
WASH in Short Agri-food Supply Chains and Marketplaces in Pacific Islands Countries: A FRAMEWORK FOR ASSESSING WASH-RELATED VULNERABILITIES TO HEALTH





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The applied examples used in this Framework from Vanuatu draw on findings from a wider project entitled "Supporting urban food security and livelihoods through improving WASH outcomes for protection against COVID-19 in markets and food /agricultural chains: WASH, foodways, markets, women and COVID-19 in Vanuatu". The broad goal of the research was to gain a deeper understanding of current levels of access to functional WASH facilities amongst food suppliers, vendors, and customers to improve hygiene and prevention measures against COVID-19 infection by building a shared understanding of WASH-related vulnerabilities across the food supply chain (from garden to market). See Love et al. (2020a, 2020b) for details.

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Efate vendor map by Rosanna Sanderson, using vendor data from Love et al. (2021a) and map data from the Pacific Community (SPC) Statistics for Development Division & Open Street Map (2021)

INTRODUCTION

The COVID-19 global pandemic has informed us about the resilience of family-based food production in many Pacific Island Countries (PICs) as well as exposing some of the vulnerabilities inherent in social, economic, political and biophysical systems. The pandemic has further raised global and regional awareness of the importance of good water, sanitation and hygiene (WASH) to providing some protection against not only COVID-19 but the many other infectious diseases that have long impacted human health and well-being across the region. Identifying where WASH-related vulnerabilities to infectious disease, ill-health and reduced well-being exist in the agri-food supply chain is essential to supporting resilience, protecting local food systems and livelihoods, and 'building-back better' into the future.

This assessment Framework is designed to assist organisations and people involved in supporting and governing WASH, food supply chains or women's livelihoods to identify where WASH-related vulnerabilities to infectious disease and ill-health are located in agri-food supply chains characteristic of many PICs.

WHAT IS A FOOD SUPPLY CHAIN?

A **food supply** chain comprises all the processes associated with how food travels from farm to plate. A typical food supply chain is made-up of raw materials, production, processing and packaging, transport and storage, wholesale distribution, and retail distribution to consumers. These myriad steps or 'links' in the food supply chain refer to industrial agricultural contexts or **long food supply chains**, which are characterised by many links, numerous and intermediaries and long distances.¹

PICs are typically characterized by **short food supply chains**, which means that there are few intermediaries (or links) between producer and consumer and relatively short transport distances (although there are some long food transport distances in Vanuatu (Nef et al., 2022)). Many short food supply chains (sFSCs) are made-up of simply the producer and seller - they are typically the same person or from the same family.

The most common examples of sFSCs are fish, select livestock (mainly chickens and pigs), and fresh garden produce (e.g. staple root crops such as yam, taro, sweet potato, mixed fruit and vegetables) and domestic cash crops such as kava;² across the Pacific, fresh produce is the most common (FAO, 2018). These products are typically sold at markets – either purpose-built market houses or other satellite marketplaces in and around populated urban and peri-urban areas.

This Framework is wholly concerned with short food supply chains and with garden produce – not fish or livestock.



Loading a boat for market, south west Malekula, Vanuatu

Mark Love

¹ Examples of long food supply chains in the PICs include all imported food stuffs as well as locally produced exports such as fish, dry kava, taro, sugar, oil palm, cacao and copra.

² Kava is a mild narcotic beverage (analgesic and calmativ) made from the roots of *Piper methysticum* Forst. F., Piperaceae. It is pounded, grinded or otherwise masticated in water, filtered, and drank both ceremonially and for pleasure. There are over 500 kava bars in Port Vila alone and, as a domestic cash crop, is a prime source of income for many people.

WHY SHORT FOOD SUPPLY CHAINS?

There is a considerable amount of literature on general food security in PIC contexts but there is a dearth of data on the specifics of sFSC's, especially in regard to agri-food markets.³ However, it is widely recognized that marketing fish and garden produce is one of the most common informal economy activities undertaken in PICs and is an especially important livelihood activity for women.

