply, but over a fifth of respondents said they relied on tankered or PWD supplies for drinking purposes, one said they used Kaupule supplies, and 11 said they purchased bottled water. It should be noted that while PWD supplies water that has been treated using ultra filtration processes (RO or reverse osmosis), this water is at risk of faecal contamination when it is mixed with residue rainwater remaining in the tank, or when new rainwater is added following rainfall.

Rainwater systems are open to contamination from bird and rat excrement, which can occasionally contain pathogenic viruses, bacteria and protozoa.<sup>10</sup> It must also be noted that at times when water levels are low the dilution factor reduces and thus the concentration of pathogens in the tank-water increases. Added to this are the nutrients that may be present on the floor of the tank and the relatively high temperature of the stored water. All of this provides pathogenic organisms with the perfect environment to thrive and multiply.

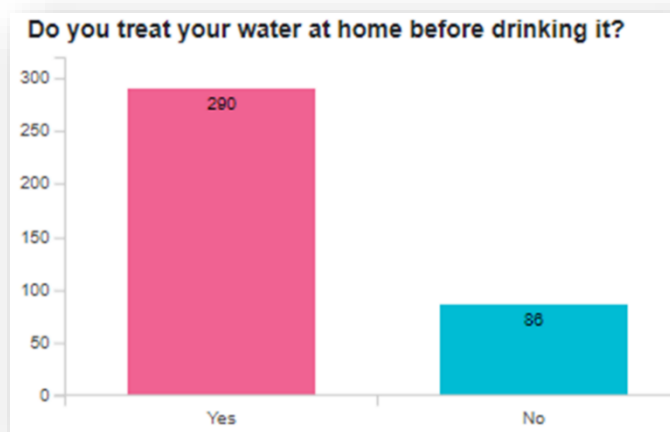
### Main source for handwashing and bathing

The main source of water for handwashing and bathing at home was reported as rainwater (264 respondents). The main issue with untreated rainwater is that it may be too contaminated for drinking, hand hygiene, oral hygiene and cooking. Untreated rainwater is likely to be acceptable for bathing and showering, although care should be taken by carers to avoid getting the water in the mouths of infants, older people, and those with compromised immune systems. It is also fine for laundering, toilet flushing and gardening.

Other than rainwater, a quarter of respondents used tankered water, nine respondents said they used PWD supplies, and one respondent used groundwater. When asked “What is your main source of water for other cleaning at home?” a similar number (70%) said rainwater, again a quarter said tankered water, six respondents said they used PWD supplies, five respondents used groundwater, one used Kaupule supplies.

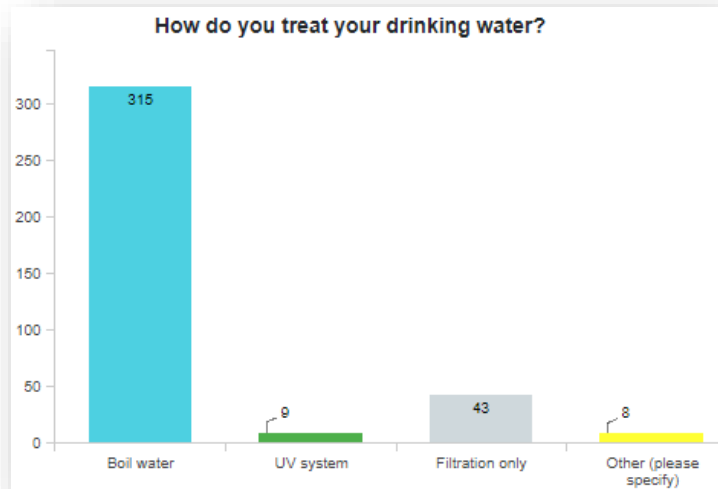
### Treatment practices

The respondents were asked: “Do you treat your water at home before drinking it?”. Most (77%) said that they did but nearly a quarter said they didn’t (86 respondents). The vast majority of householders boil their water to make it safe, 11% use filtration only, nine reported having their own UV system, and one said they used sunlight. Drinking-water is often stored after treatment in containers that are mostly sealed and sometimes refrigerated. But uncovered jugs or even buckets are used in some cases.



<sup>10</sup> However, rainwater is considered a generally lower-risk source-water for drinking water supplies compared to groundwater, and especially surface water sources due to the limited number of animals that can access it, and the absence of human waste streams.

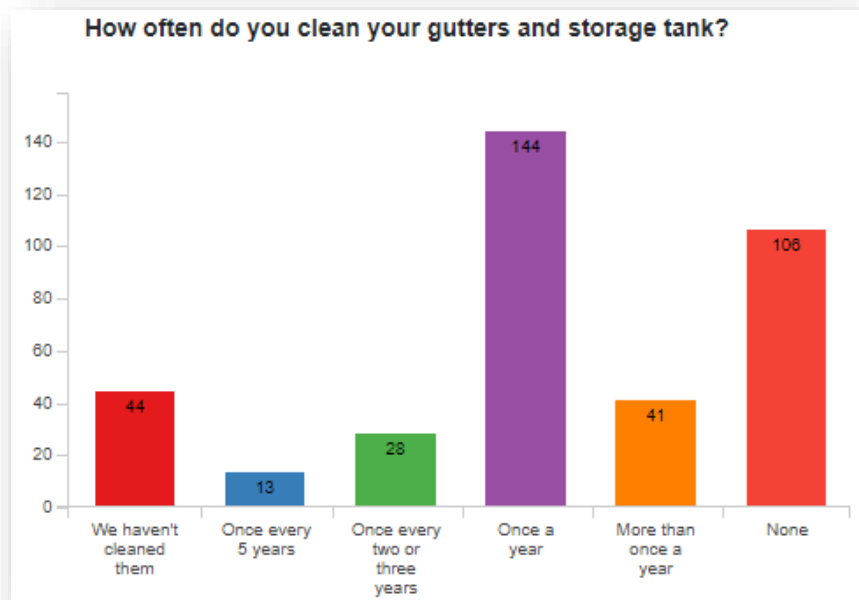
Responses to the question of why they treated their water at home before drinking it show a good understanding of the link between untreated water and unsafe water. Typical responses were: “to make it safer”, “to be free from bacteria that causes diseases”, “to prevent vomiting and diarrhoea”, “to purify the water before drinking”, all of which refer to the elimination of harmful pathogens in water. One mentioned drinking water standards being needed and many mentioned concerns about sea spray. There did appear to be a general distrust of rainwater supplies in terms of its safety for drinking.



### System design and maintenance

The purity of rainwater harvested from rooftops should not be taken for granted. Often times the quality of harvested water from roof catchments does not meet drinking-water guideline values.<sup>11</sup> Most studies reveal that harvested water is heavily contaminated microbiologically by a variety of indicator and pathogenic organisms unless special care is taken during collection and storage of rainwater.<sup>12</sup>

When asked “How often do you clean your gutters and storage tank?” only 15% did this maintenance more than once a year, a half of respondents reported doing it annually, 10% (39) did it every two to three years, 18 respondents did it once every five years and 16% said they had never cleaned their gutters or tank.



Forty-nine per cent of respondents did not know if they had a first-flush diverter installed for their rainwater system, with a further fifth saying they did not have one installed.<sup>13</sup> The balance (30%) said they did have a first flush diverter installed.

