Port Reception Waste Facilities Review – Solomon Islands

The Commonwealth Marine Litter Programme

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Executive Summary

The Commonwealth Marine Litter Programme (CLiP) is an initiative delivered by the Centre for Environment Fisheries and Aquaculture Science (Cefas) and funded by the United Kingdom's Department for Environment, Food and Rural Affairs. The initiative supports five developing countries across the Commonwealth in advancing national litter action plans focused on preventing plastics entering the oceans.

In 2018, CLiP contracted Asia Pacific Waste Consultants (APWC) to carry out a review on the adequacy of waste reception facilities at targeted international and domestic ports in the Solomon Islands (SI). This report outlines the findings of a review and gap analysis on the adequacy of waste reception facilities for commercial, fishing, cruise liner and other vessels in the country's two international ports: the Port of Honiara and the Port of Noro.

To effectively review ship-generated waste in the Solomon Islands, the types and frequency of vessels visiting the Port of Honiara, Port of Noro and a number of domestic ports were explored, along with a review of fishing vessel activity in Solomon Island waters and estimates of shipping waste generation and disposal rates. The single greatest impact on ship-based marine litter is garbage generated on ships, including plastics (contaminated and clean), fishing gear waste, and domestic waste such as paper, cardboard, fluorescent lamps, synthetic material, foils, metal cans, lids, glass, and pantry packaging waste.

The review found little capacity currently exists to service ship-generated oily wastes and sewage from either international or domestic shipping. International shipping is serviced by basic measures for garbage and quarantine wastes, although this will soon be improved when two large quarantine waste incinerators become operational. Little capacity exists for garbage management from domestic shipping, with the exception of the system managed by the Solomon Islands Ports Authority (SIPA) at the domestic wharves in Honiara.

The review found that there are three main groups of port and shipping activities requiring particular focus if all waste types generated through shipping are to be effectively managed. These are:

- International ships conducting port calls that primarily involve inbound/outbound movements with modest time in ports and the EEZ
- International/national flagged fishing vessels that spend considerable time in the EEZ with or without port calls
- The large domestic fleet that ferries goods and people through the Solomon Islands

These three groups are significant, given their size and potential to pollute through poor waste management practices. It is important to determine how much ship-generated waste they produce in Solomon Islands waters, how much is appropriately disposed of, and how much is lost to the environment. Issues including data gaps, infrastructure requirements, capacity-building and awareness-raising should also be quantified and addressed.

Estimates in this review found that less than 2% of the garbage generated on almost 400 ships berthing annually at the Port of Honiara is actually bought ashore. The estimate for the proportion of ship-generated garbage disposed of on land for locally based, foreign and Solomon Islands-flagged fishing vessels operating in Solomon Islands waters ranged from 7% to 12%. Pacific Islands Forum Fisheries Agency (FFA) National Fisheries Observers report that 6% of the total reported MARPOL garbage offences for long-liners and 1% of the offences for purse-seiners occurred in Solomon Islands waters.

The discrepancy between garbage-generation estimates and actual waste disposed of at port is significant but not unsurprising. It is frequently mentioned in literature and should be considered in discussions related to the impact of shipping waste on the generation of marine litter in Solomon Islands.

This report includes the findings of a detailed gap analysis conducted for each port, using assessment criteria mandated by the International Maritime Organization (IMO). The assessment found reception facilities for oily wastes and sewage to be unsatisfactory at both ports. Garbage disposal is assessed as satisfactory at the Port of Honiara and unsatisfactory at the Port of Noro. Waste management systems at both ports were deemed unsatisfactory, with many areas requiring improvement. Overall, each port received an assessment of unsatisfactory.

Noting the challenges faced by Solomon Islands and many other Pacific Island countries in providing adequate waste reception facilities for ships, this report outlines several recommendations to improve these facilities at ports, and to assist in meeting obligations under international, national and local laws.

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Acronyms

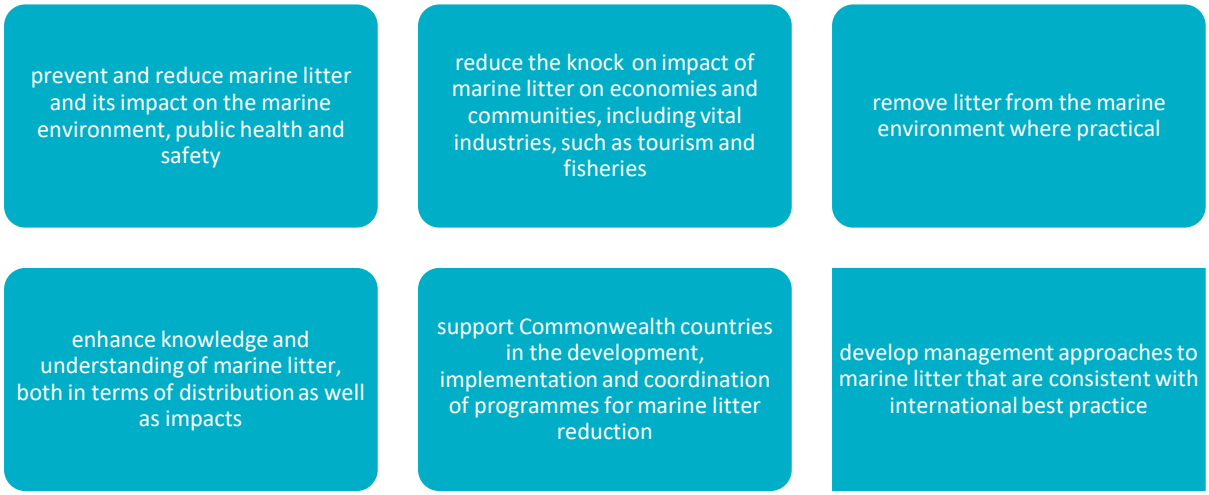
ACE	Advance Combustion Engineering
AMSA	Australian Maritime Safety Authority
APWC	Asia Pacific Waste Consultants
Cefas	Centre for Environment Fisheries and Aquaculture Science
CLiP	Commonwealth Marine Litter Programme
EEZ	Economic Exclusion Zone
EGCS	Exhaust gas cleaning system
EMS	Environmental Management System
FFA/SPC	Pacific Islands Forum Fisheries Agency
GEF-PAS	Global Environment Facility
GT	Gross Tonnes
IMO	International Maritime Organisation
LOA	Length Overall
MARPOL 73/78	The International Convention for the Prevention of Pollution from Ships (Marine Pollution), 1973 as modified by the Protocol of 1978
MEA	Multi-lateral environmental agreements
MECDM	Ministry of Environment, Climate Change, Disaster Management and Meteorology
NDMO	National Disaster Management Office
NFD	National Fisheries Development
NLS	Noxious Liquid Substances
ODS	Ozone Depleting Substances
PDSSI	Pacific Domestic Ship Safety Initiative
PIMC	Pacific Islands Maritime Conference
PLFs	Ports with Limited Facilities
PRF	Port Reception Facilities
RAMSI	Regional Assistance Mission to the Solomon Islands
SI	Solomon Islands
SIDS	Small Island Developing States
SIG	Solomon Islands Government
SIMSA	Solomon Islands Maritime Safety Administration
SIWA	Solomon Islands Water Authority
SIPA	Solomon Islands Ports Authority
SPC	Secretariat of Pacific Country
SPREP	Secretariat of the Pacific Regional Environment Programme
TEU	Twenty Foot Equivalent Unit
UPOPs	Unintentionally produced persistent organic pollutants
UNCLOS	United Nations Convention on the Law of the Sea
US EPA	United States Environmental Protection Agency
WCPFC	Western & Central Pacific Fisheries Commission
WMP	Waste Management Plan
WRF	Waste Reception Facility

1 Background

The Commonwealth Marine Litter Programme (CLiP) is an initiative delivered by the Centre for Environment Fisheries and Aquaculture Science (Cefas) and funded by the United Kingdom's Department for Environment, Food and Rural Affairs. The initiative supports five developing countries across the Commonwealth in developing national litter action plans focusing on preventing plastics from entering oceans.

