
WASH, COVID-19 and the Agri-business Sector in Vanuatu

Scoping review and policy analysis



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Research was led by the International WaterCentre (Griffith University) in partnership with The University of the South Pacific (Emalus campus) and World Vision - Vanuatu. This report was prepared by Mark Love, Jimmy Rantes and Regina Souter.

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The Republic of Vanuatu and provinces

(Source: Australian National University)

Introduction

The role of water, sanitation and hygiene (WASH) in agriculture chains in the context of Pacific Island countries (PICs) has received little attention. Several studies have highlighted that WASH is an important but under-rated component of both smallholder and commercial agricultural supply chains, noting that there is a high intersection between people and WASH-related issues (WaterAid, 2019; Tsegai et al., 2013). WASH intersects with the agricultural supply chain in several ways:

- 1) **Agricultural workers:** need adequate access to safe water, sanitation and access to hygiene facilities with soap to practice good hygiene behaviours while at work. This means not only when working in buildings, but also when working outdoors. This is essential to human health, well-being and productivity
- 2) **Water security and management:** Access to necessary water quantity and quality is required for agricultural productivity and profitability. Inadequate WASH services for workers (or anyone with proximity to agricultural areas), can lead to contamination of local water resources, or inefficient use of water resources, thus potentially impacting agricultural productivity and security. In addition, agricultural practices have the potential to negatively impact on the safety of local water for WASH needs
- 3) **Agricultural workers' home/community:** Workers need adequate WASH services in their communities, because people need access to effective WASH all the time if they are to derive the health and wellbeing protection and benefits.

Strong links have been made between WASH, health, nutrition and *irrigated* agriculture (e.g. Steele & Odumeru, 2003; Tsegai et al., 2013). However, large-scale irrigated agriculture is rare in most PICs (although it was historically practiced in some areas of Solomon Islands and Vanuatu before colonisation).

The above cited literature is primarily focused on Asian contexts, on industrial-scale farming and, in the case of the WaterAid analysis, ultimately centres on a water stewardship strategy involving the private sector and government partnerships and is not neatly translatable to the PIC context, where the commercial agriculture sector is much less developed. The key objective of Water Aid's (2019) WASH and agriculture work is to demonstrate why embedding WASH within a company's existing management approach makes good business sense. This is much less applicable to the PIC country (although has some merit in a few cases, it is simply not scalable).

In Vanuatu, the commercial agriculture sector is relatively small, dominated by a few key products only (copra, coconut, kava, coffee, pepper, vanilla, citrus, eggs and beef), is heavily dependent on the government rather than the private sector (through subsidies and other government support services, e.g. extension services, cooperatives) and for many products remains largely dependent on family-based producers. In short, rather than solely or predominately the private sector, in Vanuatu it is the government, farming associations, cooperatives and other enabling bodies and mechanisms that need to be targeted to raise awareness of, and improve access to, WASH in agricultural contexts.

The broad objective of this study was to understand how WASH is currently addressed in the commercial agricultural sector of Vanuatu¹ and explore if the COVID-19 pandemic – which has raised the importance of both food security and WASH in people's minds (Khadka et al., 2020) – offers an opportunity for better embedding WASH into the agricultural context of Vanuatu.

To accomplish this, the study asked the following questions:

- How has COVID-19 impacted the agri-business sector in Vanuatu?
- What is the status of WASH in the sector (in terms of both policies and services)?
- How has the Vanuatu government and its development partners responded to the impacts of COVID-19 in the sector?
- Is there an opportunity to better integrate WASH into the agriculture sector and what might this look like?

Research Approach

This report is based on a desktop review of government and wider grey literature, including policy documents, supplemented by eight interviews with sector representatives (Table 1). Interviews were conducted by in-country research partners (see acknowledgements). Ethics approval was granted from Griffith University (Ref: Mark Love 2020/80 [29/10/2020]) and The University of the South Pacific (Ref: Krishna Kotra/2020 [09/10/2020]). Participant informed consent was sought from all participants.

Table 1: Sector representatives consulted

Agri-business	Location	Method	Core business
Hen Hsieng Trading & Kava Export	Luganville, Santo	Interview face-to-face	Dry kava - export
Malampa Butchery & Fish market (MBFM)	Lakatoro, Malekula	Interview face-to-face	Beef & fish - domestic
C-COOP	Lakatoro, Malekula	Interview telephone	Cocoa - export
Chicko Farms Product Ltd (CFPL)	Port Vila, Efate	Interview face-to-face	Fresh & frozen eggs - domestic
Nakpok Farm	Whitesand, Efate	Interview face-to-face	Citrus - domestic & export
Vanuatu Co-operative Business Network (VCBN)	Port Vila, Efate	Interview face-to-face	Assist cooperatives
Anonymous Abattoir	n/a	Interview Internet/email	domestic & export
ACTIV	Port Vila, Efate	Interview face-to-face	Cocoa (processed into chocolate), coconut (oil) & kava - domestic & export

¹ Another document, 'WASH in the short food supply chain' provides a framework for assessing WASH-related vulnerabilities in the informal agricultural context typical of many PIC's - this current brief is intended as supplementary study focusing on the commercial agricultural context in Vanuatu.

Initially envisioned as an internal project policy brief, the methodology and approach was changed to a scoping review and policy analysis due to the nature of the data on hand.

Limitations

There were a number of key limitations associated with this study, key among them being:

- No international travel was possible, meaning that all data collection was totally reliant on research partners
- Due to budget and time constraints in-country research partners had limited opportunity to gather agri-business data as they primarily concentrated on collecting data related to main project focus on WASH in market places
- The primary data collected through interviews was of mixed quality and detail, not allowing for a systematic assessment
- There was only a few agribusiness site visits conducted and no systematic surveys undertaken
- An analysis of agriculture related training institutions (the Vanuatu Agricultural College and Rural Training Centres) and their associated curricula, to examine if and how WASH-related matters are or are not engaged with, was beyond the projects scope
- Interview sampling was highly limited, e.g. no interviews with representatives from the Department of Water Resources or the Ministry of Health were undertaken
- Due to the limited number of interviews, no triangulation of the qualitative data was possible.