<sup>11</sup> <https://www.who.int/publications/i/item/9789241549950>

<sup>12</sup> <https://iwaponline.com/aqua/article-abstract/55/4/257/30630/Water-quality-of-rooftop-rainwater-harvesting>

<sup>13</sup> First flush diverters channel the first few litres of water that wash off the roof surface when rain begins to fall into a wastewater sump. The water is diverted into a wastewater sump at the entry point to the main downpipe. This first flush of water contains a large proportion of the

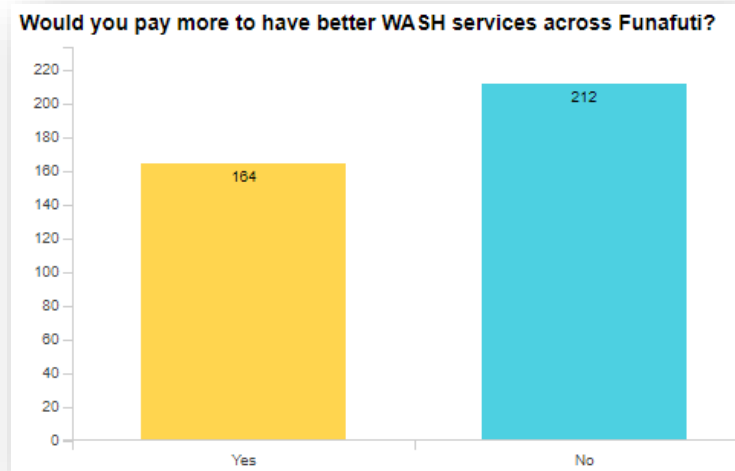
When asked “Would you like to know more about the operation and maintenance of your drinking water system?” 90% of respondents said they would.

### A Code of Practice for Water Supply Carriers

All rainwater tanks need desludging from time to time, as the sludge is rich in nutrients and a potential source of pathogens. A Code of Practice for Water Supply Carriers to ensure quality of the delivered water, including the requirement that before topping up a tank with town water, they desludge the first tank in the series would be beneficial in this regard. It could also direct personnel to record information including security and condition of the tanks (e.g., are tank lids secure, are screens present on vents and entry points etc) and leave a completed checklist of basic improvements for the householder at the end of the filling operation.

### Water Service Delivery

Ninety per cent of respondents felt that the current pricing of WASH utilities and services in Funafuti was fair. Of the others, most suggested WASH services were too expensive or inequitable. Some gave examples of the price of refilling a tank, of consumables such as soap, handwashing soap and cleaning detergent, and of bigger items such as storage tanks and guttering, and fittings such as sinks as being very expensive in Tuvalu. Many others mentioned unfairness in the distribution of water supplies - one saying that “people of higher rank get their tank filled before others!”. Some simply said that the cost meant that they could never buy water.



There was a sense from these respondents that lower income families were really struggling. Despite this, 44% of respondents would pay more to have better WASH services across Funafuti. It must be noted that this reflects inequity with regards to accessible water supply. It does not reflect the level of need for better WASH services.

Nearly two hundred respondents had suggestions for improvements to water, sanitation and/or hygiene services across the community in Funafuti. These included:

- More water trucks to meet demand, especially in dry season
- Distribution by PWD to be timelier in times of drought
- PWD to work together with households on what they need to maintain their own water and sanitation (e.g., clean gutters, empty septic tanks etc)
- Maintain distribution of hand soap under WASH project
- Provision of hygiene products at a low price
- More public toilets, with better hygiene

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contamination that will have built up on the roof prior to rainfall (hence first flush). When the sump is full a ballcock floating on the wastewater surface blocks entry to the sump allowing the cleaner water to flow passed it and into the storage tank.

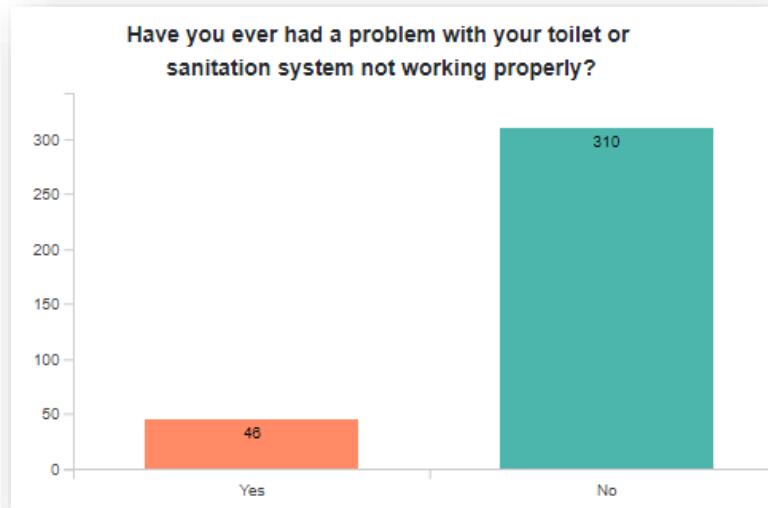
- Handwashing teams to go around schools and communities creating awareness
- Happy with WASH services, especially PWD sanitation services
- More sinks and showers and hygiene products in public places
- Lower prices of services to public
- Install filters to filter water
- Encourage community to use water more wisely
- Increase the amount of water storage per household, and improve timeliness of roof repairs, so can collect large amount of water during rainy seasons
- When water is distributed, larger households to receive more water (i.e., per person basis)

## HOUSEHOLD SANITATION

### Type of sanitation system

Three hundred and fifty-two respondents answered that they had a septic tank system at home, three had composting toilets, one had no facilities (bush or lagoon/beach) and another had another type of system not otherwise specified.

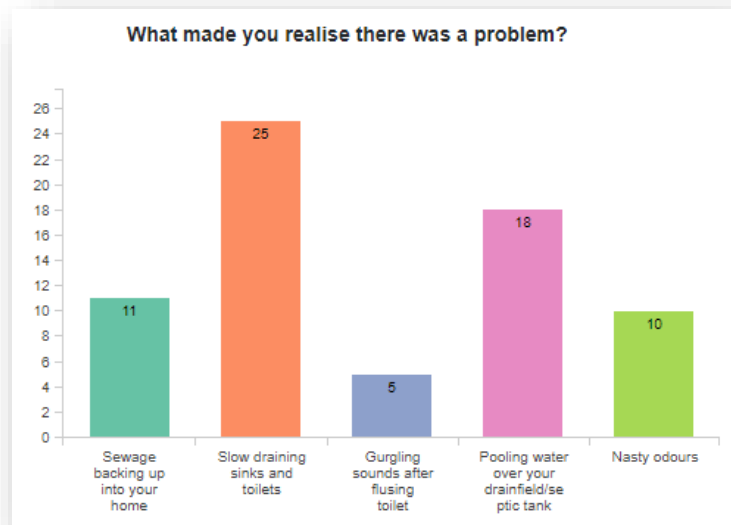
Five per cent of respondents did not have a toilet at home. Ten of these respondents used the beach, bushes or lagoon, seven used a neighbour's toilet, and two went somewhere else. Using a neighbour's toilet increases the pressure on the neighbour's septic tank and water supply, whilst using the environment risks introducing pathogens where children and others may come into contact with it (open defecation).



### Maintenance issues

Thirteen per cent (49 respondents) said they'd had a problem with their toilet or sanitation system not working properly in the past and 6.4% (23) recalled issues with sewage/foul smelling water pooling on their property after heavy rainfall. Of those who reported having a problem with their septic system in the past, most became aware of it when their sinks began draining slowly (25), when they noticed pooling water over their drain field or septic tank (18), or because sewage began backing up into their home (11). Others noted nasty odours (ten), gurgling sounds after flushing (five), lush growth of vegetation over the drain field (two), insect or vermin (two), unexplained sickness in the family (vomiting and diarrhoea) (two) or other reasons not specified (six).

Only 63% reported being able to fix the problem. Of the 29 respondents who were able to fix the problem, the vast majority were able to have it fixed within a week, but one respondent told us it took them two weeks, one said one month and another said it took them approx. six months.