CLiP's main objectives are as follows:

Figure 1 CLiP objectives



In 2018, CLiP contracted Asia Pacific Waste Consultants (APWC) to carry out a review on the adequacy of waste reception facilities at targeted international and domestic ports in the Solomon Islands. The aim of the review is to collect information on ship-generated waste, port reception facilities and waste reception handling plans and develop recommendations to reduce the leakage of ship-based sources of waste into the environment.

Image 1 Marine litter is a rapidly growing global environmental problem

Photo © Peri Paleraio/Marine Photobank

2 Scope

Solomon Islands has the following port infrastructure:

Figure 2 Solomon Islands port infrastructure

International ports	Inter island ports
•Honiara (Port Cruz)	•Gizo
•Noro	•Ringi Cove
	•Tulag
	•Yandina

Following the review process, it was determined that the in-country visits and assessments should focus on the Port of Honiara, Port of Noro and the Port of Gizo. These ports differ considerably in their proximity to major services, with only Honiara being in a metropolitan setting while both the Port of Noro and the Port of Gizo are situated in the more remote western provincial areas. This report outlines the findings of a review and gap analysis on the adequacy of waste reception facilities for commercial, fishing, cruise liner and other vessels at these three ports.

The analysis provides an overview of the waste reception services currently provided at the three ports, identifies gaps in this service with reference to the International Convention for the Prevention of Pollution from Ships (MARPOL), and outlines recommendations on how these gaps can be addressed.

The gap analyses conducted at these three sites took place in November and December 2018, and the findings have been prepared in accordance with the International Maritime Organization's (IMO) Guidelines for Ensuring the Adequacy of Port Waste Reception Facilities as outlined in Resolution MEPC.83 (44).

Given that MARPOL does not apply to waste generated by land-based operations at the terminal or wharf, this analysis considers only waste generated by vessels.

3 Country Information

The Solomon Islands (SI) is a group of 986 archipelagic small islands distributed within six major island groups (Choiseul, Isabel, Malaita, Makira, New Georgia and Guadalcanal), located in the Melanesia region of the Pacific Ocean, northwest of Vanuatu and east of Papua New Guinea. The landscape consists mostly of rugged hills and mountains with some low coral atolls. The islands stretch 1,448 kilometres in a south-easterly direction from the Shortland Islands, on the border with Papua New Guinea, to the Santa Cruz Islands, which border Vanuatu. Sitting in a geologically active region, there are frequent earthquakes, tremors, and volcanic activity. There is also risk from cyclones and tsunamis.

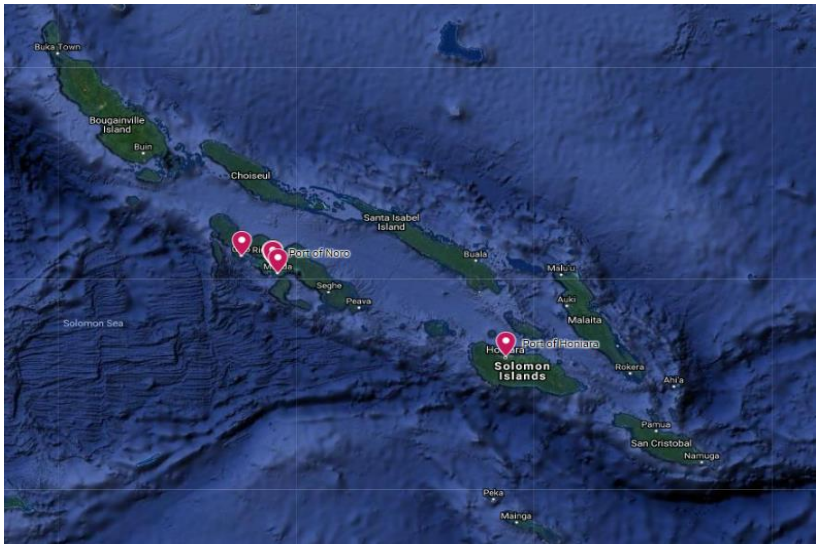
The United Kingdom established a protectorate over Solomon Islands in the 1890s. Self-government was achieved in 1976 with independence coming two years later. Ethnic violence in the late 1990s and early 2000s led to instability in the country. At the request of Prime Minister Sir Allan Kemakez, the Regional Assistance Mission to the Solomon Islands (RAMSI) began in 2003 to help restore law, order and economic stability.

GDP is estimated at US$1.3 billion (World Bank 2017 estimate) of which agriculture contributes a significant proportion. The United Nations reports the human development index for Solomon Islands as 0.546, which gives it a rank of 152 out of 189 countries. Solomon Islands relies heavily on imported food, fuel, manufactured goods, plant and equipment.

'Solomon Islands ports are operated by Solomon Islands Ports Authority (SIPA), a wholly-owned Solomon Islands government authority, and are subjected to the *State Owned Enterprises Act* of 2007. SIPA reports to the Minister for Infrastructure Development' (Toma, 2017).

The sea port of Point Cruz (Honiara) is the main port of entry in to the Solomon Islands, with ports of Honiara (Point Cruz) and Noro classified as international ports, and receiving shipping because they have infrastructure to receive containers. Passenger ferry services operate from Honiara's main domestic wharf at Point Cruz.

Figure 3 Solomon Islands showing location of ports



The four other significant ports: Gizo, Ringi Cove, Tulagi and Yandina, are suitable for inter-island vessels only. These ports do not have handling and storage facilities or security, and are managed by provincial authorities.

4 Legislative Context

4.1 Multilateral Environmental Agreements

Solomon Islands is party to numerous multilateral environmental agreements (MEAs) of relevance to the management and reduction of waste, pollution control and marine litter, as shown in Table 1.