Agri-business sector overview

Introduction

The livelihood of at least 75% of Vanuatu's population depends entirely on agricultural activities (VNSO, 2016). The most recent mini-census found that In rural areas, 97 percent of households are engaged in vegetable crop production, 85.6 percent manage livestock, and 73.9 percent are engaged in cash cropping (VNSO, 2017). Since 2003, the agriculture sector has generally grown at an annual rate of 3.3 percent (compared to 2.8 percent growth for the economy and an average population growth rate of 2.6 percent per annum) (DARD, 2021). However, the trend of the production of the major agricultural commodities – copra, kava, coconut oil, sawn timber, beef and cocoa – has declined significantly over the years due to both internal and external factors (DARD, 2021). Although agriculture is the primary activity for the majority of the population, only one-third of production is commercial, resulting in the sector's relatively low share of GDP (VNSO, 2020).

One of the main areas of intersection between WASH and agriculture is the impact of agricultural activities on water quality - especially in rural contexts where many communities rely on unprotected, un-treated, groundwater water sources as is common in many of the PIC's. In Fiji, pesticide and fertiliser usage is high and residues (including nitrates and phosphates) are found to impact community drinking water quality (Litidam et al., 2005). In

Vanuatu, the use of pesticides and industrial fertilisers are less common but are used, most commonly in the Provinces of Sanma and Penama (VNSO, 2007:31). However, no data could be found on whether traces of pesticides and fertilisers have been found in community water sources. The use of antimicrobial drugs in the beef and poultry industry, and how this may or may not impact drinking water, was not explored but is known to be an issue in large-scale, industrial agricultural contexts (see WHO/FAO, 2020). The department of Water Resources (DoWR) have been systematically increasingly their community drinking water quality monitoring activities over the last five-to-ten years, but they currently lack the resources to undertake such targeted testing and analysis on any scale. The use of poisons in agriculture is known to have occurred in the past, typically in cocoa plantations (Weighman, 1989:208), but current levels of the agricultural use of poison could not be ascertained. No evidence of competition between people and agriculture for scarce drinking water resources was found in the literature reviewed.

Situation Analysis

The agricultural sector's contribution to GDP was severely impacted by Tropical Cyclone Pam in 2015, resulting in a substantial decrease in the value of agricultural sector output (Esler, 2014). However, since 2017 the agriculture, fishing and forestry sector has shown positive growth of around 0.9 percent (VNSO, 2020). According to the Asian Development Bank, Vanuatu's economy is expected to contract by 9.8% in 2020 (compared with 2.9% growth in 2019) because of COVID-19 and the impacts of Tropical Cyclone Harold (ADB, 2020). Other key macroeconomic variables are expected to worsen in 2020. Agricultural economic output – for both domestic and export markets – are expected to decline due to a drop in demand (see case studies below).

Productive Sector Policy Framework

The National Sustainable Development Plan (NSDP) 2016-2030 was prepared by the Department of Strategic Policy, Planning and Aid Coordination and includes three main focus areas or 'pillars' that focus on: 1) the environment; 2) the economy; and 3) society. The NSDP charts the country's vision and overarching policy framework for achieving a "Stable, Sustainable and Prosperous Vanuatu within the next fifteen years, and in doing so sets out the national priorities and context for the implementation of the new global Sustainable Development Goals over the same period" (GoV, 2016).

In 2012, the Ministry of Agriculture, Livestock, Forestry, Fisheries, and Biosecurity (MALFFB), developed the macro-level Overarching Productive Sector Policy (OPSP) 2012-2017, which aimed to improve efficiency and performance for all the key productive sectors. The subsequent National Agriculture Sector Policy (NAP) 2015-2030 expanded upon the directions and guidance provided by the OPSP and elaborates micro level policy directives and strategies of relevance to agriculture. The national productive sector policy framework is presented in Figure 1 (below).

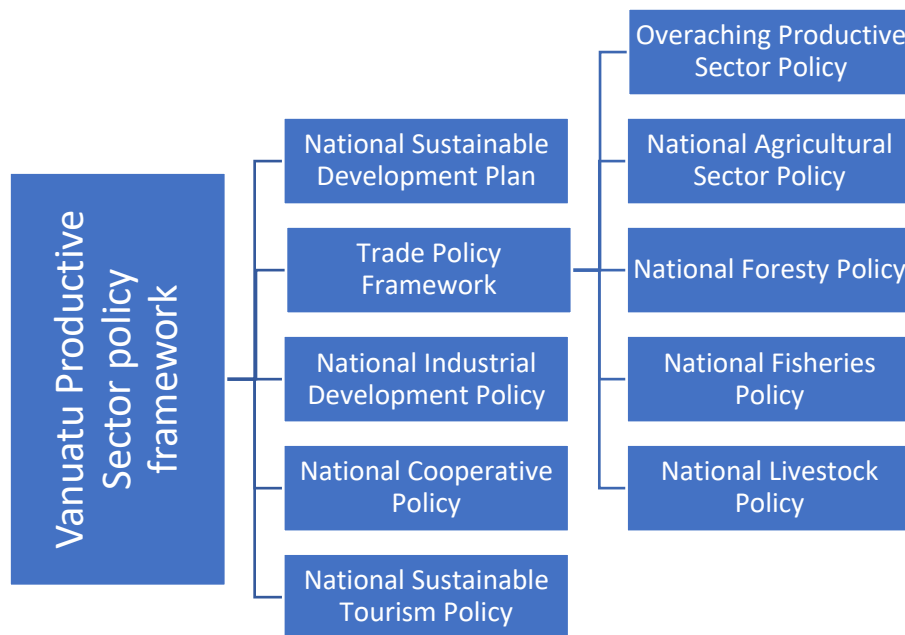


Figure 1: Productive Sector Policy Framework

Enabling Environment

Ministry of Agriculture, Livestock, Forestry, Fisheries and Biosecurity

The Ministry of Agriculture, Livestock, Forestry, Fisheries and Biosecurity (MALFFB) is the main provider of extension services with extension officers located in all six provinces. The extension services are supported by the Vanuatu Agricultural Research and Technical Centre (VARTC) and the Vanuatu Agriculture College (VAC). VARTC carries out applied and development-oriented research in the fields of agriculture and livestock and works with MALFFB to facilitate the application of the results of research. VAC provides training to support business-oriented farmers to transform subsistence agriculture into commercial production, while maintaining core features of Vanuatu’s traditional mixed cropping practices.