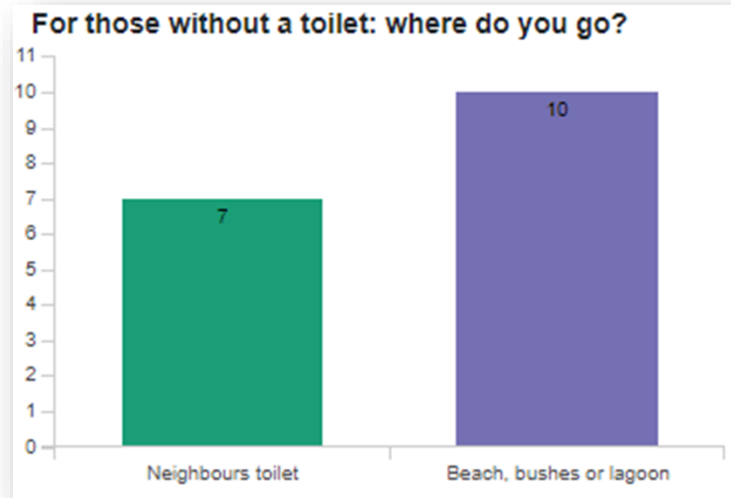
When asked how the problem was fixed, most mentioned the assistance of the Public Works Department (PWD) with some mentioning that they reached out to plumbers or family members. When describing how it was done,

some mentioned removal of sludge from the septic tank by the waste authorities, or objects causing blockages being removed or digging a completely new sanitation system.

Eighty per cent of respondents told us they wanted to know more about the operation and maintenance of their sanitation system.

### Health and environmental risk

Wastewater presents a very high risk of infectious disease transmission because of the presence of human faecal matter and human pathogens. Atolls are very poor at reducing coliforms and pathogens present in wastewater because the ground is too coarse to slow the progress of the wastewater and there is too little microbial activity in the soil to effectively breakdown and treat it. This means that even when the system is working correctly, it may be draining highly polluted effluent into the aquifers below. In the case of Funafuti, these are relatively shallow and can rise to the surface during high tides and heavy rainfall. The public health risk is exacerbated in Funafuti because houses are located close to each other and it is difficult to stay clear of dangerous septic water when problems do arise.

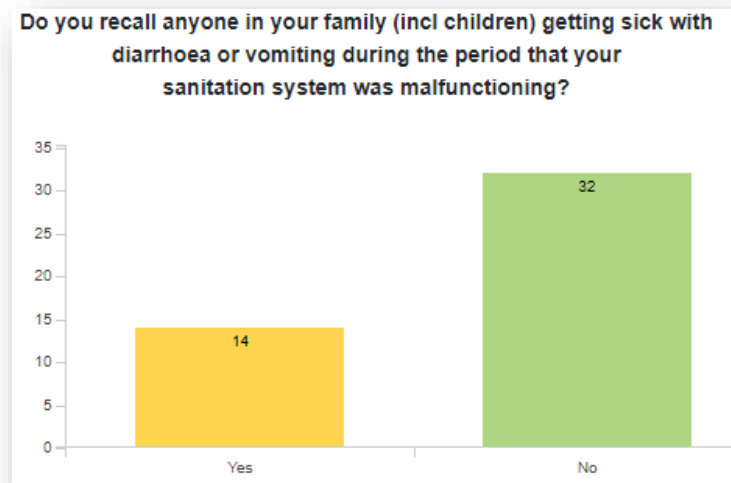


### Links to disease

When asked whether they recalled anyone in their family (including children) getting sick with diarrhoea or vomiting during the period that their sanitation system was malfunctioning, 30% said yes.

### WASH surveillance and reporting

It is recommended that surveillance data and epidemiological investigations occur on diarrhoea and vomit related illness to build an understanding of the nature of the risk of disease from septic system malfunction in Funafuti and beyond. The lack of WASH surveillance and reporting in Tuvalu is a major gap in the ability of decision makers to make informed policy and standard setting decisions that would prevent illness spreading through the population.





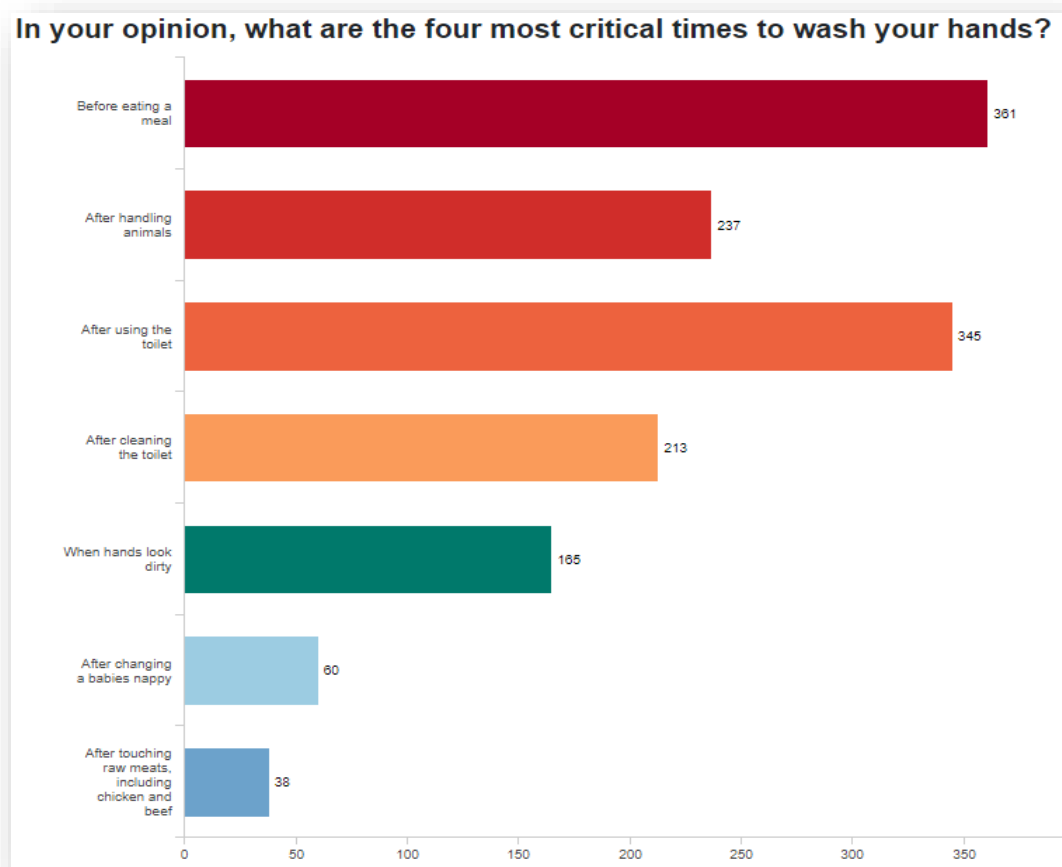
## HYGIENE

### Hygiene practice

Good hand hygiene practice is recognised as being the most effective method in preventing the spread of communicable diseases. Washing and drying hands well at key times such as after using the toilet prevents gastrointestinal diseases by removing faecal pathogens which could otherwise enter the gastrointestinal tract, which we refer to as the faecal oral route.<sup>14</sup> Other key times to wash hands are after providing hygiene care to someone who is sick with vomiting or diarrhoea, before preparing or eating food, after handling raw meats or tending to pigs or chickens. Washing hands after coughing or sneezing into hands can also reduce the spread of respiratory diseases such as COVID-19.<sup>15</sup>

The respondents were asked to choose the four most critical times to wash hands (see graph). Collectively, the respondents top four priorities were:

- Before eating a meal (96%)
- After using the toilet (90%)
- After handling animals (60%)
- After cleaning the toilet (nearly 60%)



<sup>14</sup> Hands should be washed with water (free of contamination) and soap for approximately 20 seconds then dried thoroughly: <https://www.unicef.org/coronavirus/everything-you-need-know-about-washing-your-hands-protect-against-coronavirus-covid-19>

<sup>15</sup> <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7967740/>

## Hygiene education

Schools are a great place to teach about hand hygiene. Young children easily learn habits such as singing a song whilst washing and drying their hands which can become a lifelong habit. Germ theory can be introduced at pre-school level, with pathogens described as “germs”, and a more scientific understanding built on at school and high school. A more sophisticated understanding will empower high school graduates in Tuvalu to maintain their rainwater and septic tank systems. It must be noted that students were very articulate in explaining why they did not want to use toilet facilities at their schools in terms of hygiene, giving practical recommendations in their answers (later in the survey).