Table 1 Solomon Islands participation in MEAs and conventions related to waste and shipping

Multilateral agreements and conventions	Status
Stockholm Convention on Persistent Organic Pollutants	Ratified
The Waigani Convention to Ban the Importation into Forum Island Countries of Hazardous and Radioactive Wastes and to Control the Transboundary Movement of Hazardous Wastes within the South Pacific Region	Ratified
Montreal Protocol on Substances that Deplete the Ozone Layer	Ratified
MARPOL 73/78: International Convention for the Prevention of Pollution from Ships, 1973 as modified by the Protocol of 1978 (Annexes I, II, III, IV, V, and VI)	Ratified (except VI)
London Convention on the Prevention of Marine Pollution by the Dumping of Wastes and Other Matter	Ratified
International Convention on Civil Liability for Oil Pollution Damage 1969 (renewed 1992)	Ratified
Noumea Convention for the Protection of Natural Resources and Environment of the South Pacific Region and Protocols	Ratified
Protocol for the Prevention of Pollution of the South Pacific Region by Dumping	Ratified
Protocol Concerning Co-operation in Combating Pollution Emergencies in the South Pacific Region	Ratified
Small Island Developing States Accelerated Modalities of Action (SAMOA Pathway)	Ratified

The MARPOL Convention is the most relevant to port reception facilities (PRFs) and forms the basis of this audit. This is detailed further below.

4.1.1 The International Convention for the Prevention of Pollution from Ships (MARPOL)

The key international convention addressing pollution of the marine environment by ships is the International Convention for the Prevention of Pollution from Ships, known as MARPOL.

The MARPOL Convention was adopted in November 1973 at the IMO with additional protocols and amendments incorporated over time. The Convention includes regulations aimed at preventing and minimising both accidental and routine pollution from ships and, at the time of writing, includes six technical annexes.

The Convention outlines specific obligations regarding the provision of waste reception facilities (WRF). The onus for meeting these obligations is on government authorities rather than on ships or

private companies. These obligations are designed to ensure ships can legally dispose of their waste, thus preventing illegal discharge to the marine environment or inappropriate land disposal.

Specific regulations of relevance to the issues of WRFs are outlined in Table 2 below.

Table 2 MARPOL regulations of relevance to waste reception facilities (WRFs)

Annex I: Regulations for the Prevention of Pollution by Oil (entered into force 2 October 1983)
This Annex covers prevention of pollution by oil from operational measures as well as from accidental discharges. Of relevance to this report is Regulation 38.1, which requires the Government of each Party to provide facilities for the reception of oily residues and mixtures at oil-loading terminals, repair ports, and in other ports in which ships have oily residues to discharge. Such facilities must be adequate to meet the needs of the ships using them without causing undue delay. Regulations 38.2 and 38.3 expand on this basic requirement with reference to sludge tanks, oily bilge waters and certain other residues not permitted to be discharged en route.
Annex II: Regulations for the Control of Pollution by Noxious Liquid Substances in Bulk (entered into force 2 October 1983)
Annex II details the discharge criteria and measures for the control of pollution by noxious liquid substances (NLS) carried in bulk. Regulation 18.1 requires the Government of each Party to ensure that ports and terminals involved in bulk NLS cargo handling or NLS tanker repairs have adequate facilities for the reception of residues and mixtures containing NLS.
Annex III: Prevention of Pollution by Harmful Substances Carried by Sea in Packaged Form (entered into force 1 July 1992)
This Annex contains general requirements for the issuing of detailed standards on packing, marking, labelling, documentation, stowage, quantity limitations, exceptions and notifications on substances identified as marine pollutants in the International Maritime Dangerous Goods Code.
Annex IV: Prevention of Pollution by Sewage from Ships (entered into force 27 September 2003)
Annex IV focuses on requirements to control pollution of the sea by sewage. It prohibits the discharge of sewage into the sea, except when the ship has an approved sewage treatment plant or when the ship is discharging disinfected sewage using an approved system at an approved distance. Regulation 12.1 requires the Government of each Party to ensure the adequate provision of facilities at ports and terminals for the reception of sewage, without causing delay to ships.
Annex V: Prevention of Pollution by Garbage from Ships (entered into force 31 December 1988)
This Annex looks at different types of garbage and specifies the distances from land and the manner in which they may be disposed. Notably, this Annex incorporates a complete ban on the disposal of all forms of plastics into the sea.
Annex VI: Prevention of Air Pollution from Ships (entered into force 19 May 2005)
Annex VI sets limits on sulphur oxide and nitrogen oxide emissions from ship exhausts and prohibits deliberate emissions of ozone-depleting substances. Regulation 17.1 requires the Government of each Party to ensure the provision of facilities adequate to meet the needs of ships using its repair ports for the reception of ozone-depleting substances and equipment containing such substances. It further requires that reception facilities are provided for exhaust gas cleaning residues in enclosed ports, harbours and estuaries.

4.1.2 Special provisions in MARPOL for Small Island Developing States (SIDS)

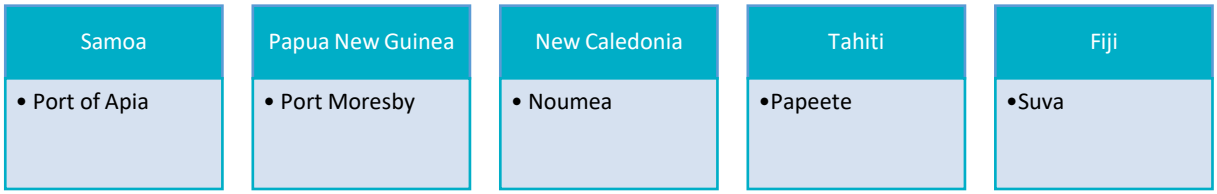
In recognition of the unique challenges that SIDS experience in providing adequate waste reception facilities for ships, the IMO specifies that providing such facilities at a regional level (as opposed to

the national level) may be permitted. The MARPOL Convention provides a legal basis for such regional arrangements in unique circumstances.

In 2014 the Secretariat of the Pacific Regional Environment Programme (SPREP) and the Australian Maritime Safety Authority (AMSA) developed a proposal for a Pacific Regional Reception Facilities Plan. The Plan was endorsed by parties at the 12th meeting of the Convention for the Protection of the Natural Resources of Environment of the South Pacific Region and Related Protocols (the Noumea Convention) on 26 September 2014. It was subsequently approved in May 2015 by the IMO's Marine Environment Protection Committee at MEPC68 and officially came into effect in May 2016.

Assessments conducted to inform the development of the plan identified all but five ports in the Pacific region as being ports with limited facilities (PLFs) that do not meet 'adequacy' criteria as defined by the IMO. As such, the plan proposes that adequate reception facilities should be provided on a regional basis. It identifies the following locations as potential regional ships' waste reception centres that could serve the needs of the ships visiting not only those ports, but also other ports connected by international shipping traffic:

Figure 4 Identified regional ships' waste reception centres



The endorsement of the Pacific Regional Reception Facilities Plan by the IMO ensures that Pacific Island governments can continue to meet their MARPOL obligations, despite most ports in the region failing to comply with waste reception facility standards.

While Pacific island countries such as Solomon Islands are now relying on such arrangements, with many international vessels being instructed not to discharge wastes in Solomon Islands but at other larger ports such as in Fiji, there is currently little data on the effectiveness of this arrangement in preventing leakage of ship-generated waste.

4.2 National regulations and strategy

The following regulations address solid waste management and control of pollution, including waste from shipping, in Solomon Islands.