Office of the Registrar of Cooperatives & Business Development Services

The Office of the Registrar of Cooperatives & Business Development Services (ORCBS) has been set up to help administer the Cooperative Societies Act [Cap 152] (Act No. 24 of 1982) and to support and regulate Cooperatives Societies for people throughout Vanuatu. ORCBDS also provides an avenue for new Cooperatives, delivering a tailored service that responds to the special needs of community groups and small businesses, and striving for national and international best practice in cooperative governance. ORCBDS was previously known as the Department of Cooperatives & Ni-Vanuatu.

There is a long tradition of agricultural cooperatives in Vanuatu (see Ponter, 1985; Weightman, 1989). Established during the Condominium period (British-French rule of Vanuatu, 1906 - 1980), agricultural cooperatives comprising groupings of family-based producers were the second largest source of copra exports after large-scale ‘estate’ commercial plantations. The cooperatives were historically based on the commercial sale of surplus from the prevalent family-type farming systems, and women were actively involved.

The 2001 Cooperative Development Fund introduced rules and regulations that excluded many of the existing cooperatives, with the exception of those with strong development partner support, particularly those producing cash crops, including cocoa, coffee and spices. The Government of Vanuatu began to rebuild the cooperative sector with the Priorities and Action Agenda 2006–2015, which mobilized resources and fostered an enabling environment for small-scale farmers to organize in cooperatives or other associations to reach the minimum scale needed for efficient processing. The Department of Cooperatives and Rural Development and the Ni-Vanuatu Business Development Centre were intentionally designed to facilitate and promote greater participation of Ni-Vanuatu people in business, with a focus on the rural sector. The two agencies have since merged under the umbrella of Office of the Registrar of Cooperatives & Business Development Services (ORCBS) (FAO, 2020, 42).

Cooperatives, like produce markets, sit at the intersection between the formal and informal economy and are a key component of the commercial agriculture supply and value chain in Vanuatu, primarily in terms of small holder cocoa and copra producers and artisanal fishers. There are currently 324 active Cooperatives in Vanuatu, with 13,922 members. Of these, 19 are producer coops (mainly cacao and copra), 14 fishing, and 133 are consumer Cooperatives [the remaining 154 are financial cooperatives] (Vanuatu Cooperative Business Network, 2019).

Vanuatu Cooperative Business Network

The Vanuatu Cooperative Business Network (VCBN) is established under the Vanuatu Cooperative Act and links-up a network of 50 producer's cooperative that the government have prioritized to work with as outlined in the National Cooperative Policy. VCBN's core function is to act as a broker to improve farmers access to market.

Vanuatu Primary Producers Authority

The Government of Vanuatu, through the MALFFB, established the Vanuatu Primary Producers Authority (VPPA) by an act of parliament to provide a platform to register farmers and better coordinate extension support services in the future. Many farmers associations have since been established under the legal framework of VPPA.

Indigenous Agro-Industry Council

The Indigenous Agro-Industry Council (INAC) was only recently established by a 2020 Council of Minister's decision with the objective of providing technical support to farmers and Ni-Vanuatu entrepreneurs and encourage investment in the Agro-Industry sector, including agriculture, forestry, fisheries, livestock and industry and is regulated under the Industrial Development Act No.19 of 2014.

COVID-19 and the agri-business sector

Even before COVID-19 related impacts, agriculture was severely impacted by Tropical Cyclone Harold with more than 218,000 agricultural plants destroyed and the economic cost of crop losses in the order of VUV13.6 billion [approx. USD\$123 million](GoV, 2020:3). Border closures have since halted tourism, which is a source of income in not just urban but also rural areas. As a key generator of foreign exchange, government revenue and private sector

employment, this has resulted in economic recession putting at least 2,000 formal jobs in jeopardy and affecting the livelihoods of tens of thousands of people in the informal sector (Gov, 2021:2). In 2019, the tourism sector contributed almost 35% of GDP, 67.3% of exports, and supported 29,000 jobs (WTTC, 2020). Tourism provides a considerable market for the agriculture sector, especially beef, poultry, eggs, fish and fresh fruit and vegetables for hotels and resorts. Whilst in some PIC's, such as Samoa, the supply of local food products to the fruits and vegetable markets decreased and prices increased (FAO, 2020:2), this has not been replicated as such in Vanuatu (Love et al., 2021). Regardless, the compound impacts of the pandemic and TC Harold have impacted the commercial agriculture sector, resulting in job losses and a decrease in income.

COVID-19 impacts

There are no up-to-date trade figures available from the VNSO but the ADB (2020) forecast Vanuatu's merchandise exports to fall by 43% from 2019 due to lower demand. The current account national deficit is forecast at 5.8% of GDP in 2020 (compared with a surplus of 12.4% in 2019) and expects economic growth of 1.0% in 2021, driven largely by a recovery in tourism, agriculture, and post-cyclone construction activities; however, the duration of the COVID-19 crisis poses significant risks to this outlook (ADB, 2020:5).

PIFON (2020) note that in many PICs there has been a flow of some people back to their rural villages and an overall increase in the availability of labour to work in agriculture. Early in the pandemic in Vanuatu the Malvatumauri National Council of Chiefs has noted that “The COVID-19 pandemic has caused direct negative economic and social impacts on the lives of many Ni-Vanuatu families living in Port Vila and Luganville” and suggested that the first option is for the families living in Port Vila to consider returning to the home islands, if this can be arranged between themselves and their families, tribes and communities back on their island of origins,” (Ligo, 2020).

Thus far, the main impact on food security in Vanuatu has been on the demand rather than on the supply side. Specific impacts include: reduced incomes for food producers/sellers, changes in food consumption, planting, and selling practices (Love et al., 2021), greater demand and agricultural pressure in rural areas, and increased tensions over 'idle' and disputed land (Robins et al, 2021). Some data suggests that women have faced a greater burden of food insecurity than men (World Vision, 2020).