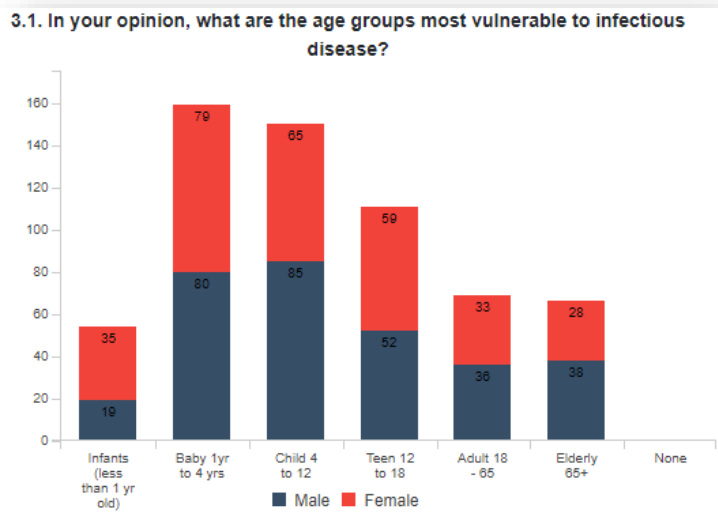
## Hand hygiene practice

Hand hygiene needs to be taught in such a way that people understand that wetting hands for twenty seconds loosens dirt that may contain pathogens from the skin, and that drying them removes them, which is why potable water, soap and a clean laundered towel is needed. People also need to know how to maintain their roof water and sanitation systems optimally and how this links to hygiene and disease prevention. Indeed, a targeted food safety and personal hygiene campaign is needed for those who are responsible for most of the food preparation and care for children and other dependents.

It’s important to wash hands before preparing a meal, after handling raw meat and to keep kitchen surfaces clean and hygienic (one respondent said they never cleaned surfaces in the kitchen due to concern that the wood would wear out). While it is important to wash hands before eating a meal this will not prevent illness if the meal has already been contaminated by a cook who was unaware that they could contaminate it with unwashed hands. A small number of respondents prioritised hand washing after changing a baby’s nappy. Often it will be the person who is caring for a baby who will also be preparing meals, which highlights the need for better understanding about the practical risks.

## Vulnerability to infectious diseases

When asked: “What age groups are the most vulnerable to infectious disease?” 40% said babies one to four years old and 40% said children five to 12 years old. Thirty per cent identified teens and nearly 20% said adults were the most vulnerable to infectious disease. Only 14% of respondents identified infants under one as being the most at risk from infectious disease and only 18% identified those who are 65+. From a public health perspective, the most vulnerable to infectious disease are infants and the elderly (i.e., those whom most respondents thought were least vulnerable).



## COVID-19 messaging

In the wake of the COVID-19 pandemic, considerable resource and effort was put into campaigns to raise community awareness of the importance and best practice for hand hygiene. A key element of COVID-19 messaging was focussed on prevention by cleaning hands.<sup>16</sup> In Tuvalu, COVID-19 prevention messaging was coordinated and delivered by the public health department in consultation with the WHO with assistance from relevant local NGO's such as Red Cross.

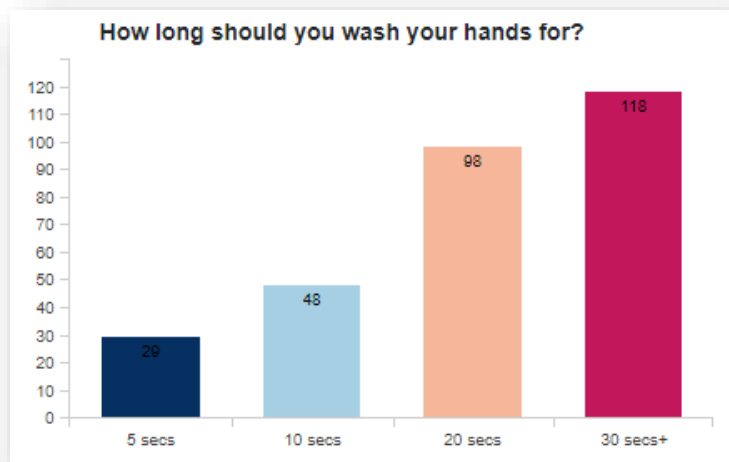
There may be limited capacity to manage and respond to large outbreaks of disease if left unchecked in Tuvalu so prevention and protection of health are critically important in the Tuvaluan context. We wanted to find out if the disease-prevention education on COVID-19 had been effectively delivered and whether lessons could be taken for the delivery of future health protection campaigns.

Three hundred and sixty-two respondents confirmed that they had received the advice though **only sixty respondents recalled the instructions given on how to wash their hands.**

## Effectiveness of the campaign

One of the main messages of the COVID-19 hand hygiene campaign was that you wash your hands for 20 seconds and then dry your hands thoroughly using a clean towel. Singing “the happy birthday song” twice was suggested as a way of measuring 20 seconds and has been suggested by CDC and others<sup>17,18</sup>. Respondents were asked “How long should you wash your hands for?” As alluded to above, only a small proportion of respondents answered this question correctly (approx. 25%). Thirty per cent said 30 seconds, 13% said ten seconds and 8% said five seconds. A further 22% said they did not know. This may reflect a need to do follow-ups or repeat a campaign to improve recall in a wider group of people, and ensure messaging is clear and easy to understand.

Of those who said they'd received advice, 325 had heard the advice on the radio, 201 had seen it on TV, and 171 had received advice from a doctor, nurse or medical facility. Whilst these were the main vehicles for messaging, some had heard it through their workplace, school or through word of mouth.



<sup>16</sup> <https://www.who.int/southeastasia/news/detail/15-10-2020-handwashing-an-effective-tool-to-prevent-covid-19-other-diseases>

<sup>17</sup> <https://www.cdc.gov/handwashing/when-how-handwashing.html>

<sup>18</sup> It may be appropriate to examine whether the song Happy Birthday was culturally appropriate as a way of measuring 20 seconds. It is also easy to forget whether to sing the song once (10 seconds) or twice (20 seconds).

### **Understanding disease prevention**

Respondents were asked how washing hands might prevent vomiting and diarrhoea. Their answers on the whole showed a reasonable understanding of the link between hand hygiene and avoidance of disease. However, for some, there was little understanding of this. The following summary of responses gives an indication of the present understanding about this in the community in Funafuti:

- Many mentioned that it protects from sickness, including diarrhoea, vomiting, Covid 19, scabies;
- Many mentioned that handwashing removes and kills germs on hands (some specified bacteria, viruses, and one even mentioned fungi);
- Many made the link between handwashing and disease transmission, some pointing out that removing germs prevents disease transmission;
- A few mentioned that this disease transmission make take place when germs come into contact with food so handwashing prevents this from occurring;
- Some put importance on handwashing with soap and water. (This might shed light on why a few respondents in other questions would not wash their hands when there was no access to soap, when in fact washing hands without soap, is better than not washing them at all.);
- Some only responded by saying handwashing removes dirt;
- Some didn't know or didn't answer the question.

We asked who it was that taught them about good hygiene practices. Perhaps unsurprisingly, the primary source for this was parents (250 respondents). This was followed by healthcare workers (170), the media (144), school (78), formal hygiene-based training (31), other family or friends (30), NGOs (six) and other sources (31).

### **Impact of poor access to WASH**

Inadequate access to sanitary facilities for hand hygiene, bathing or showering, and toileting impacts significantly on disease prevention regardless of an individual's knowledge.