4.2.1 *Ports Act 1990*

This Act establishes the port authorities and creates powers for the general manager, harbour master and others to manage the port. The Act also includes powers to levy duties on vessels using the port. The Authority can also levy duties on goods passing through the port, and rates for the use of port land, services, equipment and storage.

Section VI makes provision for discharge of waste. It states that no person shall cause, suffer or permit any refuse, gas, petroleum oil, bilge water, ballast water or other offensive substance whatever its nature to be discharged, pumped or cast into or onto any waters or land within the limits of a port without the prior written permission of the SIPA.

4.2.2 *Fisheries Management Act 2015*

The Act is formulated to ensure provisions for the conservation, management, development and sustainable use of fisheries and marine resources of Solomon Islands, to monitor and control fishing vessels within and beyond the fisheries' waters. It also repeals the *Fisheries Act 1998* and to make consequential amendments to P*rovincial Government Act 1997* and the *Town and Country Planning Act* (Cap.154).

4.2.3 *Solomon Islands Water Authority Act 2015*

This act clearly spells out the responsibility of SIWA (now known as Solomon Water) to manage waste discharge from sewage, trade and industrial wastes. Solomon Water also has a policy advice and formulation role in relation to pollution and wastes.

4.2.4 *Provincial Government Act 1997*

The provincial legislative authority derives from a combination of this Act and the accompanying devolution orders. The devolution orders enable each province to make legislative power over a range of matters of direct relevance to natural resource management and environment. The *Provincial Government Act 1997* Schedule 3 provides a list of activities for which the provinces have responsibility and have the power to pass ordinances, including:

- Local matters – waste disposal
- Rivers and water – control and use of river waters, pollution of water.

4.2.5 *Biosecurity Act 2013*

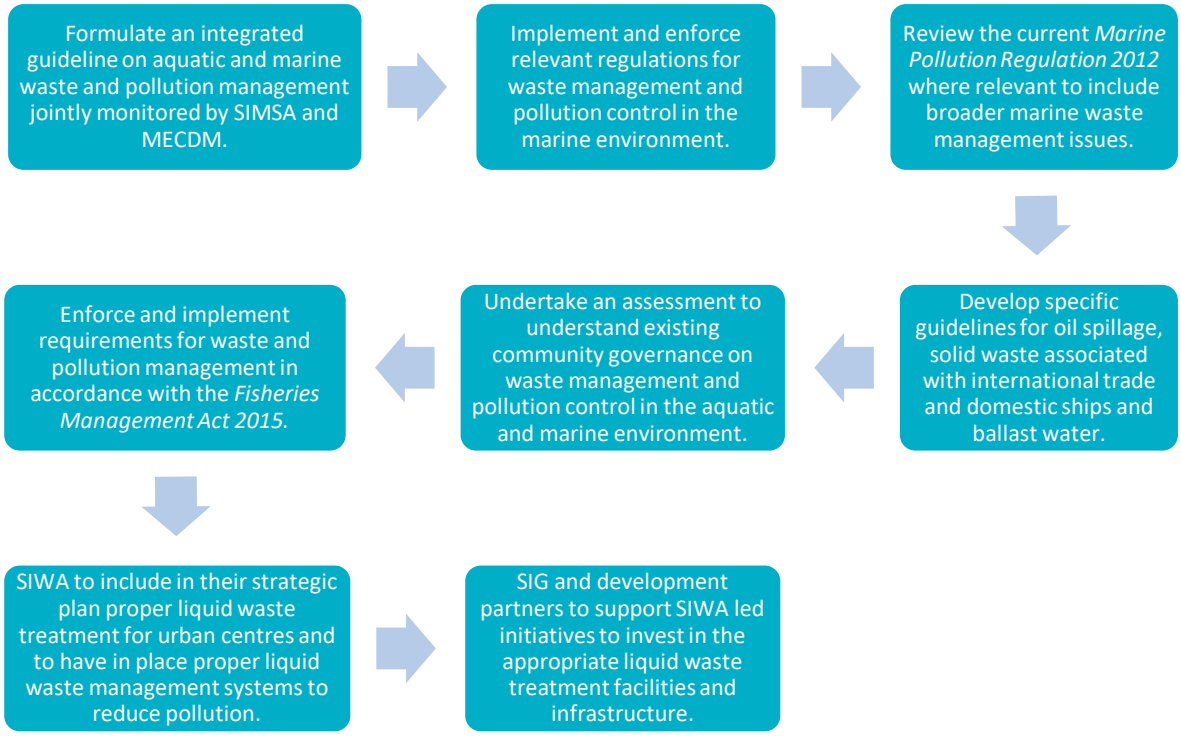
This Act is administered by Biosecurity Solomon Islands (BSI), a department of the Solomon Islands Ministry of Agriculture and Livestock. The Act seeks to ensure the safe import and export of plants and animals to protect people, agriculture, the economy and environment. The Act is supported by the Biosecurity Regulations of 2015.

4.2.6 Solomon Islands Government Waste Management and Pollution Control Strategy 2017–2026

While no waste management plan exists specific to ports, *the Solomon Islands Government Waste Management and Pollution Control Strategy 2017–2026* includes reference to several strategic actions related to shipping wastes. These are included under Section 10.1 Waste and pollution in the

aquatic environment, with an aim to reduce all forms of waste and pollution in rivers, lagoons, lakes, waterways and the marine environment. The strategy includes the following actions:

Figure 5 Strategic actions related to shipping wastes in the Solomon Islands Waste Management strategy

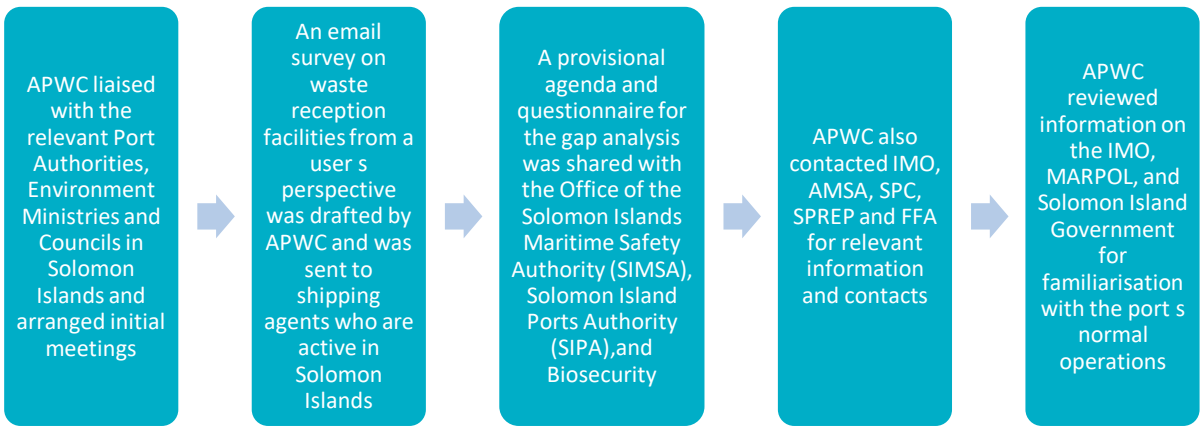


5 The Review Process

5.1 Preparation

In preparation for the review and analysis, several activities were carried out in advance of the in-country port visits:

Figure 6 Pre-visit preparation activities



Following the review process, it was determined the in-country visits and assessments should focus on the Port of Honiara, Port of Noro and the Port of Gizo, which differ considerably in their proximity to major services: only Honiara is situated in a metropolitan setting while both the Port of Noro and the Port of Gizo are situated in remoter western provincial areas. Noro is the major fisheries port for Solomon Islands and Gizo an occasional cruise-liner anchorage.