Figure 2a: Malampa Butchery and Fish Market; 2b: Close-up of handwashing station

Of the seven agri-business case studies, all but the Malampa Butchery and Fish Market recorded a drop in demand and four of the five businesses had laid-off staff (Table 2):

Table 2: COVID impacts – case study agri-businesses

Agri-business	Employees	Demand
Hen Hsieng Trading & Kava Export	Before COVID: 9 employees Post COVID: 5	700 to 200 customers
Malampa Butchery & Fish market (MBFM)	No change	Less beef, more customers
C-COOP	No employees – farmers sell cocoa to wholesale buyer	50% decrease in volume
Chicko Farms Product Ltd (CFPL)	Before COVID: 36 Post COVID: 12-14	Big decrease (but infrastructure and animals also impacted by TC Harold)
Nakpok Farm	?	1000 kilo to 300 kilo
Anonymous Abattoir	No change – less hours	Kills decreased from 4 days to 2 days a week
ACTIV Centre/Aelen Chocolate factor	9. No change in factory staff numbers, but purchasing less raw products from suppliers	Big drop in demand

COVID-19 related policy pivots and response - agriculture

The government's initial response to COVID-19, totalling 5.2% of GDP, has two major components: (i) USD\$6 million Health Preparedness and Response Plan (HPRP) and (ii) USD\$38 million Economic Stimulus Program (ESP). The HPRP aims to keep the virus out of the country and to contain it if the virus does enter, whilst the ESP aims to alleviate the socioeconomic impacts of the pandemic on individuals and businesses. The initial response to COVID-19 was put in place before a new coalition government assumed office on 20 April 2020. The new administration focused on immediate cyclone relief as well as mitigation of COVID-19 impacts and announced additional components to support economic recovery – \$26.7 million support to micro, small, and medium-sized enterprises (MSMEs) with credit provided through a government-owned bank beyond 2020 and expanded support to agriculture with a \$10.6 million program in 2021 targeting agricultural production and employment and ensuring the availability of fresh and nutritious food (ADB, 2020). However, the government's COVID-19 ESP only targets the formal sector – MSMEs – and does not include very small traders or 'informal' workers such as market vendors.

In response to COVID-19, the Food Security and Agriculture Cluster and Department of Agriculture and Rural Development introduced a “COVID- 19 Food Security Response Plan”. One of the priority areas was to promote backyard gardening” (Daily Post, 2020b). More than one hundred people attended a backyard farming workshop in Port Vila in July ran by SPREP (Loop Pacific, 2020a), and there has also been a workshops on home gardening for people with disabilities (Daily Post, 2020d).

Also as part of the “COVID- 19 Food Security Response Plan" was the introduction of the “Commercial Food Basket”. DARD, in partnership with some commercial farmers, collected local produce which was made available for sale at the DARD Sepeta warehouse in Port Vila (Robins et al., 2021:113). The purpose of this action was to guarantee supply of local produces to the urban households at affordable prices (KII VCBN). DARD also promoted Mobile

Marketing, selling local food, using trucks. The purpose was to encourage physical distancing and improve access to local food (Loop Pacific, 2020b). Some measures have also been taken to monitor and control prices, particularly food prices, and ensure a smooth supply of food (Loop, 2020b)

The MALFB have also introduced crops and commodities subsidises (MALFB, 2021). The agricultural support package, provided by the ADB, is valued at USD\$3.5 million and aims to support increased production and marketing of copra, kava, cocoa, and other commodities through price subsidies and transportation assistance from farms to urban centres (ADB, 2020). Many larger commercial farmers have registered with VPPA to access government support (KII VCBN). Other development partners have also provided targeted support that includes the agricultural sector (e.g. DFATs Vanuatu COVID-19 Development Response Plan, OXFAMs cash-transfer program).

In July, 2020, the government released its 'Yumi Everiwan Tugeta' TC Harold & COVID-19 Vanuatu Recovery Strategy 2020-2030. The strategy notes that "More than any other, this compound disaster has blurred the lines between response, recovery and disaster risk reduction (preparedness and prevention)". The strategy identifies short and mid recovery objectives and forecasts budgetary allocations, assigning agriculture 14% of the budget (VUV5.1 billion [USD\$137 million]) (GoV, 2021:21).

The government's most recent 2021 Budget Policy Statement (GoV, 2021) focuses on the policy objectives of the National Sustainable Development Plan (NSDP) 2030 whilst at the same time seeking to address the current challenges and activities in preparing for COVID-19 and responding to, and recovering from, Tropical Cyclone Harold.

In regards to Priority Outcome 1 of the National Sustainable Development Plan – Enhanced business opportunities and investment environment – the budget policy statement notes that the recent economic crisis resulting from COVID-19 and exacerbated by Tropical Cyclone Harold highlights the vulnerabilities faced by relying too heavily on any one sector for economic growth, particularly sectors such as tourism. The 2021 budget aims to strengthen economic resilience against external shocks through greater economic diversification, by

Boosting primary production (agriculture, fisheries, and forestry) to meet a greater proportion of domestic consumption by: increasing rural production; increasing co-investment opportunities strengthening capacity for managing biosecurity and border control risks; increasing national sustainable and climate and COVID-19 ready tourist development (GoV, 2021)

Of specific relevance to agriculture, the budget seeks to strengthen the agriculture value chain by: increasing the processing of raw products; greater investment in agriculture infrastructure facilities; promoting trade, industry, and cooperatives; and, creating an Economic Development Zone. Specific actions include providing: improved Research & Development for productive sectors; improved food and nutrition security across the entire archipelago; and, providing increased support to the cooperative movement (GoV 2021).

WASH and agri-business analysis

Introduction

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, 2016). The COVID-19 pandemic has re-highlighted the importance of WASH (Khadka et al., 2020) and exposed gaps and inequities across the Pacific Islands region. In addition to social distancing, the ability to maintain good hand hygiene and sanitation practices at agri-business workplaces is important to their ongoing safe operation.

WASH Situation

The water, sanitation and hygiene situation in Vanuatu is relatively poor, although access to improved drinking water and sanitation services has improved over the last decade. In rural areas, water is commonly collected in rainwater tanks, and groundwater and/or surface water sources are often piped to central access points in villages. In addition to water scarcity, many communities experience a lack of clean water following extreme weather events (e.g. cyclones and storms), of which Vanuatu experience regularly. During such time contamination of water sources and salinization of groundwater frequently occurs (UNICEF, 2015). According to the WHO/UNICEF (2019) Joint Monitoring Programme (JMP) SDG6.1 data, national access to safely managed drinking water² has grown from 30.50 percent in 2000 to 44.13 percent in 2017, whilst open defecation has dropped from 2.34 percent to 0.55 percent over the same period (WHO/UNICEF, 2019). The United Nations Children's Fund (UNICEF) report that communities in Vanuatu are experiencing growing tensions over water access rights (UNICEF, 2015).

According to the 2016 mini-census, about 40 percent of all rural households used private pit latrines as their main toilet type (VNSO, 2016:2). In regards to access to hygiene services, on the JMP SDG6.2 hygiene services ladder 31.96 percent of the population have *no access* to a hand washing facility³. A dedicated survey undertaken in 2013 found that, in rural households, 62 percent of houses had a dedicated hand washing place with 42% soap prevalence, whilst in urban households 74 percent of households had a hand washing facility with soap and water (MoH, 2017:24).