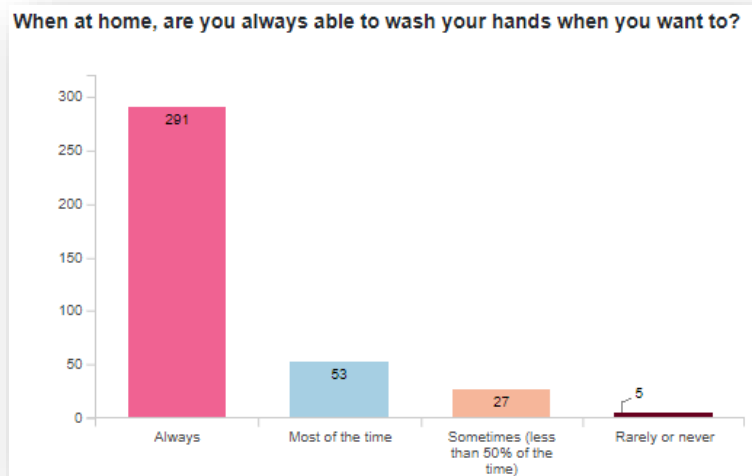
It is of primary importance that people can wash their hands in potable water and dry them with laundered or disposable towels. Antibacterial soaps kill bacteria, but they are less effective if hands are soiled and can become further contaminated if the water being used to rinse is contaminated with pathogens or the towels used to dry them are unlaundered and contaminated.

## PERSONAL HYGIENE AT HOME

It is unacceptable that the most vulnerable communities may be unable to use the simplest of hygiene methods to protect themselves and their loved ones. However, according to UNICEF, forty per cent of the world’s population, or 3 billion people, do not have a handwashing facility with water and soap at home.<sup>19</sup>

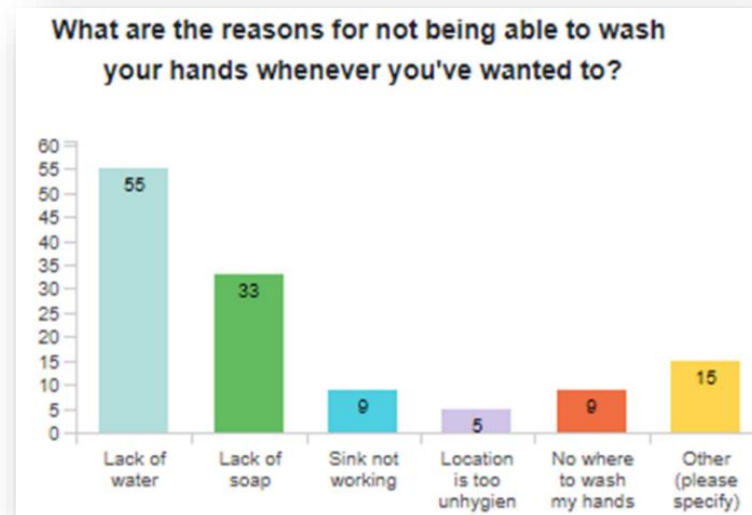
### Access to handwashing facilities

We asked whether the respondents were always able to wash their hands when they wanted to at home. Three quarters replied that they always could, while 14% said they mostly could, 7% (27) said they sometimes could (that is, they can wash their hands when they want to less than half the time), and five respondents said they rarely or never could. The most common reason that respondents could not wash their hands when they wanted to, was reportedly a lack of water (55 respondents) while 33 mentioned a lack of soap, nine said the sink was not working, another nine said there was nowhere to wash their hands, and five said the location was too unhygienic.



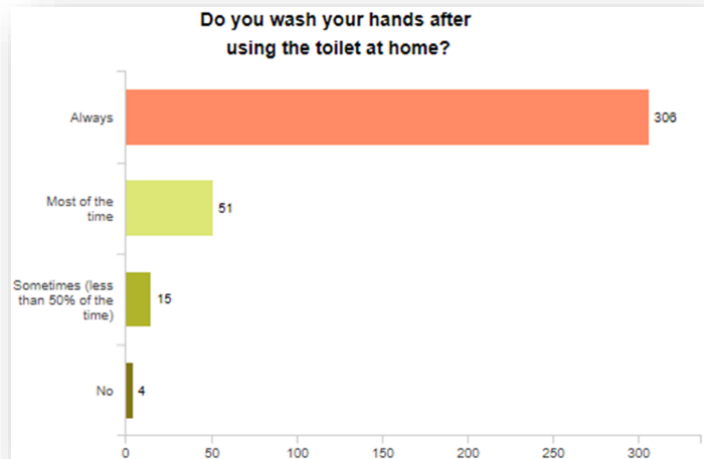
### Handwashing behaviour after using the toilet

Eighty per cent of respondents said they always washed their hands after using the toilet at home. 51 respondents said they mostly did, 15 said they did less than half the time, and four respondents said that they never washed their hands after going to the toilet.



<sup>19</sup> <https://www.unicef.org/press-releases/fact-sheet-lack-handwashing-soap-puts-millions-increased-risk-covid-19-and-other>

When at home, 75% of respondents use a sink next to the toilet to wash their hands after using the toilet or go to the bathroom. However nearly 20% said they washed their hands in the kitchen or elsewhere on the property. Of particular concern were the 4% (14) who had nowhere on the property to wash their hands. Ideally, every household would have at least two water supply outlets within the home – an easily accessible sink for hand hygiene near the toilet, and another in the kitchen primarily for food safety purposes. Eighty per cent of respondents said soap was always available, 13% said it was mostly available, 6% said it was available less than half the time, and nine respondents said it was never available.



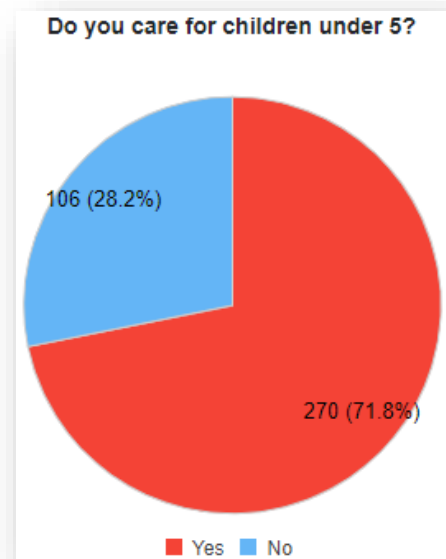
We asked to see where members of the household most often wash their hands and were able to observe 90% of households (some did not give permission or had other reasons). Of these, 60% were a fixed facility (sink/tap) in a dwelling, 30% were a fixed facility (sink/tap) in a yard or plot, and three were a mobile object (bucket/jug/kettle). We also observed the availability of water at the place for handwashing. Water was available at all places for handwashing except for seven. Soap or detergent was available at 96% of handwashing facilities.

### Bathing practices

Ninety-nine per cent of respondents said they bathed daily, with the remainder bathing every two days. and ninety per cent reported bathing in a bathroom at home. Answers to other questions suggest that bathing in the sea may be common.

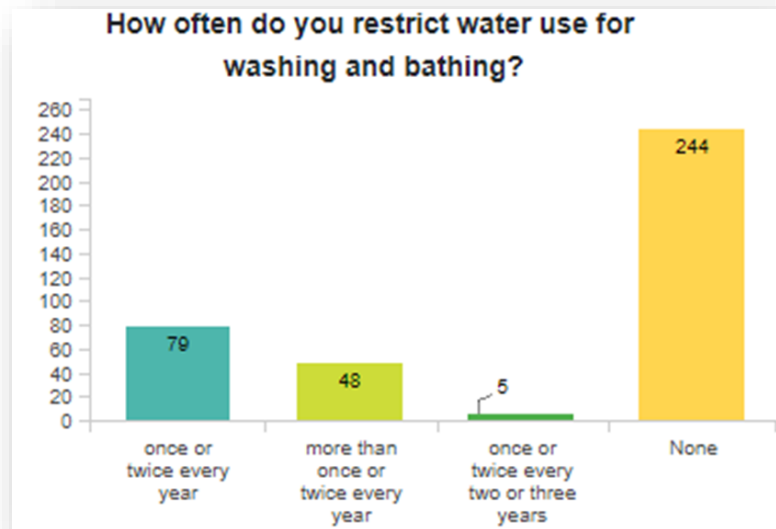
Seventy per cent of the respondents said that they provided care for children under five with approx. 20% of these being infants under 12 months old, 40% being one to three years of age and the remaining 40% between four and five years of age. Nearly all caregivers (98%) reported bathing their children under five every day one bathed every two days, two bathed once or twice a week, and three bathed less or more often.