5.2 Port visits

The APWC port review team commenced on-site work in the Solomon Islands in two stages — from 27 November to 1 December 2018 in Guadalcanal (Honiara) and from 10 to 14 December 2018 at Gizo (Port of Gizo) and Munda (Port of Noro). On-site work included international, domestic and local port and wharf areas. The port review team held a number of meetings during these visits as listed in Figure 7.

Figure 7 In-country port review meetings

27 November 2018: Solomon Islands Maritime Safety Authority (SIMSA) and Biosecurity

- Discussed details of how international ships' waste is handled by the service. At this meeting, the APWC team explained the background to CLiP, the rationale for conducting the reception facility audit and an overview of the MARPOL requirements and guidelines, requested information and shared the questionnaire.

28 November 2018: Harbour master and the Solomon Islands Ports Authority (dsPA) staff

- Conducted an inspection of the international terminal and construction of the quarantine waste disposal system, discussed the waste management system aspects of the assessment for international and domestic ports and requested information.

29 November 2019: Pacific Islands Forum Fisheries Agency (FFA)

- Discussed their recent waste audits of three fisheries ports including Noro in the Solomon Islands as well as the supplier of the new quarantine waste treatment systems for Honiara and Noro Ports (Advanced Combustion Engineering (ACE)).

10 December 2018: SIPA, private sector

- Follow up meetings and field inspections with SIPA, the private sector (shipping agents, recyclers) in Honiara. Obtained 18 months of international shipping data.

11/12 December 2018: Gizo town officers

- The team then moved to Gizo Island to inspect the Port of Gizo and conducted meetings, site inspections and interviews with the Gizo town officers in relations to Gizo Port, ship waste and the overall waste management system including visits to the dump sites, healthcare waste treatment facilities and collection equipment.

13/14 December 2018: Port of Noro Harbour Master

- The team then moved to onto Munda Islands to inspect the Port of Noro including the fishery ports managed by National Fisheries Development (NFD) and Soltuna and conducted meetings, site inspections and interviews and site visits with the Harbour master for the Port of Noro who was only able to provide three months of international shipping data. Toured the new incinerator which is under construction.

13/14 December 2018: Noro Town Council

- The team met with the Town clerk of Noro Town Council and Waste Management staff and recyclers for Noro and Munda Towns, with the Town clerk providing recent reviews of the waste management system and a description of current operations and challenges.

14 December 2018: Dive Munda

- The mission to the Solomons was finalised with the team conducting a final interview with Dive Munda on their experiences with wastes in the environment before the team returned to Australia.

6 Ship-generated waste in the Solomon Islands

To effectively review ship-generated waste in the Solomon Islands, the types and frequency of vessels at the Port of Honiara, Port of Noro and Port of Gizo were explored, along with a review of the waste types generated by each vessel type.

6.1 Type and frequency of vessels

International and domestic shipping conducting port calls (i.e. commercial vessels, cruise liners, naval vessels), as well as those operating in Solomon Islands Economic Exclusion Zone (EEZ) without landing (i.e. International fishing vessels operating from foreign ports), all contribute to the potential volumes of ship-generated waste produced in Solomon Islands territory.

Port data obtained for 2018 for the Port of Honiara (Table 3) and Port of Noro (Table 4) indicate that a total of 342 international vessels visited the Port of Honiara in 2018 and an estimated 976 international vessels (extrapolated from the three months of data available) visited the Port of Noro in the same period.

At the Port of Honiara, container vessels accounted for the largest segment of traffic at over a third (35%) of total traffic, with fishing vessels (mostly transshipment) making up approximately 20%. By contrast, container vessels accounted for only 5% of total traffic at the Port of Noro whereas fishing vessels accounted for the largest segment (50%) of traffic, with logging ships the next largest (40%).

It is planned that in the future all transshipments for fisheries will be conducted at the Port of Noro, resulting in 30 vessel movements per year shifting from Port of Honiara to Port of Noro.

Table 3 Port of Honiara: Port Data Log 2018

Vessel	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Cruise liner	-	2	-	-	1	-	-	-	2	-	3	-
Cargo carrier	1		2	1		-			1			
Container vessel	8	11	8	10	13	8	11	9	12	9	11	10
Bulk	-	1	2	3	-	1	1	-	1	-	-	2
RoRo	1	-	-	-	1	-	2	-	-	-	-	-
Tanker	3	4	3	4	4	6	3	5	3	6	2	5
Fishing vessel	14	-	13	2	-	-	-	-	4	1	-	28
Logging ship	-	-	-	-	-	-	-	-	-	-	-	-
Tug/barge	1	1	-	-	-	-	-	-	-	1	1	-
Surveyor			1							1	3	
Naval vessel		1		1				2	1		1	
Luxury craft	-	1	1	-	-	-	-	-	-	2	1	-
Other	14	15	-	1	1	2	2	2	3	3	5	11
Total	**42**	**25**	**45**	**22**	**20**	**17**	**19**	**18**	**27**	**23**	**27**	**57**

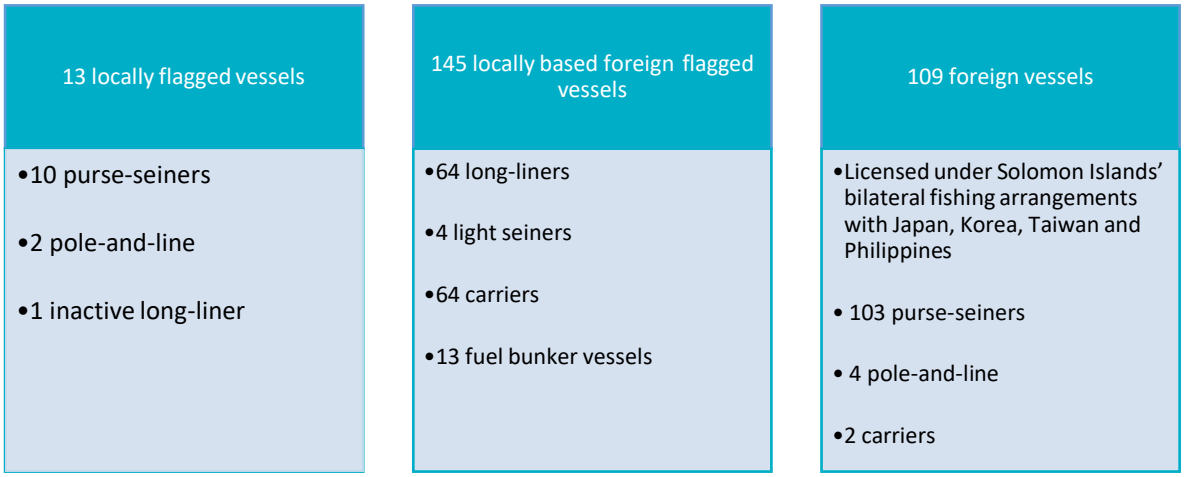
Table 4 Port of Noro: Port Data Log 2018

Cruise liner	-	-	-
Bulk	-	-	-
Tanker	2	2	3
Logging ship	45	35	16
Other	2	-	3

Estimates for domestic intra-island shipping port calls for the Port of Honiara and Port of Noro were not able to be obtained, but with almost 200 registered domestic vessels in the 30 to 120 tonne range, and based on similar ship numbers and experience in Vanuatu, it is estimated this would be a minimum of 1,000 port calls, wharf calls and visits to anchorages across the country.