In April, 2020, TC Harold devastated WASH infrastructure and services across parts of Vanuatu. It has been estimated that the impact of TC Harold on WASH infrastructure was VUV319,164,119 [USD\$2.9 million], whilst COVID-19 related losses to WASH (unspecified) was VUV29,290,386 [USD\$266,000] - a combined damage of VUV2.3 billion or USD\$21.2 million (GoV, 2020:20).

² "Safely managed drinking water" is defined as the use of an improved drinking water source which is: located on premises, available when needed, and free of faecal and priority chemical contamination.

³ To meet the criteria of a "handwashing facility" it must have both soap and water.

It is difficult to ascertain the status of WASH in the agri-business sector without site visits, systematic surveys and the triangulation of data. Nevertheless, we have undertaken a review of current, 2021 agricultural business industrial permit holders, which record some WASH-related data as part of the licencing requirements (Table 3).⁴

Table 3: WASH situation agri-food business industrial permit holders (Source: GoV., Dept, of Trade)

Company	Average Employee	Product	Facility Standard	Market-Access
Fine foods Vanuatu Ltd	6	Processed meat, root crops, fruits and vegetables	HACCP approved ⁵ 2 toilets/hand washing station	Domestic/Export
Chicko Farm Products Ltd	12	Fresh & Frozen eggs	Not HACCP approved 4 toilets/shower room and central hand washing station, soap water treatment & security fencing	Domestic
Vanuatu Abattoir Ltd	15	Processed chilled meat	HACCP approved 2 toilets, central hand washing station, water treatment & security fencing	Export & Domestic
Kava House	15	Processed kava powder and chips	Currently working on HACCP 2 toilets/shower, water treatment, hand washing station, soap and security fencing of the facility area	Export/Domestic
Tanna Coffee	10	Processed Coffee powder, honey, sanitizer	Currently working on HACCP 2 toilets, shower, central hand washing station, soap, cafeteria, shop, distillery of essential oils, herbs to produce hand sanitizer	Export/Domestic
Volcanic Earth	5	Production of virgin coconut oil, tamanu oil, cosmetics and soaps	Not HACCP approved 2 toilets/shower, one central washing area, compound fenced off	Domestic/Export
Teouma Honey	2	Production of honey in backyard gardens	Not HACCP approved, 1 toilet/shower and 1 sink for hand washing basic kitchen for processing and storage	Domestic
83 Islands Ltd	10	Production and distillery of spirits made from sugarcane and tropical fruits including production of hand sanitizer	HACCP approved facility 2 toilets/shower, hand washing station & soap, control area for production and storage	Export/Domestic
Vanuatu Poultry Ltd	10	Poultry meat and fresh eggs. Farmers shop that sells animal feed and day-old chicks including agricultural tools	Not HACCP approved 2 toilets/shower room, cleaned floor of abattoir, central hand washing area, soap and water boots. Farm area fenced off.	Domestic
Vanuatu Government Export Packed House	15	Frozen cassava, taro, island cabbage and pineapple. Other crops on trials by the local contractor Peoples Infrastructure & export Vanuatu (PIEV)	HACCP approval Central hand washing station and soap 2 toilets/shower and conference area.	Export to NZ

⁴ This data could not be checked for accuracy and are based on government reporting .

⁵ HACCP - Hazard Analysis Critical Control Point (see below, WASH and agri-related policy environment).

Of the eight case study agri-business's examined (Table 4), site details were only gathered for four and actual site visits were only conducted for two (not the abattoir or chocolate factory). Note that there was no soap observed at two of the business premises during the site visits.⁶

Table 4: WASH situation - case study agri-business

Agri-business	Employee	Product	Facility Standard	Market-Access
Hen Hsieng Trading & Kava Export	5	Dry Kava Meat & Roots	Not HACCP approved 1 toilet/hand washing facility No soap	Export
Malampa Butchery & Fish market (MBFM)	2-3	Beef and fish	Not HACCP approved 1 toilet/hand washing facility No soap	Domestic
Anonymous Abattoir	48	Beef	HACCP approved 2 toilets, multiple hand washing facilities, boot cleaning, soap, clean overalls each day	Domestic & Export
ACTIV Aelen Chocolate	4-9	Chocolate, essential oils and dried nuts	HACCP approved facility 2 toilets and central cafeteria and washing area/soap & fencing	Domestic/Export

In an interview, the representative from the VCBN acknowledge that WASH does have an important role to play in agri-business contexts, especially given that cooperative are becoming engaged in the retail produce space through select Cooperatives managing markets. For example, a Cooperative has recently been established to manage the Korman produce market in Port Vila and another Cooperative managers the Tamau fish market, both located in Port Vila (KII VCBN rep). The representative noted that:

Water, sanitation and hygiene at the Tamau fish market cooperative complies to basic food standards [...] however, when you move further to rural area the compliance is low and this requires more improvements by cooperative managers (KII VCBN rep).

WASH-related Policy and the Agricultural Sector

There are a number of WASH-related regulations of relevance to workplaces, including agri-businesses. Some businesses have ascertained HACCP Certification - an approval system that recognizes that a food-related business has developed, documented and implemented systems and procedures in accordance with HACCP, which stands for Hazard Analysis Critical Control Point. HACCP is an internationally recognized tool to help identify and control food safety hazards that may occur within the food business and includes on-site water, sanitation and hygiene standards for food safety. In Vanuatu, HACCP certification is approved by the Vanuatu Bureau of Standards (VBS), a statutory body under the Ministry of Tourism, Trade, Industry, Commerce, Ni-Vanuatu Business.

⁶ Due to the limited number of site visits we cannot determine the functionality, accessibility and hygiene of the WASH facilities.

Vanuatu is a member of the FAO and WHO's Codex Alimentarius or 'Food Code', and hosted a Regional Codex meeting in Port Vila in 2016.