Approximately 80% of children and infants under five are bathed in the bathroom at home, and 87% were changed and cleaned after they went to the toilet. Only 80% of carers were always able to wash their hands after changing and cleaning their children and infants.



### Restriction of water due to drought

Respondents were asked “Do you ever restrict water use for washing and bathing to conserve water?” There are public health concerns arising from the risk of infectious disease when people restrict water use for washing and bathing. One hundred and thirty-two respondents said they did conserve water from time-to-time. These respondents were asked “How often do you restrict water use for washing and bathing?” Thirty-six per cent said more than once or twice a year, 60% said once or twice a year, and four per cent said once or twice every two to three years.



### Hygiene behaviours when restricting water use

They were also asked how they and their family wash and bathe when they are restricting water use to conserve water. Their answers included: using water for food preparation only; using water for food preparation and care of baby only; stopping laundry; and rationing water used for bathing and personal hygiene. Some answers further specified that no water was available for individual older children and adults at all, others stated that one bucket would be shared between two, or one bucket of water was available for each person. Some answered that they swam in the sea (commonly mentioned, sometimes with a quick rinse afterwards using fresh water); using groundwater (especially for uses other than food preparation); getting water from the convention centre; or using hygiene facilities at work.

Sanitation is also put at risk at times of drought with people altering their behaviour dramatically to reduce their water usage. Reduced laundering, especially of hand towels, washcloths and sanitary pads, can cause infectious disease transmission or skin complaints. Not being able to flush the toilet each use can attract flies, and causes unpleasant odours that reduce wellbeing as well as creating a public health risk.

### Drying hands

Whilst the need to wash hands may be easily and widely understood, many may be surprised at the critical part drying hands plays. It has been shown that the number of bacteria translocating on touch decreased progressively as drying with an air or cloth towel system removed residual moisture from the hands.<sup>20</sup> We asked respondents whether they always dried their hands after washing them: 66% said they did, 14% said they mostly did, 13% said they did less than half the time, and 5% (20) said they never did. Over 70% of respondents said they used a laundered towel to dry their hands after washing them at home, 12% used disposable paper towels, 8% used another means and 10% (36) said they don't dry their hands on anything. Note that when we combine the responses to these two questions, we see that a combined 36 respondents never dry their hands on anything, which represents 10% of the original population sample.

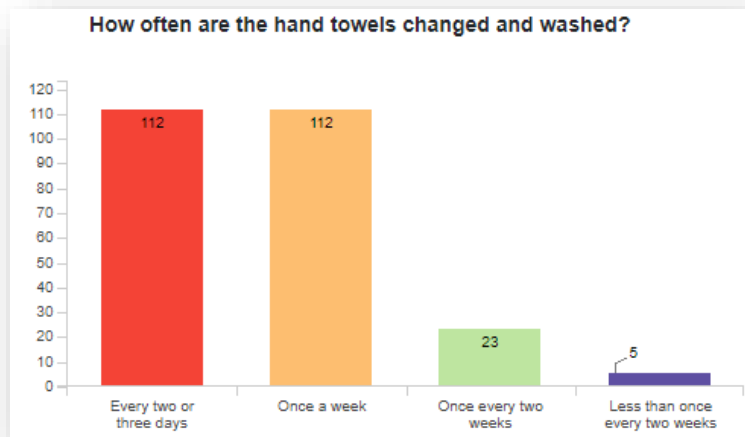
Of those who dried their hands on laundered cloths, these were most often changed and washed every two to three days (44% or 112 respondents) or every week (also 44% or 112 respondents). Twenty-three

<sup>20</sup> Patrick DR, Findon G, Miller TE. Residual moisture determines the level of touch-contact-associated bacterial transfer following hand washing. *external icon Epidemiol Infect.* 1997;119(3):319-25.

respondents said the towel was changed and washed once every two weeks, and five respondents said it was changed and laundered less often. Towels should be changed and washed frequently, as a damp or soiled towel can be a source of pathogens and disease transmission.<sup>21</sup> Laundered towels were used by 275 out of 316 respondents (87%), disposable paper towels by 47 respondents, five had nothing to dry their hands with, and one used another means not specified. The laundered towel appeared clean 80% of the time, medium dirty 15% of the time, 11 towels appeared very dirty and seven towels were described as “other”

### Laundering of towels

In analysing responses about personal hygiene, the issue of laundering arose. It is important to address this issue as laundering is likely to be restricted in times of drought. Ideally sufficient towels would be available so that each family member would have their own towel and these would be dried in sunlight after use. Certainly, if anyone is sick, it is particularly important that they have their own towel to avoid transmission to other family members. Shared towels should be changed daily and dried in sunlight, and laundered as frequently as water supplies allow.<sup>22</sup>



Surfaces contaminated with bacteria, germs or protozoa can cause illness. To clean these effectively clean cloths and soap and/or disinfectant is needed.<sup>23</sup> Tea towels and cloths for cleaning should also be changed daily, dried in sunlight, and laundered as frequently as water supplies allow.

<sup>21</sup> <https://www.cdc.gov/handwashing/show-me-the-science-handwashing.html>

<sup>22</sup> <https://ajph.aphapublications.org/doi/10.2105/AJPH.20.8.820>

<sup>23</sup> The best disinfectant is actually the cheapest- chlorine bleach (hypochlorite), because it is effective against protozoa, which form difficult to kill cysts in the environment. If chlorine bleach is applied freshly diluted to the appropriate concentration in a spray bottle, then the excess can be allowed to evaporate on the surface. Disinfectant should not need to be tipped down to the septic tank, as it may damage treatment processes. It is best not to store diluted bleach for too long, and it must not be stored in food containers or within reach of children. Gloves and masks should be worn when using the spray to protect the user.

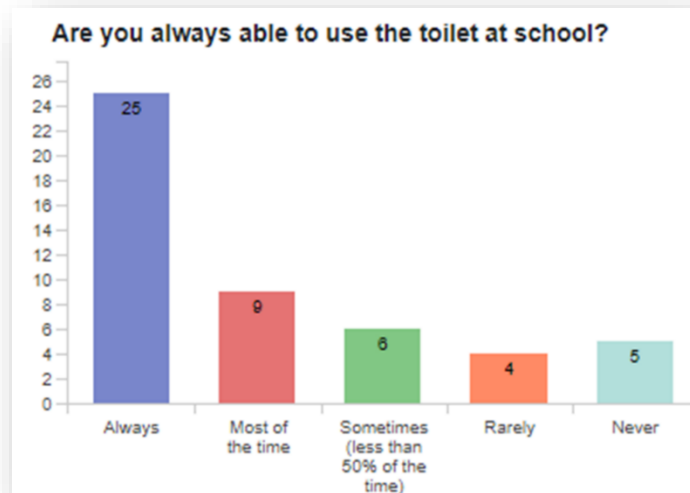


## PERSONAL HYGIENE AT SCHOOL

In regards to hygiene at school we asked a number of questions regarding access to toileting and handwashing facilities.

### Access to safe and secure facilities

We asked students “Are you always able to use the toilet at school” Of the students who responded, half said that they were always able to use the toilet at school, and a further 10 said they were able to use the toilet most of the time, but the remaining 15 students responded that they either rarely, never or only some of the time could wash their hands at school. When then asked why they were not always able to use the toilet facilities at school answers included: “it’s full and sometimes dirty”, “I feel really uncomfortable around lots of kids at school”, or “it’s in very bad condition, and the toilet smells like pee all over the floor”, or “it’s very unclean and kind of dark as well”. Responses about it being very



unhygienic and unclean were common. There were also responses about broken infrastructure, and that at certain times “there’s a shortage of water at school so they close the toilets”. One respondent said: “there are too many people lining up to use the toilet, there’s no toilet paper, and sometimes the toilets are not functioning well (broken or no water to flush the toilets)”. Students who were unable to use the toilet at school said that they would go home, to a relative’s house, a friend’s house, or “use the teacher’s toilet because there was privacy there”. The responses suggest a good understanding that the circumstances they face each day at school is unacceptable and highlights their frustration with not being able to maintain their own personal hygiene while attending school.