The Solomon Islands Ministry of Fisheries and Marine Resources' recent 2018 report to the WCPFC Scientific Committee (WCPFC-SC14-AR/CCM-22) states that in 2017 it licensed 267 vessels to fish in the Solomon Islands Exclusive Economic Zone (EEZ) (Ministry of Fisheries and Marine Resources Solomon Islands, 2019). These comprised:

Figure 8 Fishing vessels licensed in Solomon Islands EEZ 2017



6.2 Ship-generated waste types

A list of the types of waste generated by ships is outlined in the table below.

Table 5 Waste types generated by ships

Oily wastes	
Description	Oily wastes generated through shipping include oily bilge water, oily residues (sludge), oily tank washings (slops), and some types of operational wastes such as used cooking oil, used lubricants and oily rags.
Drivers	The generation of oily wastes varies and depends on factors such as the size of the ship, engine room design, preventative maintenance, age of the components on the ship, type of engine, the age of the engine, type of fuel burnt, engine running hours per day and (in the case of slops) the number of oil tank cleanings and the type of fuel carried.
Vessels	While the type and volume of oily waste generated varies between vessels, all vessels produce some oily resides (sludge).
Noxious liquid substances (NLS)	
Description	The IMO defines NLS as those which, if discharged into the sea from tank cleaning or de-ballasting operations, are deemed to: present a major hazard to either marine resources or human health (Category X); present a hazard to either marine resources or human health or cause harm to amenities or other legitimate uses of the sea (Category Y); or present a minor hazard to either marine resources or human health (Category Z).
Drivers	Efficiency and methods used in cleaning and offloading cargo.
Vessels	Waste from NLS is only generated through the carriage of chemicals in bulk.
Sewage	
Description	Sewage is defined as drainage and other wastes from any form of toilets and urinals; drainage from medical premises, via wash basins, wash tubs and scuppers located in such premises; drainage from spaces containing living animals; or other waste waters when mixed with the drainages outlined above.
Drivers	Drivers for the generation of sewage include: the number of crew members, passengers or livestock; the type of toilets; the length of voyage; and the type of sewage treatment, comminution or disinfection facilities on board.
Vessels	All vessels potentially have sewage on board.
Garbage	
Description	Garbage generated on ships includes plastics (contaminated and clean), fishing gear waste, and domestic waste such as paper, cardboard, fluorescent lamps, synthetic material, foils, metal cans, lids, glass, pantry packaging waste, etc.
Drivers	The main drivers are the number of crew and passengers and the types of products used by crew and passengers.
Vessels	All vessels generate garbage. • Cruise ships generate very large amounts of domestic garbage due to the number of passengers on board. Cruise ships also generate high volumes of food wastes and food and beverage packaging as well as medical wastes and certain small hazardous items such as batteries and aerosol cans. • General cargo vessels produce smaller amounts of domestic garbage, but garbage such as dunnage and other cargo-related waste is more significant. • Tankers produce similar volumes of domestic garbage as for general cargo ships.

	• Fishing vessels generate fishing gear waste such as damaged nets, lines and other fishing gear in addition to domestic garbage.
Ozone-depleting substances (ODS)	
Description	Ozone-depleting substances are used on board ships in air-conditioning appliances or cooling equipment on refrigerated shipping containers. They can also be contained in mobile equipment (fridges, mobile air conditioners).
Drivers	Presence of appliances and technologies that emit ODS.
Vessels	Only vessels equipped with appliances and technologies that emit ODS.

All ships potentially have oily waste on board. These include used lubricants, oily sludge resulting from bilge-water filtering, oily rags and oily bilge water. Oil sludge generation depends on the quality of fuel. It has been estimated that sludge is generated at approximately 1 to 2% of daily heavy fuel oil consumption and 0.5% of marine diesel oil consumption. Oil tankers generate particular types of oily waste, namely cargo slops and oily ballast water.

All ships potentially have sewage on board. The amount varies with the number of people on board, therefore cruise liners and larger naval ships will have large amounts of sewage, whereas cargo ships with a small crew will have significantly smaller amounts.

MARPOL provides different options for on-board storage and treatment of sewage which affects where the ship will be able to discharge sewage. Ships with sewage treatment plants will be able to treat their sewage and discharge liquid effluent at sea. There may be a need for these ships to discharge sewage sludge in port, depending on the system.

In the context of Solomon Islands, it is important to note that wastes associated with the bulk carriage of NLS and ODS are largely inconsequential due to the nature of the vessels using the ports. However, all vessels — regardless of their size, purpose or cargo — produce some form of oily waste, sewage and garbage. The volumes of these waste types is highly dependent on the vessel type.

Ships without IMO-approved sewage treatment plants may discharge disinfected (e.g. chlorinated) sewage or raw sewage at sea beyond 12 nautical miles. The need to discharge sewage to shore will vary depending on the size of holding tanks and the length of a vessel's stay in port.

6.3 Shipping wastes and marine litter

All shipping waste types have the potential for negative human health and environmental consequences. Garbage is the most detrimental, ship-based source of marine litter. For fishing vessels, the incidence of plastic marine litter increases.

Of all the waste types, data related to MARPOL Annex V waste types (garbage and plastics) has universally proven to be the most unreliable.

A study conducted by independent research and consultancy organisation CE Delft (2017) for the European Maritime Safety Agency compared actual waste quantities from ships with reported waste quantities. The findings correlate with other similar studies, in that notified versus landed waste quantities were most accurate for MARPOL Annex I waste types (related to oil) and were least accurate for MARPOL Annex V waste types (garbage and plastics), with a differential of between 20% and 600%. Such findings are further supported by Western and Central Pacific Fisheries Commission (WCPFC, 2015) garbage reporting, which estimated an average of 27% of the garbage generated is landed. Preliminary findings from a 2018 FFA report suggest landed waste may be as low as 11% of waste generated in several Pacific ports.

Fishing vessels reporting under the National Fishing Observers Programme on garbage and other waste management activities, and violations through the Generation 6 SPC/FFA Observer GEN-6 Forms from 2003–2015, showed more than 10,000 violations, primarily from purse-seiners but also long-liners. Plastic discharge constituted 71% of these violations, and 71% of the incidents were from fishing vessels flagged by nations distant from the actual fishing area. Six per cent (6%) of the incidents from long-liners and 1% from purse-seiners occurred in Solomon Islands waters.