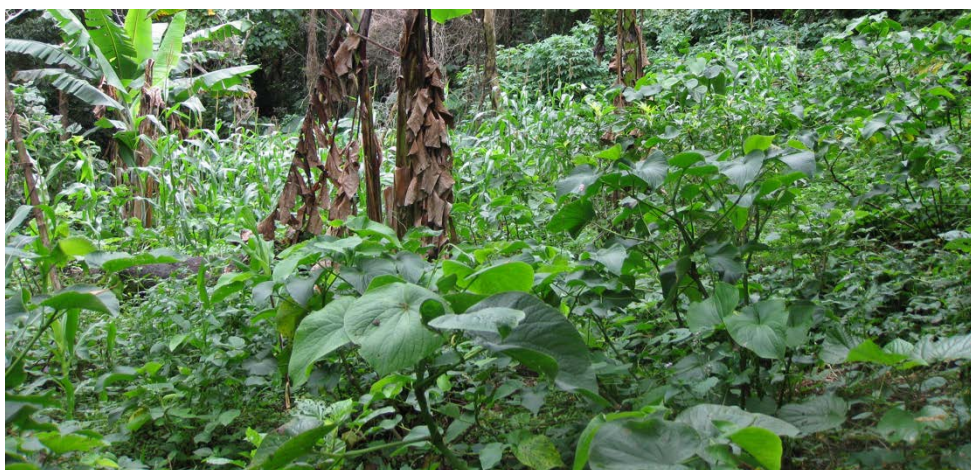
SOPAC, funded by the United Nations' Global Environment Facility- Pacific Alliance for Sustainability (GEF-PAS) and the European Union (EU) launched its Sustainable Integrated Water Resources and Wastewater Management Project for PICs in Vanuatu. The program was designed to introduce the concepts of Integrated Water Resources and Wastewater Management (IWRM) into governance structures at the national and local level. However, the proposed development of national policies and further actions appears to have largely stalled, and other than a demonstration project in the Sarakata catchment on Espiritu Santo (Hoverman, et al., 2009; SOPCA, 2007) little more seems to have been done to date and many of the key recommendations remain relevant to this day.

There are a number of regulations relevant to agri-businesses, depending on the exact nature of the business. These policies are implemented by various departments: the Ministry of Health, Department of Vanuatu Quarantine and Inspection Service, and the Department of Agricultural and Rural Development. The most relevant body tasked with monitoring WASH related issues is the Environmental Health, Health Standards and Inspection unit (EHHSI), a branch of the MoH whose key focus areas are:

- Safe Water, Sanitation and Hygiene (WASH)
- Food Safety
- Public Health Legislations
- Waste Management

Other key focus areas of the Environmental Health unit includes: Occupational Health and Safety; Public Health Emergencies and Disasters; and, Ship inspection under International Health Regulations.

Below (Table 5) is a summary overview of the key regulations that would pertain to agri-business. A policy analysis of the primary sources was undertaken to ascertain if, and how, the regulations address WASH-related matters.



Mixed food and cash crop kava garden, south Malekula

Table 5: Regulations of potential relevance to agri-business

Regulation	Details
Food (Control) Act (CAP 228)	<p>This Act empowers local authorities to regulate hygiene standards in the preparation, storage, sale and use of food (& water) to ensure public health and safety. This includes the safety of water for direct consumption, as well as for food and hand hygiene, and the sterilization of food processing equipment. Section 6 stipulates that where there is no running water, no drainage system, and /or the constructions of these convenience is not practicable given the size of the business, hands may be washed in a basin as long as:</p> <ul style="list-style-type: none"> (a) the same water is not used for washing cooking utensils; and (b) the water is changed frequently and discharged in an approved manner; and (c) soap or suitable detergent is used; and (d) paper towels, clean cloth are used in order to dry hands; and (e) water to be used for washing of hands must be stored in a clean container, accessible and capable of storing sufficient water for the daily operation of the food premises. <p>Section 35 concerns potable water supply and stipulates that all food All food premises must be supplied with adequate potable water, and where water is supplied by a pipe, it must be under adequate pressure</p>
Public Health Act (CAP 234] 1995	<p>Act establishes the responsibility of provincial councils to ensure, and municipal councils to enforce, proper and adequate sanitation for all. The Act requires all owners of all premises to design and construct sanitation systems in compliance with relevant public health standards. Requires all sanitation systems to be kept clean by the occupier of the premises (to the satisfaction of the environmental health officer). Provides for enforcement by environmental health officers and the imposition of penalties or closure of polluted facilities. R requires municipal councils to ensure the safe and sufficient provision of public toilets. The 2013 Law Commission review of the Public Health Act has proposed a greater role for Area Councils in developing public health rules to strengthen the compliance of sanitation facilities & their management.</p>
Public Health Amendment Act No. 11 of 2018	<p>Public Health Amendment Act No. 11 of 2018: provides for owners of buildings to install standards sanitation systems both in urban areas and areas declared by the Minister of Health. The amendment also encourages central reticulated systems and treatment plants to be in place in urban areas.</p>
Meat Industry Act No.5 of 1991	<p>An Act to make provisions for the regulation and control of the meat processing industry (poultry, beef, pork), prescribing minimum standards of hygiene of staff, premises and equipment.</p>
Waste Management Act No.24 of 2014	<p>Provides for the protection of the environment through encouragement of effective waste services and operations through the local authorities and municipal councils.</p>

A review of the three key agricultural policies elucidate that water, sanitation and hygiene are not engaged explicitly in *any* of the policies (Table 6).

Table 6: Key agri-business related policies

Policies	Summary
National Cooperative Policy (2017-2022)	Seeks to transform the ways cooperatives are structured and operated across the country and promote growth. <i>No mention of water, sanitation and hygiene</i>
Agriculture Sector Policy (2015-2030)	The ASP 2015–2030 was prepared by the Vanuatu Department of Agriculture and Rural Development and reflects the government renewed focus on growing the agricultural sector. <i>There is no mention of water, sanitation and hygiene, other than in reference to water security</i>
National Livestock Policy (2015-2030)	Seeks to covers a wide range of issues within the livestock sub-sectors, including smallholder farming, product hygiene, women and vulnerable groups. <i>Briefly engages with the intersection between animal health and public health, but nothing explicit about the relationships between animal faecal contamination and community drinking water</i>

WASH is encompassed by four main government policies (Table 7).