Short food supply chains in PICs are typically a family-based enterprise, with most households practicing what has been termed a "subsistence-plus" or a "hybrid" livelihood portfolio that combines producing food for family consumption, reciprocal exchange, and domestic sale (e.g. Rodman, 1987). Family-based farming – especially 'traditional' farming systems that comprise staple crops – often have high nutritional value and have proven to be an effective risk-mitigation strategy that provides food security amidst the many natural disasters that afflict the region⁴ as well as other crises, e.g. the increase in imported grain prices after the depreciation of the kina in PNG in 1994, tempering the humanitarian crises following the ethnic conflict in Solomon Islands and the civil war in Bougainville (McGregor et al., 2009). In short, protecting sFSC's is essential to sustaining local livelihoods and resilience.

Additionally, sFSC's are critical to the growing number of urban residents across the region. In 2015, 10 of the 21 Pacific countries and territories were defined as predominately urban while 12 had urbanisation rates greater than 40% (ADB, 2016:23). For urban and peri-urban residents, purchasing fresh food from markets is critical to their food security.⁵ Similarly, for food producer/sellers, urban centres are essential to their livelihood. Indeed, active engagement in sFSCs has increasingly become an important livelihood option for urban residents.

Increased urbanisation has seen a trend – more acute in some PICs than others – away from solely a producer/seller food system towards the greater involvement of intermediaries as urban based residents, without access to their customary land, create a 'new' livelihood portfolio by buying direct from farmers (who are often extended kin) and reselling at urban markets (e.g. Sharp, 2021). In short, as the Food and Agricultural Organisation note, family-farming is of critical importance as it plays a "vital role in producing food products for family and commercial consumption, employment creation, community development, improving food systems and protecting the local tradition and rural landscape" (FAO, 2018:xx).

Importantly, the majority of market sellers in the Pacific Islands are women.⁶

Since the onset of the COVID-19 pandemic, disruptions to supply chains have included local market closures, reduced availability of fresh produce, changes to market operating schedules, and more (cf. Love et al., 2021; Robins et al., 2021). Communities in PICs that were more reliant on imports were almost twice as likely to report food insecurity compared to those that were less reliant (Ferguson, 2022).

Enabling sFSCs to continue to operate, in the safest way possible, protects livelihoods.



Women vendors at the Port Vila municipal market house, Vanuatu

³ Exceptions include Bryceson and Ross (2020).

⁴ The majority of Pacific economies are in the top tier of the world's most vulnerable nations (see UNEP, 2014).

⁵ In Port Vila, Vanuatu, for example, the market is the main source of food for 92% of people that do not have a garden (World Vision-Vanuatu, 2018: 20).

⁶ Generally 80% or more, cf. Bowman et al., (2009), Georgeou et al., (2019).

WHY WASH?

Access to safe water, sanitation, and hygiene services is critical to alleviating poverty, attaining sustainable economic and human development, and the delivery of primary health care. Unsafe water, poor hygiene and the absence of basic sanitation leads to sickness, high health care costs and death. Safely managed WASH services are a fundamental part of preventing and safeguarding human health during infectious disease outbreaks, including the current COVID-19 pandemic where frequent and proper hand hygiene is one of the most important measures that can be used to prevent infection (World Bank, 2020).

PICs have amongst the lowest access to improved drinking-water sources and improved sanitation services in the world – only half of the population use improved drinking water sources and only one-third use improved sanitation (WHO/UNICEF, 2020). The COVID-19 pandemic has re-highlighted the importance of WASH, exposing gaps and inequities across the Pacific Islands region. In addition to social distancing, the ability to maintain good hand hygiene and sanitation practices at markets is important to the ongoing safe operation of markets and participation by market vendors, both of which are depended upon by short food supply chains for local food security.



Abigail Garea

Toilets at Namburu (satellite) market, Port Vila, Vanuatu

A FRAMEWORK FOR WASH IN SHORT FOOD SUPPLY CHAINS

This *WASH in Short Food Supply Chains Framework* aims to systematically describe the WASH requirements for people working at different points along short food supply chains. By identifying the WASH requirements, it is possible to identify in what ways the WASH situation is inadequate and aggravate vulnerabilities for workers/vendors to contracting infectious diseases, or other health and wellbeing issues.

The framework excludes customers and secondary actors, such as market workers, transport drivers etc., and is solely focused on the agri-food producer/seller.

In wanting to understand more about the WASH conditions in short food supply chains, it is helpful to identify the different settings in which short food supply chains happen – that is, produce gardens, the homes of market vendors, the transport they use to get to markets, and the marketplaces themselves (Figure 1).