For domestic vessels in Solomon Islands waters, MARPOL requirements do not apply and no data was found for quantities of ship wastes (including garbage) produced, numbers of passengers on ships or days vessels are on the water. The volumes generated would be expected to be considerable, with approximately 200 registered ships of 30 to 120 tonnes conducting potentially thousands of ship movements, moving large amounts of people and goods brought into the international ports to all corners of the vast archipelago.

6.4 Estimate of garbage generation from international vessels in Solomon Islands

For the purpose of this review, information on shipping activities has been collected from a variety of sources and activities, using the same methods employed in previous port reception facility waste audits to estimate shipping waste generation. Garbage generation estimates assume 2 kilograms per person per day for non-cruise ships and 3 kilograms per person per day for cruise ships.

The assumption used by AMSA Port Waste Reception Facility is that ships spend an average of three days at sea prior to calling into international ports in the Solomon Islands (Australian Maritime Safety Authority, 2014). We have used this assumption for all international vessels except fishing vessels.

For fishing vessels, a different average number of days is applied following information from a recent FFA report that average days in the Pacific Islands (including the Solomon Islands) for purse-seiners is 28 days at sea followed by seven days in port, while for long-line vessels it is 14 days at sea followed by three days in port.

Table 6 Calculation of estimated garbage quantities, Ports of Honiara and Noro

Vessel	Average number of people on board	Average days at sea prior to port call	Annual visits	Garbage generated (kg/person/day)	Garbage generated per ship visit (kg)	Annual garbage generated (kg)
Non-cruise	25	3	1,049	2	150	157,350
Cruise liners	2,000	3	8	3	18,000	144,000
Purse-seiners	30	28	321	2	1,680	539,280
Long-liners	8	14	229	2	224	51,296
Total						**891,926**

As outlined in Table 6, the total annual generation of garbage by international vessels (including Solomon Islands-flagged fishing vessels) visiting the ports of Honiara and Noro is estimated at 891,926 kilograms (approximately 89 tonnes) with 66% of this from fishing vessels.

6.5 Alternative estimates of garbage from fishing vessels in the Solomon Islands

The Solomon Islands Ministry of Fisheries and Marine Resources recent 2018 report to the WCPFC Scientific Committee (WCPFC-SC14-AR/CCM-22) states the following fishing intensity for 2017:

Figure 9 Fishing intensity in Solomon Islands waters, 2017

National purse seine fleet	National pole and line fleet	Foreign long line vessels
•1,460 sea days • 1,279 fishing days in Solomon Islands EEZ	•255 sea days • 231 fishing days in Solomon Islands EEZ	•10,301 sea days • 9,663 fishing days in Solomon Islands EEZ

Based on average numbers of crew (30 for purse-seiners, eight for long-liners/pole-liners) and the previously reported generation of 2 kilograms of garbage per person per day, the overall garbage generation estimate for national fishing vessels and foreign fishing vessels based in Solomon Islands for 2017 is as follows:

Figure 10 Garbage generation estimates for fishing vessels

National purse seine fleet	National pole and line fleet	Foreign long line vessels
•175 tonnes per year	•4 tonnes per year	•164 tonnes per year

This estimate results in a total of 343 tonnes of garbage being produced by the national and locally based foreign vessels within the Solomon Islands EEZ, based on the number of days fishing vessels are on the water. It does not, however, account for the garbage produced by the 109 foreign-flagged fishing vessels operating from other countries in the Solomon Islands EEZ.

6.6 Estimate of actual versus notified garbage from vessels in Solomon Islands

Quarantine data for 2018 for the Port of Honiara was reported as 3,060 kilograms of garbage/quarantine waste accepted from seven vessels. When compared with the estimated 270,410 kilograms of waste generated by port-of-call vessels at the Port of Honiara, this means a little more than 1% of waste generated is being landed, with the remaining 99% being withheld for disposal at regional ports, destroyed on vessels by incineration, or dumped at sea.

For the Port of Noro, no quarantine data could be obtained, however a 2018 FFA study on fishing vessel waste management conducted at the Port of Noro found low levels of wastes being landed from fishing vessels (0.15 kilograms to 0.4 kilograms per person per day). Compared with fishing vessel data presented in Section 6.1, this equates to a total of 39.8 tonnes of garbage being landed, which is less than 7% of the estimated 590 tonnes of garbage from fishing vessels detailed in Table 6 and less than 12% of the 343 tonne estimate of garbage generated for the national and locally based foreign vessels discussed in Section 6.5.

This is a significant finding and should be taken into consideration in discussions related to the impact of shipping waste on the generation of marine litter in Solomon Islands.

6.7 Estimating garbage from domestic shipping in the Solomon Islands

Solomon Islands is a large Melanesian island country with a population of 531,000 and a land area of about 28,000 square kilometres. The country comprises six large islands, dozens of smaller islands, and hundreds of islets and atolls spread over a sea area of 1.5 million kilometres squared. More than 80% of the population live in rural villages of a few hundred residents.

Domestic shipping is vital to the country's transport sector as it provides access between the six main islands and smaller island groups, and is a means of transportation in rural areas where road coverage and road conditions are poor. Passengers use maritime transport for social, education, health, and commercial purposes. Goods are freighted between the outer islands and Honiara, for both inter-provincial trade and export. Imports include consumer goods, building materials and fuel.

Approximately 200 registered domestic vessels in the 30 to 120 tonne range service this need including the following:

Figure 11 Registered domestic vessels

The maritime infrastructure consists of international ports at Honiara and Noro, and Yandina (although Yandina no longer operates), approximately 86 small wharves and jetties, and 26 anchorages. A typical voyage will involve long distances to and from the main centres and export gateways (such as international ports) to remote islands and coasts.

Based on the information above, it is apparent that large amounts of wastes would be generated from domestic shipping (including garbage). Lack of data prevents any estimates from being generated at this time.

7 Gap Analysis – Port of Honiara

7.1 Overview

The Port of Honiara is the main port of entry into Solomon Islands, with up to 400 international vessels visiting per year moving over 32,000 twenty-foot equivalent unit (TEU) containers. Honiara has a deep-water international berth 120 metres long, with a maximum depth of 10.5 m alongside. Vessels up to 200 metres long can be handled. In addition, Solomon Islands Ports Authority (SIPA) operates an 85 metre wharf, with a depth of 3.4 metres alongside, as well as a barge ramp. Adjacent to the international Port of Honiara, there are seven small jetties for local cargo, passenger and fishing vessels. Fuel is discharged through a submarine cable and deposited into tanks on the wharf run by the two fuel importers.