### Access to handwashing after toilet use

We then asked students whether they were always able to wash their hands with soap and water after using the toilet at school. Of 49 students that responded, a majority said they were either always able to, or able to “most of the time”. However, approximately one third said they either couldn’t wash with soap and water most of the time or rarely could. It may be that there are differences in the availability of soap at each school from day to day, or between schools, or that some of the students bring soap from home or have access to other means when needed teachers provide their own supply for their students sometimes).

Regardless, a lack of soap at *any time* after going to the toilet is a high-risk practice as it could lead to infectious disease for an individual and be the precursor for outbreaks of infectious in the community.

Students told us that “sometimes the soap is on the floor or isn’t provided”, “the sink doesn’t work”, “they find it hard to look for a place to wash their hands”, they don’t want to wait in a queue for the sink”, “sometimes there’s no water available”, and that “the facilities are unclean, smelly and unhygienic”.

### **Adequate supply of running water?**

We further asked whether the water was stagnant (from a bowl or bucket) or running water? Three quarters saying it was running water, one fifth saying it was in a bowl or bucket and one student saying other. Washing hands in a shared bowl of stagnant water is essentially contaminating the water with pathogens and providing a potential pathway for infection. The more children that use it without it being changed, the more contaminated it will become. For this reason, it is far safer to use running water sourced from a rainwater system than a shared bowl that is not changed after each use.

### **Student feedback**

We then asked students how toilet and handwashing facilities at school could be improved. They suggested cleaning the floor when it is wet, fixing toilets, provide soap, toilet paper and water, improve cleanliness, check on the toilet during the day because small children sometimes throw their wrappers in toilet or drop the soap on floor; improve personal safety, locate at least one sink inside the toilet, fix the lighting so it is brighter, open the school more often for night studies (presumably to reduce the number of students using the facilities at once), provide a proper place to put the soap, increase water storage so that water doesn’t run out, increase supplies of soap so that there is always soap to wash hands with, and ensure toilet paper and other supplies don’t run out, improve privacy, and always have water supply to flush the toilets properly.

#### **PERSONAL HYGIENE AT SCHOOL**

##### **Feedback included:**

- “It’s full and sometimes dirty”,
- “I feel really uncomfortable around lots of kids at school”,
- “Its in very bad condition, and the toilet smells like pee all over the floor”,
- “It’s very unclean and kinda dark as well”
- “Its very unhygienic and unclean”.
- “The toilet is broken and so is the door”
- “There’s a shortage of water at school so they close the toilets”.
- “there are too many people lining up to use the toilet, there’s no toilet paper, and sometimes the toilets are not working
- “They’re broken and there’s no water to flush the toilet”

### **Increased frequency of cleaning required**

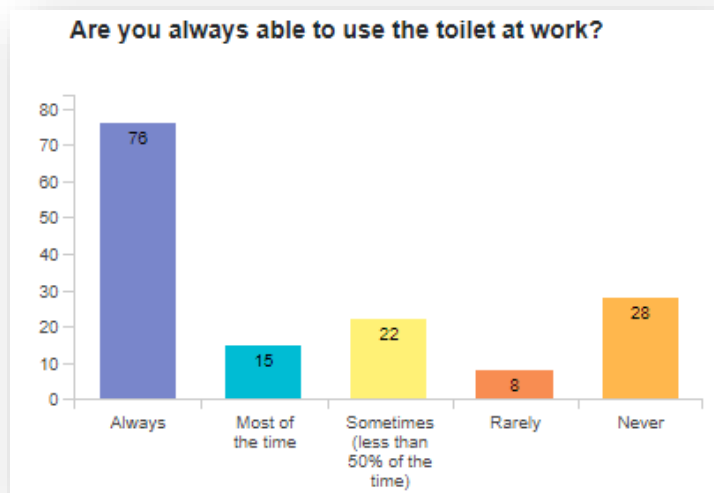
Cleaners should be employed for any heavily used toilets wherever they are located, and schools are an obvious example. There may be a need for toilets to be cleaned more regularly than they are at present. For example, if a school has the toilets cleaned prior to the school opening in the morning, then again at the end of the day, then the toilets will remain unhygienic for the entire time that the school is in operation each day other than first thing in the morning. Further, sufficient toilets and handwashing basins are needed in schools and preschools to prevent queuing – this is particularly important in schools and childcare facilities because queuing rushes pre-schoolers and students through their hand hygiene routine.

## PERSONAL HYGIENE AT WORK

One hundred and forty-nine respondents said they were workers and of these, half responded that they were always able to use the toilet at work, and a small percentage said they were able to use the toilet “most of the time”. However, 15% (22 workers) said they could only sometimes use the toilet at work (less than half the time), seven said rarely and nearly a fifth (28 workers) said they could never access a toilet at work.

When then asked why they were not always able to use the toilet facilities at work answers were similar to the students (disrepair, lack of cleanliness, water shortages). However, some reported being too shy to use the toilets at work, perhaps due to them being shared with colleagues of the opposite gender (particularly relevant for women managing their menstrual hygiene needs). They also included “no toilets”, “sometimes the floor is wet and this makes it look disgusting so I just usually go to a friend’s house close to my workplace”, “don’t feel comfortable as males and females access the same toilets

so there is no personal safety”, “too many people sharing the same toilet increases the risk of passing diseases that you catch from the toilet”, and “there are no public toilets in Funafuti!”. Workers who needed to use the toilet at work but can’t report either going home, or to a relative or friend’s house.



### PERSONAL HYGIENE AT WORK

When then asked why they were not always able to use the toilet facilities at work answers were **similar to the students (disrepair, lack of cleanliness, water shortages)**.

### Hand hygiene at work

We then asked workers whether they were always able to wash their hands with soap and water after using the toilet at school. Of those workers who had access to a toilet at work the vast majority said that they were always able to or able to most of the time. Eight respondents said they could sometimes wash their hands after going to the toilet a work (less than half the time), and two said rarely.

We then asked workers how toilet and handwashing facilities at work could be improved. Their suggestions were similar to the students (provision of soap, toilet paper & toilet paper; improving cleanliness by employing cleaners; provision of water during times of shortage; improving lighting) and many also included issues of personal safety including the provision of separate toilets for women and men. Three respondents offered specific suggestions - one mentioned the need to cater vulnerable people like people living with a disability, the elderly and transgendered people, another mentioned the

that there was only one handwash basin at their preschool<sup>24</sup> and the toilet was designed for toddlers but there was no toilet or handwashing facilities designed for teachers. Another mentioned the need for separate basins and toilets for teachers, so this is either reflective of a major problem at one location or a systematic issue across the sector, in either case it is quite unacceptable for adults to be sharing with their students given the health risks involved, not to mention the privacy needs of female teachers, and it should be investigated and highlighted to the boards or departments responsible.

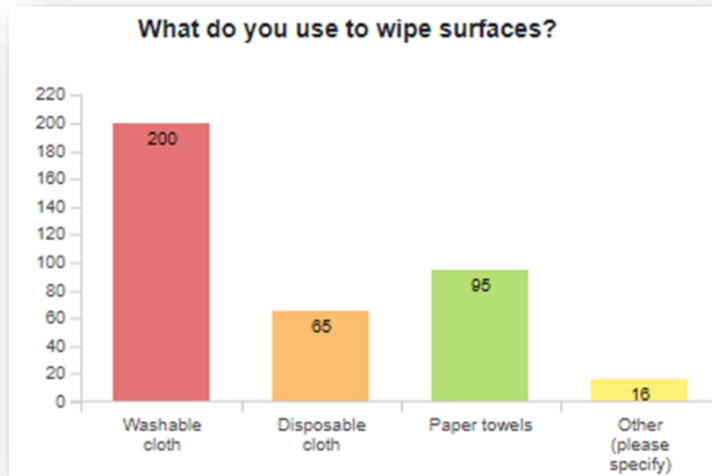
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<sup>24</sup> For comparison, New Zealand requires a minimum ratio of one toilet and one sink for every 15 persons permanently in attendance.