Table 7: Water, sanitation and hygiene related policies

Policy	Summary
Environmental Health Policy & Strategy (2012-2016)	Prioritises preventative health activities particularly <ul style="list-style-type: none"> • Safe Water & Sanitation • Food Safety • Occupational Health & Safety • Waste Management • Public Health Legislations • Communicable Disease Surveillance • Development Control • Public Health Emergencies and Disasters <i>No mention of agriculture.</i>
National Environment Policy & Implementation Plan (2016-2030)	The Vanuatu National Environment Policy and Implementation Plan 2016–2030 (NEPIP) is an illustration of the Government’s commitment to environmental sustainability and meets the requirements of a national policy and plan set out in the Environmental Protection and Conservation Act [CAP 283]. <i>Several components relate to agriculture (primarily livestock) Ensure stock have access to safe water Maintain breeding programmes for stock that are less water intensive</i>

Table 7: Water, sanitation and hygiene related policies (cont.)

<p>Sanitation & Hygiene Policy (2016-2030)</p>	<p>Policy developed by MoH with assistance from donors (including UNICEF), Policy outlines six priority areas to strengthen the accountability of the institutions necessary to ensure adequate and equitable access to sanitation and hygiene services for all. It also outlines what exists, what does not, and what to do. The six priority areas include:</p> <ol style="list-style-type: none"> 1. Chronic Health impact 2. Acute Health impact 3. Hand Hygiene Impact 4. Gender Equity impacts 5. Sanitation and Hygiene markets 6. Provincial By-laws. <p><i>No mention of agriculture.</i></p>
<p>Vanuatu National Water Strategy, 2018-2030 & Vanuatu National Water Policy (2017-2030)</p>	<p>The Water Policy Framework is informed by the Environmental Management and Conservation Act 2002 and the Water Resources Management Act 2002, which provide for the sustainable use of natural resources and the protection and management of watersheds.</p> <p>The water strategy and policy focuses on:</p> <ul style="list-style-type: none"> • Water safety & security • Water supply markets • Water services compliance • Formalise water Providers • Rights of the pipes • Provincial Council Authority <p>The Public Health Act [CAP 234] assigns the responsibility to the Provincial (Municipal) Councils to ensure (enforce) sufficient & safe water for all (clauses 42, 43 & 44). The Decentralization Act [CAP230] empowers Provincial Councils to pass by-laws for constructing, maintaining and managing water supply (clause 20). The Water Resources Management Act [CAP 281] establishes Provincial Water Resources Advisory Committees to advise provinces and draft by-laws for the consideration of the Provincial Council. However, provincial governments play a negligible role in service provision with almost all provincial funds and functionaries managed by central departments.</p> <p><i>Water security in context of agriculture</i></p>

A review of the above regulations and policies elucidate that there is little to no consideration of water, sanitation and hygiene in the context of the food agriculture chain, other than regulations covering food safety and public health. There is strong 'siloing' and 'sector-focused thinking' and a lack of appreciation for the subtle but important relationship between water, sanitation, hygiene and agricultural food systems. Additionally, the EHHSI unit is hampered by human and fiscal recourse constraints with ample evidence, for instance, that the unit is unable to regularly monitor produce markets or conduct follow-up monitoring and inspections of food safety practices, particularly outside of Port Vila (various KIIs with cooked food vendors, especially at Malampa market house and Luganville main market). The units capacity to inspect agri-businesses could not be accurately determined, but they had visited the Malampa butchery at the beginning of the pandemic.

COVID-19 related policy pivots and response - WASH

On the 25th March, 2020, the President of Vanuatu signed a declaration for a State of Emergency (SOE) over the whole of Vanuatu for a two-week period, for the purpose of strengthening prevention and containment measures in response to the COVID-19 global pandemic. Following the impact of Tropical Cyclone Harold (6-7th April), the SOE was extended for a 30-day period on April 11 and has been extended multiple times since. A COVID-19 Health Sector Preparedness and Response Plan (HPRP) was first drafted in January, 2020 and various advisory committees established and on the 23rd of March the government closed international borders. The HPRP adheres to the WHO's recommended operational guidelines for COVID-19 responses (WHO, 2020). Of the \$6 million health budget, 20% is allocated for infrastructure; 40% for clinical management of suspected cases; 23% for coordination, communications, and prevention; and 17% for early detection and isolation (ADB, 2020:7).

The government commenced community outreach activities in March, activated Emergency Operations Centre's in each Province and began a resourced communications and mass media awareness campaigns (e.g. social media, newsprint, 119 Hotline, MoH website). According to the HPRP there are three phases – Preparedness, Containment, and Mitigation – and four scenarios. Vanuatu has been in scenario 2A just twice – November 2020 and March 2021 – otherwise has remained in Scenario 1 – no confirmed cases.

The Ministry of Health have released various COVID-19 Public Health guidelines – for markets, churches, nakamals and kava bars, restaurants and bars, public transport and workplaces.⁷ All guidelines emphasise the importance of washing hands regularly and upholding hygiene practices, and stipulate that "staff, contractors and customers have access to places where they can wash their hands with soap and running clean water, especially at the entrance to buildings" (e.g. MoH, 2020a). The guidelines also highlighted social distancing.

Recently, the government have started to roll out the *Vanuatu Guidelines for Safe Businesses Operations (SBO) in the context of the COVID-19*. Consisting of a training coalition of six partners - The Department of Tourism, Department of Public Health, the Australia Pacific Training Coalition, the Vanuatu Chamber of Commerce and Industry, Vanuatu Skills Partnership and World Vision Vanuatu – the training is designed to support safe business training to both the tourism business sector as well as micro-businesses including the informal sector. This initiative falls under Pillar 3 of the Vanuatu Tourism Crisis Response & Recovery Plan (VTCRRP) under Phase 1 which is the Immediate Safety Response and Economic Recovery looking at product readiness. The main objective of Pillar 3 is to ensure tourism businesses are financially viable, appropriately supported, and ready to launch their product in a post Covid-19 environment (Daily Post, 2020c)

The TC Harold & COVID-19 Vanuatu Recovery Strategy 2020-2030 estimates that the impact of TC Harold on WASH infrastructure – including damage and losses in education and health facilities – was VUV319,164,119 [USD\$2.9 million] and costed COVID-19 related losses to

⁷ See MoH website: <https://covid19.gov.vu/index.php/resources/public-health-guidelines>

WASH services as VUV29,290,386 [USD\$266,000] – a combined costs of VUV2.3billion or USD\$21.2 million. Hence, the strategy allocated 1.8 billion [USD\$16.7 million] to WASH.

The 2021 budget policy statement provided a dedicated WASH finance injection to improve safe drinking water and sanitation coverage, as well as bolster waste management and pollution control, in line with NSDP priority outcome 6, allocating 15% of the budget towards this natural resource thematic area (GoV, 2021).