In each of these settings, market vendors or food chain workers have WASH requirements – there are specific activities that happen in these settings that require water supplies, sanitation, or hygiene. The framework identifies these WASH requirements.

The lower section of the framework then describes the vulnerabilities that are created when those WASH requirements are unmet – in other words, what is it about the water supply, sanitation or hygiene situation that increases the risks of poor health and wellbeing.

This Framework was developed by combining literature describing how WASH influences the main pathogen transmission pathways (Figures 2 and 3), together with research and experience about the local market contexts within the larger composite, limestone and sand-based islands of Vanuatu, Fiji, and Solomon Islands. It is also relevant to Papua New Guinea. The Framework's applicability to other Pacific Islands Countries depends upon the specific activities workers/market vendors undertake and their associated WASH needs, from produce gardens through to the market house, and so may need revision for application to those contexts.

The *Framework* (Figure 1) provides a systems-based perspective on WASH needs in short food supply chains, and therefore can be used where systems-thinking helps to understand and improve current situations. The possible uses of the Framework include:

- Designing monitoring of WASH situations along the whole short food supply chain, or at any one of the settings (gardens, transport, markets, home) (e.g. for compliance and regulatory monitoring, WASH program achievements)
- Identifying vulnerabilities caused by inadequate WASH to be targeted for improvement through a WASH program/intervention
- Guiding cost assessments of WASH improvements.



Handwashing station, ABM Freswota market, Vanuatu

Figure 1: A Framework to assess WASH in Short Food Supply Chains in Pacific Island Countries (refer overpage for explanation of icons)



PRODUCE GARDEN



HOME



TRANSPORT



MARKET

FSC activities by food workers

- Food production activities in gardens (planting, weeding, harvesting etc)
- Most gardens not at home, and variable distances from home
- Hours to full days work in garden
- Food preparation for eating while in gardens

- Packing/preparing food
- Washing? Food
- Make packaging

- Transporting food and vendors to markets
- Often multiple people per "producer/HH, sometimes also children
- Transport often shared with other vendors
- Public or private transport
- Duration – short (10 mins to 6 hours)

- Food preparation (washing & packing produce)
- Set-up produce at stall
- Sell produce
- Personally communicate with customers, vendors and market management
- Full or multiple days
- Potential overnight stays at the market
- Pack-up food stall

WASH Requirements

- Water for drinking
- Water for hygiene
- Sanitation (personal)
- Personal hygiene products (cleansing agents, MHM)
- Personal hygiene facilities
- Drainage & wastewater treatment/disposal
- Faecal sludge management
- Hygiene product disposal

- Water for drinking
- Water for personal hygiene
- Personal hygiene products (cleansing agents, MHM)
- Personal hygiene facilities
- Water and products for household hygiene (especially fomites)
- Water for washing produce
- Safe Sanitation (personal)
- Drainage & wastewater treatment/disposal
- Faecal sludge management
- Hygiene product disposal

- Water for drinking (for longer trips, also:
- Sanitation (personal)
- Soap/cleansing agents for personal hygiene
- For shared transport, also:
- Water and cleaning agents for transport hygiene (fomites)

- Water for drinking (and containers)
- Water for personal hygiene (hand hygiene, bathing, MHM)
- Sanitation (personal)
- Personal hygiene products (cleansing agents, MHM),
- Personal hygiene facilities
- Water for washing produce
- Water and/or cleaning agents for hygiene of fomites (e.g. shared facilities)
- Drainage & wastewater treatment/disposal
- Faecal sludge management
- Hygiene product disposal

Potential WASH-related vulnerabilities (if WASH is inadequate)

GARDEN



Water:

- Water access points: location and maintenance affecting accessibility (especially social inclusion), functionality, reliability (and therefore quantity of water)
- Water quality for drinking / food preparation
- Containers & associated hygiene behaviours
- Drainage



Sanitation:

- Facilities & behaviours: accessibility (especially inclusion), maintenance (cleanliness, functionality)
- Faecal sludge management arrangement



Hygiene:

- Accessibility to personal hygiene products
- Behaviours: personal hygiene (hand hygiene, bathing, MHM)



HOME



Water:

- Water access points: design, location and maintenance affecting accessibility (especially inclusion), functionality, reliability (and therefore quantity of water)
- Density and number of people using shared access points and social distancing behaviours
- Water quality for drinking / food preparation, containers & associated hygiene behaviours
- Drainage



Sanitation:

- Facilities & behaviours: accessibility especially social inclusion), maintenance (cleanliness, functionality, access to water)
- Density and number of people sharing and social distancing behaviours
- Faecal sludge management arrangement



Hygiene:

- Facilities : accessibility, maintenance (cleanliness, functionality, reliable supplies water & soap/cleansing agents), behaviours at high-risk times, density and number of people sharing
- Behaviours: personal hygiene (hand hygiene, bathing, MHM), fomites hygiene



TRANSPORT



Water:

- Water quality for drinking / food preparation
- Containers & associated hygiene behaviours



For shared transport, also:

Hygiene:

- Accessibility to personal hygiene products (hand hygiene, MHM)
- Behaviours: personal hygiene (especially hand hygiene and social distancing)
- Fomite hygiene and number of people



For longer journeys, also:

Sanitation:

- Facilities & behaviours: accessibility (especially inclusion), maintenance (cleanliness, functionality, density and number of people sharing
- Faecal sludge management arrangement



MARKET



Water:

- Water access points: design, location and maintenance affecting accessibility (especially inclusion), functionality, reliability (and therefore quantity of water)
- Density and number of people using shared access points and social distancing behaviours
- Water quality for drinking / food preparation, containers & associated hygiene behaviours
- Drainage



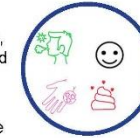
Sanitation:

- Facilities & behaviours: accessibility especially social inclusion), maintenance (cleanliness, functionality, access to water)
- Density and number of people sharing and social distancing behaviours
- Faecal sludge management arrangement



Hygiene:

- Facilities : accessibility, maintenance (cleanliness, functionality, reliable supplies water & soap/cleansing agents), behaviours at high-risk times, density and number of people sharing
- Behaviours: personal hygiene (hand hygiene, bathing, MHM), fomites hygiene



THE HEALTH BASIS FOR THE FRAMEWORK

The vulnerabilities identified in the framework above are based on the existing information about the main ways that inadequate water supply, sanitation or hygiene can result in (i) pathogens being transmitted from one person (or animal) to another person and (ii) other health and wellbeing consequences. The framework (Figure 1) uses icons to represent which health transmission pathways are enabled by the vulnerabilities that can exist – these corresponded to icons in the table and graphic below (from Souter, 2022).



Water-scarce (or water-washed) depend on the availability of sufficient water for maintaining hygiene and cleanliness (water quality is not so important). Transmission is reduced following an increase in the volume of water used for hygienic purposes



Respiratory–Fomite pathways: Fomites (porous and nonporous surfaces or objects) can become contaminated with viruses from infected people when they cough, breathe, or sneeze respiratory viruses onto the surface. These viruses can be picked up by new hosts, usually on their hands, and the viruses then gain entry into the host through the mouth, nose, or eyes. Examples of viruses that can be spread in via this pathway include Rhinovirus, Rotavirus, Hepatitis A.



Faecal-oral pathways: pathogens that originate in the intestinal system of humans or animals, and are excreted in their faeces, can be consumed by new hosts via a number of pathways that involve contamination of food, drink or kitchen equipment so that the pathogens are then consumed by new hosts. These pathways can occur via: Fomites, Flies, Fingers, Fluids (i.e. water-borne diseases), Field (usually via food). Faecal-oral diseases include cholera, typhoid, infectious hepatitis, soil-transmitted helminths.



Faecal-soil-skin pathways: intestinal hookworms in infected humans lay eggs, which are excreted with human faeces; if on soil in the right conditions, the eggs mature into larvae that can enter new human hosts through the skin on feet.



Water-based pathways: the pathogens (parasitic worms) can originate in the faeces of infected people, or for some diseases, in skin blisters, but they all spend part of their life cycle inside a water-based animal such as a snail or crustacean, before infecting people. Diseases include Guinea worm and schistosomiasis.



Water-linked: pathogens that spend some of their life cycle in an insect or animal that depends upon water. Examples include mosquito borne diseases such as Malaria, Yellow Fever, dengue, and West African sleeping sickness carried by Tsetse flies.