## ENVIRONMENTAL HYGIENE AND SURFACE CLEANING

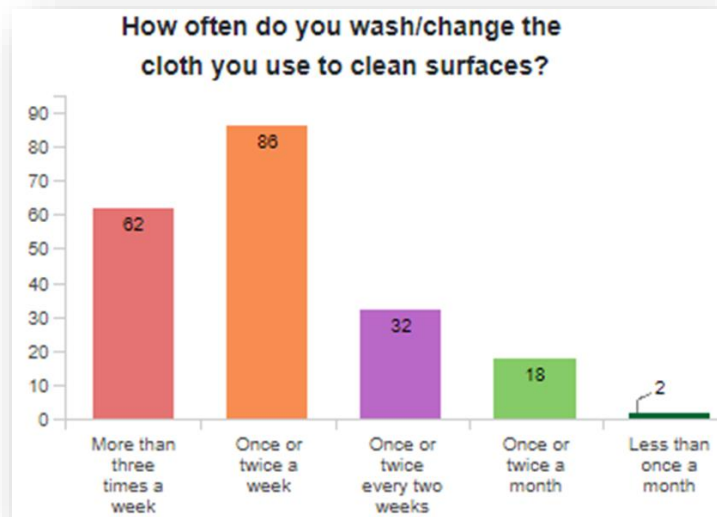
### Frequency of cleaning

Respondents were asked “Do you always clean and disinfect surfaces and at home before and/or after using them?” Eighty-six per cent answered yes to this, with the remainder answering either most of the time or less than half the time. When asked the most common reasons for not being able to clean and disinfect surfaces, two mentioned others doing this job in the household (sister, mother), one mentioned that although they did the cooking, they preferred not to clean the wood as it might become damaged, another mentioned a lack of water, and another said they didn’t have a table to prepare on.



### Cleaning materials

Over half of the respondents (200) use a washable cloth to wipe surfaces, a quarter reported using paper towels and the rest indicating the use of a disposable cloth (17%). The frequency with which the washcloth was changed varied. A third said they changed it more than three times a week, 43% said once or twice a week, 16% (32) said once or twice every two weeks, 18 said once or twice a month and two said less than once a month.



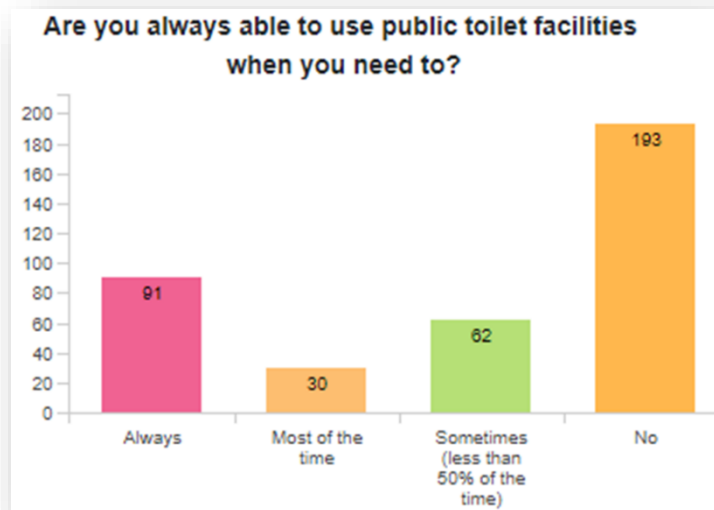
## PUBLIC TOILETS

Respondents were asked to identify their main concerns when thinking about public toilets in Funafuti. The most common response was that more public toilets were needed across Tuvalu and that the toilets needed to be open for longer hours, that they needed to be kept clean, well-stocked with soap, toilet paper and paper towels, that damage is repaired in a timely manner, and that they are constructed with privacy and safety in mind. Others noted that they would need to have running water at all times, with one saying that this is particularly important during drought periods, because that is when public facilities would be most needed. Only 23% of respondents said they would be prepared to pay a user fee to use properly serviced, safe/secure and clean public toilets.

### Accessibility

A quarter responded that they were always able to use public toilets when they needed to. Eight per cent (30) said they were able to use a public toilet most of the time, 17% (64) said sometimes (less than half the time), but half said they could never access a public toilet.

The main reason given for not being able to use a public toilet when needed was that there were no public toilets available. A couple of respondents mentioned specific diseases such as ringworm and scabies being a risk for them if they used public toilets in Funafuti. One hundred and ninety-three respondents told us that they would go to a friend or family member's house because they couldn't or wouldn't use publicly available toilets, or they would go to their workplace or school (30), go in the lagoon (25), go in the bushes (seven) or otherwise not specified (80).



We then asked respondents whether they were always able to wash their hands with soap and water after using public toilets. Just under half said that they were always able to, 10% said they were able to most of the time, 13% said sometimes (less than half the time), and 30% said never.

#### Feedback on the main concerns regarding public toilets

These would need to be properly maintained and provide a safe and secure service, **particularly for women, girls and boys.**

**Women and girls need access to hand washing facilities with potable water, soap and clean laundered towels when handling menstrual aides such as tampons, pads and menstrual cups. They also need privacy, and for menstrual aids to be available when needed and affordable.**

**Where should public toilets be located in Funafuti?**

Respondents suggested that the public toilets be situated at parks, where most people picnic (including Northern end of island), in public places around Funafuti, away from public buildings, in each community in Funafuti, in the middle of Funafuti where it is most crowded with people, and near the airstrip.

From these responses we can see a wish for public toilets from this cross section of the community. Respondents made it clear that these would need to be properly maintained and provide a safe and secure service, particularly for women, girls and boys. Women and girls especially need access to hand washing facilities with potable water, soap and clean laundered towels when handling menstrual aides such as tampons, pads and menstrual cups. They also need privacy, and for menstrual aids to be available when needed and affordable.

## CONCLUSION

The Funafuti Hygiene Behaviours and Practices Survey finds that hygiene practices and behaviours in Funafuti are shaped significantly by the condition and accessibility of sanitary facilities and the availability of fresh water. Poor access to WASH facilities across all settings both at home and away affects a significant proportion of Funafuti residents, and it may be reasonable to suggest that this will be mirrored in other populated locations around the country.

Inadequate quantities of water, which are common for some households in Funafuti lead many to self-manage their water use. This leads to reduced frequency and quality of personal hygiene practice and even results in open defecation in some instances. Bathing is delayed and surface cleaning, washing dirty laundry and other recommended hygiene behaviours are disrupted during these times to manage the low amount of water available. Low water levels in water storage tanks result in increased concentrations of pathogens which put consumers at higher risk of infection. Families are forced to use the water supplies of their neighbours or extended families which accelerates the depletion of available fresh water overall, reduces the protective effect of good hygiene practices and increases the risks of disease outbreaks occurring across the community.

Schools are a setting where WASH facilities are of a condition that negatively impacts on good hygiene practices, both of students and teachers. Facilities are reported to be poorly maintained and are often unhygienic or unavailable due to breakages, lack of water or because they are too unhygienic to use. Facilities for menstruating girls are very limited meaning girls will often need to return home to address their menstrual hygiene needs, and teachers are having to use children's toilets because the staff facilities are non-functional. Having so many persons present in conditions such as those described by respondents is a significant public health concern as disease could quickly spread among pupils and to their family members.

We found that there is a reasonable understanding of the link between good hygiene practices and personal protection against disease, though, on the basis of the responses we received, there are significant misunderstandings and gaps in knowledge. Improving hygiene awareness and education is recommended and will likely have a significant impact on overall health of the community, particularly if targeted toward children and carers and delivered effectively and consistently. With this in mind, it is recommended that agencies with interests in protecting health through hygiene awareness raising, such as the public health department, Red Cross, TuFHA and Live and Learn, utilise the findings from this survey to guide their community activities, and to coordinate efforts around addressing the priority gaps and misunderstandings that we have identified.