Case studies: Agri-business responses to COVID-19

Key informant interviews with the agri-business representative and the one agri-business government representative (from VCBN) gathered some primary data on responses to COVID-19. The qualitative data consists of both attitudinal and descriptive information and, partly because the interviews were conducted by different people, the quality of the data was varied and it could not be easily systematised for comparison or discrete thematic coding.

Overall, most agri-businesses had instigated some recommended workplace changes in response to the crisis, primarily related to improved hand hygiene services and practices and (some) social distancing measures.

The cocoa wholesale business manager noted that they instigated social distancing and hygiene protocols:

...farmers are not allowed to come in. The trucks drop-off the cocoa bags outside and the boys, who are responsible for packaging, collect through a window. But before doing so they have to wash their hands at a hand washing station that was placed outside. The receipt [for the cocoa] is also given through the window along with the payment. There are a few of our regular clients we allow to come in after washing their hands [...] we did abide by the hand washing regulation (KII, C-Coop rep).

The abattoir, which already has a high standard of hygiene services and practices to comply with regulatory protocols, altered their staff transport arrangements, with the number of people (per bus) reduced to five (KII Abattoir manager) .

Similarly, the ACTIV Centre and Aelen Chocolate Factory is HCCP certified and this has a 'high standard of hygiene'. The respondent noted, however, that "some staff or customers who come from places that do not have water don't understand it, so we have to guide them through it [good hygiene practices]" (KII ACTIV rep).

The poultry farm appears to have only discussed with staff and developed a response plan to enact if community transmission occurs in the country, and has not enacted any protocols as yet. He noted that if that if community transmission occurred people "who work on the farm would stay on the farm [in existing accommodating] and not leave the premises". In terms of customers, he noted that "people who come to the farm would be limited to the gate where we would walk out and have the eggs put on a table [this would] keep human contact to a minimum - the issue then would come down to the deliveries in town" (KII CFPL rep).

At the dry kava export factory, the main COVID-19 response was the installation of hand washing station at the gate; however, there was no soap in place t (or elsewhere at hand washing facilities) during a site visit.

The same was true of the MBFM - whilst there was a hygiene station installed at the front of the building but there was no soap present at the time of the interview. MBFM rep noted that:

we are not prepared to operate the market through such situations. For example, when covid-19 came, many were scared and totally stopped everything whereas there are other ways to cope with this to make it safe. From my observation during covid-19, all the farmers stopped their supply. Except the commercial farmer which is PRV who continued to supply (KII MBFM rep).

Health officers had visit both the abattoir and MBFM. They may have visited other sites but this was not asked by the interviewer's.

WASH and the agricultural sector: Key findings and recommendations

This scoping review and policy analysis sought to understand how WASH is currently addressed in the commercial agricultural sector of Vanuatu and explore if the COVID-19 pandemic offers an opportunity for better embedding WASH into the agricultural context of Vanuatu. Initially envisioned as a review leading to the development of a policy brief, due to the limited volume and quality of the primary data the methodology was changed to a scoping review and policy analysis.

Key findings:

- The sector has been acutely affected by the compound impacts of TC Harold and the COVID-19 pandemic
- Even before the compounding crises, the government had resolved to bolster the agriculture sector. The pandemic, especially, has furthered this resolve with the government committed to diversifying their economic base
- There are currently no policy linkages between WASH and agriculture, with no mention of WASH in any agriculture policy, other than water security for production processes
- We were not able to empirically and systematically assess the WASH situation in enough agri-business to make definitive evaluations about the status of WASH in agri-business workplaces. However, in the two sites where some structured observation was undertaken (MBFM and Hen Hsieng Trading & Kava Export), there was no soap available at the hygiene stations

- In terms of WASH-related agri-business responses to COVID-19 and the MoH guidelines, the qualitative data suggests that most – but not all – of the case study businesses instigated some of the key recommendations (e.g. social distancing, hand hygiene services and practices)
- There is little reported evidence of competition between people and agriculture for drinking water resources. However, as climate change intensifies, the population increases and the commercial agriculture sector grows, this may be a greater issue in the future
- COVID-19 has raised the profile of WASH and there is some recognition amongst agri-business actors in the government (e.g. the VCBN representative) that WASH could be better integrated into agriculture policy and practice, especially in the producer-Cooperative sector.

Preliminary recommendations:

- There is a need to more systematically assess WASH in agri-business work places – including in the 'garden/fields'. Workers need access to effective WASH to stay healthy and protect themselves from infectious illnesses. Although required under HACCP, not all businesses are HACCP registered (e.g. C-Coop, MBFM and Hen Hsieng Trading & Kava Export). A more thorough inspections-based assessment than was possible in this study would determine whether further compliance/enforcement communications are required
- The WASH situation at home and in communities for agri-business workers is important. Workplaces need to engage with this as it is beneficial for the workplace, increasing the health security of their workforce
- Given the relatively small size of the agri-business sector and its lack of geographic concentration, it is unlikely that the use of pesticides and fertilizers, or antimicrobial drugs, are a major issue for drinking water in Vanuatu. Nevertheless, the identification and monitoring of water catchments that may be impacted by such pollutants should be undertaken – especially if the sector intensifies as the government plans
- Undertake a review of the curricula of the Vanuatu Agricultural College and Rural Training Centres and explore the appropriateness, willingness, capacity, and merit of including a small number of discrete WASH-related topics (especially water-cycle, pollutants, and water quality) into the learning portfolio for agricultural students
- Revisit and monitor Integrated Water Resources and Wastewater Management (IWRM) plans in governance structures at the national and local level and include more integrated water management concepts into the next water strategy
- As Cooperatives are identified by the government as a key platform for intensifying agricultural production throughout Vanuatu there is value in further exploring the benefit of undertaking some WASH-related outreach through the producer-

orientated Cooperative sector. This could include basic primers and posters on hand hygiene, sanitation and water security and quality. This is perhaps especially pertinent given Cooperatives are increasingly entering the producer retail market space (e.g. Korman market in Port Vila). Existing civil society organisations already operating in Vanuatu would be well-positioned to undertake this action

- Overall, greater integration of WASH-related matters in the agriculture and wider productive sector in the policy environment would be beneficial. However, given the capacity constraints in implementing current policies and strategies it is an open question whether advocating to include WASH-related guidance in future agriculture-related policies is a feasible and beneficial recommendation.



Kava being loaded onto MV Brisk, South West Bay

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