In addition to influencing the spread of infectious diseases described as above, inadequate WASH can affect human health and well-being in other ways, for example:



Chemicals: Consumption/contact with chemicals in water in sufficient quantities to be poisonous, or cause skin irritations. Such chemical contaminants include some pesticides, manufacturing chemicals, mining by-products, and high levels of some naturally-occurring chemicals such as arsenic and fluoride⁷.



Physical injuries: can be caused by carrying water or traversing long or uneven terrain to access WASH facilities

Direct impacts on **well-being**, such as lack of privacy, dignity, personal safety, from inaccessible, or lacking, sanitation and hygiene facilities. Indirect impacts on wellbeing are also possible, particularly associated with restricted participation in economic, education or social life activities due to ill-health caused by inadequate WASH, or a lack of time and resources available due to time/resources spent accessing inadequate WASH.

⁷ Further information about various impacts of chemicals, fertilizers, pesticides, insecticides, soaps, in Vanuatu, including a range of contamination pathways such as water, can be found in: Kotra, KK (2022). National Chemical Profile of Vanuatu 2021” https://environment.gov.vu/images/Chemical-Management/National_Chemical_Profile_of_Vanuatu.pdf

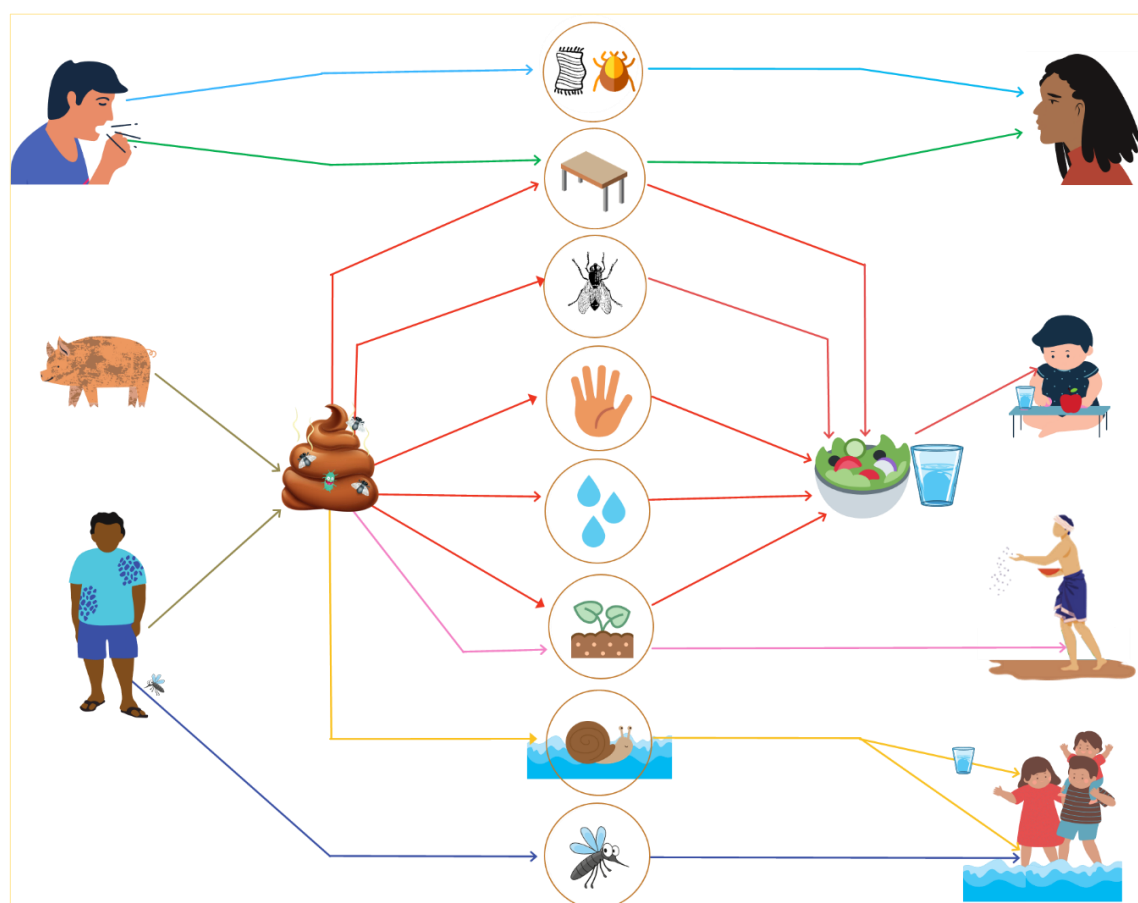


Figure 3: Graphical summary of main WASH-mediated transmission pathways of infectious pathogens, refer to colour-coded text to identify transmission pathways (Souter, 2022)

APPLICATION OF THE FRAMEWORK TO VANUATU'S SHORT FOOD SUPPLY CHAINS & MARKETS

Below, shows how the framework can be used to identify specific WASH problems that may increase vulnerabilities and exposure to infectious diseases or cause harm to health and wellbeing. Using the framework helps to identify where there may be gaps in data/information about the WASH situation in parts of short food supply chains, providing guidance for designing monitoring/assessments or identifying entry points for WASH interventions. This summary assessment focuses on Vanuatu, drawing on a mix of census data (VNSO, 2017), Joint Monitoring Programme data (WHO/UNICEF, 2020) and a recent WASH situation assessment of 14 marketplaces across three provinces of Vanuatu – Shefa, Sanma and Malampa (Love et al., 2021a). Some of the key vulnerabilities highlighted in this assessment include:

- There is limited information on the WASH situation in gardens; however, anecdotal evidence suggests that open defecation is the norm, there is no or little safe water available onsite except self-supply or ground water, and no or limited hygiene behaviours practiced
- The majority of vendors use public transport; trips can be very long, there is no sanitation or hygiene services provided en route, and access to water is generally self-supply (from home) or collected en route
- Marketplaces had numerous WASH vulnerabilities relating to both infrastructure and use/behaviours, including: insufficient and inadequate sanitation facilities, low tap to vendor ratio (often up to 80 people for one tap), sharing of face-wiping cloths amongst vendors, low soap prevalence in market toilets, and 4 of the 5 market rainwater tanks tested were "unsafe" for human consumption (*E. coli* contamination).

PRODUCE GARDEN



Mixed subsistence & market gardens (L-R) Lelepa Island & South Malekula, Vanuatu

Mark Love

WASH Requirements

- Water for drinking
- Water for hygiene
- Sanitation (personal)
- Personal hygiene products (cleansing agents, MHM)
- Personal hygiene facilities
- Drainage & wastewater treatment/disposal
- Faecal sludge management
- Hygiene product disposal

Typical WASH Situations in Vanuatu^A

- Local natural (raw, untreated) water (springs, streams), or water carried in small containers
- If no local water sources, then likely insufficient quantity
- Self-supply hygiene products and cleansing agents
- Mostly open defecation (no access to sanitation facilities at gardens not at home), and no faecal sludge management
- Potential sharing of cloths for skin/eye hygiene
- Likely no facilities for hygiene behaviours or waste disposal
- Likely no significant drainage systems

^A based on existing literature (WHO/UNICEF JMP, 2020)

Resultant Potential WASH-related vulnerabilities (for food chain ‘workers’)

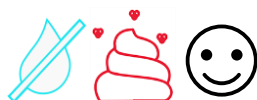
Water-related vulnerabilities influenced by:

- Water access points with poor accessibility and potential limited quantities
- Likely poor quality of unimproved local water sources used for drinking (potential for faecal and pesticide contamination)
- Water containers possibly not hygienic, and also shared
- Drainage of waste and natural water unknown (potential for WASH vectors e.g. mosquitoes)



Hygiene-related vulnerabilities influenced by:

- Possibly limited water for personal hygiene
- Limited accessibility to personal hygiene products & facilities – self-supply and disposal on-site
- Behaviours: hand and skin/eye hygiene likely difficult



Sanitation-related vulnerabilities influenced by:

- Lack of access to safe and private sanitation facilities in gardens



HOME



Houses (L-R) Dixon Reef, Lelepa island, South West Bay, & Lelepa

 Mark Love

WASH Requirements

- Water for drinking
- Water for personal hygiene
- Personal hygiene products (cleansing agents, MHM)
- Personal hygiene facilities
- Water and products for household hygiene (especially fomites)
- Water for washing produce
- Safe Sanitation (personal)
- Drainage & wastewater treatment/disposal
- Faecal sludge management
- Hygiene product disposal

Typical WASH Situations in Vanuatu^C

- 88% rural with access to basic water (Census 2016)
- Quality of water for Drinking/produce preparation unknown; 10% primary drinking source is unimproved (Census 2016)
- 54% vendors shared water access point (market vendor survey) - use water containers to transport & store water
- 41% vendors - access to at least basic latrines; 28% vendors shared sanitation facilities (market vendor survey)
- No indication of open defecation behaviours
- 17% handwashing with soap and water (Census 2016)
- MHM unknown
- Drainage , waste management unknown
Faecal sludge management – unknown

^C- Qualitative and quantitative assessment from direct research (Love et al., 2021) and census data (VNSO, 2017.)

Resultant Potential WASH-related vulnerabilities (for food chain ‘workers’)

Water-related vulnerabilities influenced by:

- Some vendors relying on water access points away from home reducing accessibility, reducing quantities used for personal and household hygiene, and increasing vulnerability to physical injury from carting water
- Some vendors with likely poor water quality (local unimproved water sources) for drinking / produce preparation (faecal contamination, less likely chemicals)
- Water containers possibly not hygienic
- Possibly poor drainage and waste management (wastewater and faecal sludge)



Hygiene-related vulnerabilities influenced by:

- Handwashing – likely low rates of HW at high-risk times (after toileting and before handling food and produce) due to limited facilities with soap and water (and other behavioural determinants)
- Vulnerabilities relating to other hygiene behaviours not known (menstrual hygiene, face/skin cleansing, bathing in local waterways)



Sanitation-related vulnerabilities influenced by:

- Some vendors lacking access to private latrines, cleanliness unknown, potential exposure to faecal pathogens and wellbeing impacts (privacy, security)
- Faecal sludge management unknown - potential exposure to faecal pathogens



TRANSPORT



Transporting produce for market (L-R) Dixon Reef, Port Vila municipal market, south Malekula

Mark Love; Krishna Kotra

WASH Requirements

- Water for drinking
(for longer trips, also:
 - Sanitation (personal)
 - Soap/cleansing agents for personal hygiene
- For shared transport, also:
 - Water and cleaning agents for transport hygiene (fomites)

Typical WASH Situations in Vanuatu^B

- 78% (n=98) shared public transport (5% boat/canoe, balance = bus/truck)
- Self-supply water for drinking from home supply & carried small containers, some local raw water sources en route
- Container hygiene not known (cleaning, sharing important)
- No sanitation or hygiene facilities en route – open defecation likely necessary
- No access to hygiene and cleansing products en route
- Potential sharing of cloths for skin/eye hygiene
- Cleaning of transport unknown

^B - Qualitative and quantitative assessment from direct research (Love et al., 2021)

Resultant Potential WASH-related vulnerabilities (for food chain ‘workers’)

Water-related vulnerabilities influenced by:

- Potential low quality of water used for drinking (from home source)
- Water containers possibly not hygienic, and also shared



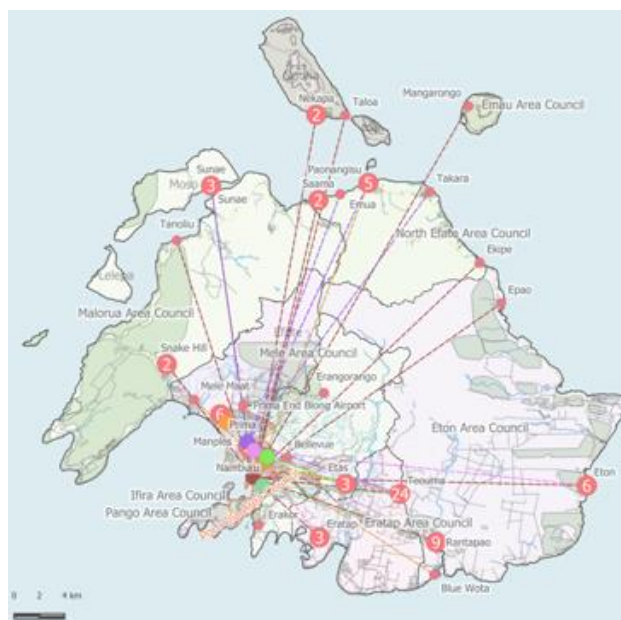
For Shared Transport, also: Hygiene-related vulnerabilities influenced by:

- Minimal/no water for personal hygiene
- Limited accessibility to personal hygiene products (hand cleansers, MHM, skin/eye hygiene)
- Behaviours: potential sharing of cloths for skin/eye hygiene; hand hygiene and social distancing)
- Cleanliness of buses/trucks/boats unknown



For longer journeys, also: Sanitation-related vulnerabilities influenced by:

- Lack of access to safe and private sanitation facilities en route, likely open defecation, potential exposure to faecal pathogens



Efate vendor residence

MARKET



WASH Requirements

- Water for drinking (and containers)
- Water for personal hygiene (hand hygiene, bathing, MHM)
- Sanitation (personal)
- Personal hygiene products (cleansing agents, MHM),
- Personal hygiene facilities
- Water for washing produce
- Water and/or cleaning agents for hygiene of fomites (e.g. shared facilities)
- Drainage & wastewater treatment/disposal
- Faecal sludge management
- Hygiene product disposal

Single tap (for toilet & drinking, washing etc.) Tangara market, Luganville

Typical WASH Situations in Vanuatu^B

Water available in 13 of surveyed 14 markets:

- Primary drinking source: utility piped water (UNELCO)
- 1 market had some disruptions to utility water supply
- 7/7 utility supplies tested – low risk water quality
- Typically, 1 utility tap shared between 40 - 80 vendors (except Port Vila market – high ratio)
- 5 markets with no utility taps outside the toilet
- 56% vendors brought water containers for refilling drinking water; 40% share containers with others
- 5 markets with rainwater tanks, many used for washing produce, some for drinking, 4/5 unsafe (E. Coli contamination)
- Water in the 14th market no onsite water access (self-supply, reliance on containers)

Sanitation

- 14/14 markets have toilets (most with septics, 1 with only pit latrine)
- 35% toilet / latrine fully functional (reported by vendors)
- 42% toilet / latrine clean (reported by vendors)
- 13 markets with only 1 toilet (40-80 vendors), 1 market with 2 toilets (140 vendors) (except Port Vila municipal)
- Only some markets have dedicated cleaners who maintain toilet cleanliness
- Septic on-site wastewater management – some with major seepage (Luganville municipal); and faecal sludge management unknown

Hygiene

- Handwashing: 6 markets no soap, 4 sometimes with soap, 3 always with soap (reported by vendors)
- 96% vendors reported that soap is very importance
- 51% vendors wash hands at the drinking water tap; 22% in the toilet facility; 21% at a hygiene station (reported by vendors)
- Post-COVID, many markets in Port Vila have hygiene stations (but none outside Efate); 16% vendors had hand sanitizers (observation)
- Menstrual hygiene facilities at very few markets; self-supply of products
- Face/skin washing/wiping practices common with towel or calico, 81% share with family members, 6% share with anybody.

^B - Qualitative and quantitative assessment from direct research (endnote ¹⁷)

Resultant Potential WASH-related vulnerabilities (for food chain ‘workers’)

Water-related vulnerabilities influenced by:

- Low ratio of taps : vendors at most markets – accessibility is inconvenient (crowding and time-consuming)
- Water quality for drinking ok (if from utility) but there is a reliance on containers to store and access drinking water throughout the day – possible poor container hygiene contributes to contamination (especially faecal-oral pathogens)
- Quality of water for washing market produce not always safe (some use of contaminated rainwater)



Hygiene-related vulnerabilities influenced by:

- Handwashing – likely low rates of HW at high-risk times (after toileting and before handling food and produce) due to limited facilities with soap and water (and other behavioural determinants)
- Vulnerabilities relating to other hygiene behaviours not known (menstrual hygiene, face/skin cleansing, bathing in local waterways)



Sanitation-related vulnerabilities influenced by:

- Some vendors lacking access to private latrines, cleanliness unknown, potential exposure to faecal pathogens and wellbeing impacts (privacy, security)
- Faecal sludge management unknown - potential exposure to faecal pathogens



Washing stations (for cooked food vendors), Port Vila municipal market

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