Figure 12 Guadalcanal showing Port of Honiara

Figure 13 Aerial view of the Port of Honiara

Image 2 Main wharf area and the International Container Terminal

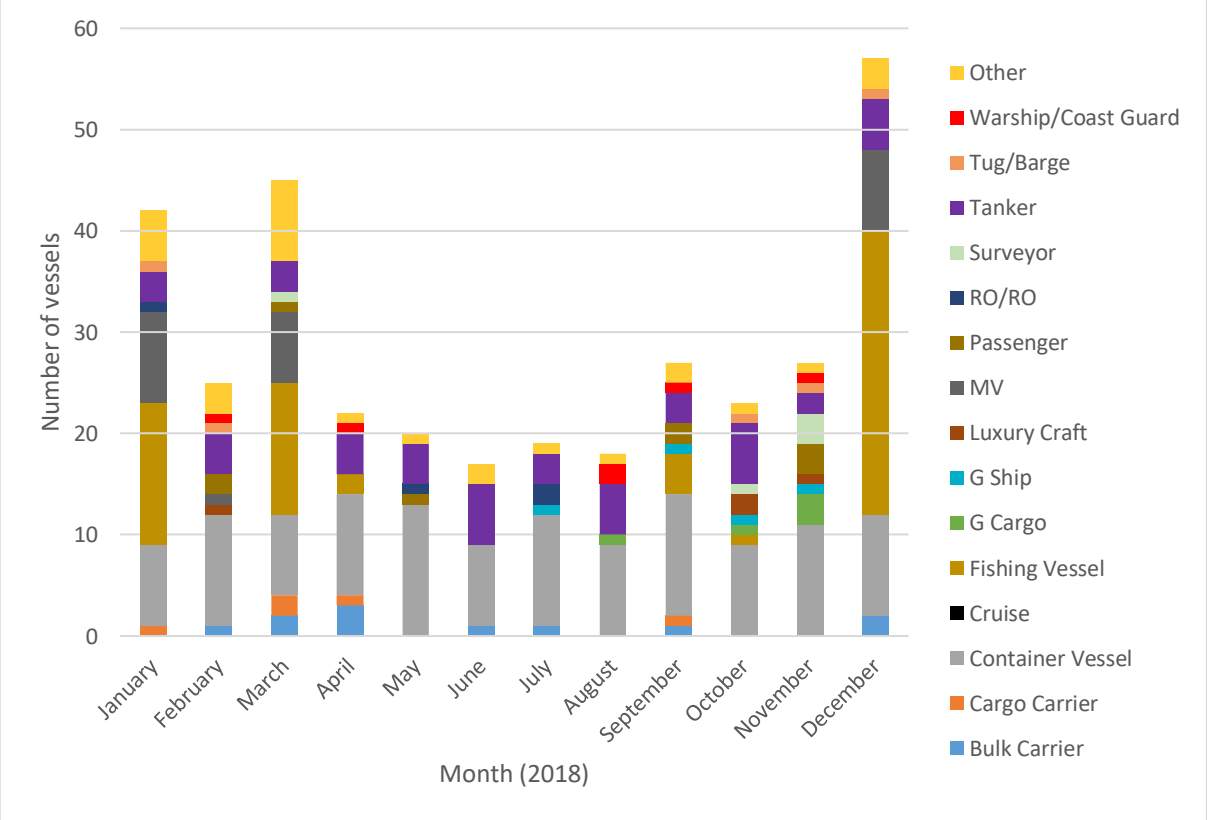
Image 3 Fuel storage tanks at the port

With facilities available to load and unload containers, Honiara is a port of call for a number of international shipping companies. Passenger ferry services operate from Honiara's main domestic wharf at Point Cruz; the notable operators are MV Pelican Express and MV Solomon Express, offering weekly services to Malaita and the western provincial cities of Mbunikalo, Seghe, Noro, and Gizo. The port is managed by Solomon Islands Port Authority (SIPA) which is responsible for all administrative matters, development and stevedoring operations.

Tug boat services are contracted to two companies: Pacific Towing (a Papua New Guinea company) and Dalgros (local). There are several local shipping agents — Tradco, Sullivans and IDC Shipping Agencies — handling the bulk of the port business. Transport from the port by road is mainly done by owner-operators, or cargo is shipped further on ferries and small boats to other islands. The port tariffs, inclusive of marine and cargo operations, increased by 300% to 400% from the 1 September 2015 (Toma, 2017).

In 2018, the Port of Honiara accommodated 342 vessels in total, with an average of 28.5 per month. Figure 14 shows the number of vessels received at the port for each month of 2018 by vessel type.

Figure 14 Vessels visiting Port of Honiara in 2018 by vessel type



7.2 Summary of Waste Reception Facilities: Port of Honiara

The Port of Honiara provides very limited reception facilities for garbage and quarantine wastes from international vessels. Reception facilities for oily wastes and sewage from international vessels are not available. Facilities to receive wastes from NLS are also not present, however bulk NLS vessels do not visit the port. The full summary of waste reception facilities at the Port of Honiara is outlined in Table 7 below.

Table 7 Port of Honiara: summary of waste reception facilities

Type of waste	Can waste be received?	Type of reception facility	Any limitations in capacity?	Service provider
Oil tankers: Oily tank washings or oily ballast water	No	–	–	–
All ships: oily bilge water, sludges, used oil lubricants	No	–		–
Chemical tankers: NLS	No	–	–	–
Sewage	No	–	–	–
Garbage: domestic vessels	Yes[1]	Drop-off at government domestic port (200 litre metal drums/wheelie bins)	Approximately 4 m^3 per ship	Solomon Islands Port Authority
Garbage – recyclables	Yes, but limited and subject to quarantine	Private drop-off to recyclers	No	Private recyclers
Garbage – fishing gear	Yes, subject to quarantine	Truck to landfill	No	Shipping agents/private contractors
Quarantine waste – all garbage from international vessels	Yes	• Loaded directly onto truck for transport to open burning or deep burial at the landfill. • The Ports Authority is in the process of constructing a high-temperature quarantine waste incinerator at the Port of Honiara, forecast to be operational by February 2019.	No 800 kg per day	Quarantine staff/shipping agents/private contractors Quarantine staff/Ports Authority
Ozone-depleting substances	No			
Exhaust gas cleaning system residues	No			

7.3 Demand for waste reception facilities

The demand for waste reception facilities for international shipping at the Port of Honiara is moderate, with just under 400 international vessels making port calls in 2018. However, this demand is mostly unfulfilled; there is a lack of infrastructure and services within Solomon Islands to adequately manage wastes that are generated on land, let alone further wastes from shipping. The

[1] SIPA provides drums and wheelie bins at the government domestic port and small boat port in Honiara and a weekly collection service. There are no services at provincial ports in Honiara.

one exception is the acceptance of very small amounts of garbage, mostly from some cruise liners and visiting naval vessels.

As a result, the Port of Honiara does not accept most of the waste generated in international shipping and instead uses the Pacific Regional Reception Facilities arrangements, discussed in Section 4.1.2. This effectively means that ships are expected to retain most of their wastes on board, mostly for disposal in Fiji but potentially at other ports in Australia, New Zealand and New Caledonia.

The current demand for waste reception facilities at the Port of Honiara is detailed in Table 8. It should be noted that the data is limited to waste generated and landed from those international vessels making port calls and does not account for waste generated from international fishing vessels in Solomon Islands waters, which are meant to dispose of such wastes in Fiji or other ports under the regional arrangements.

The available data is also unable to account for waste generated and disposed of by the considerable domestic intra-island fleet. This fleet is estimated to make more than 1,000 port calls to the other major islands and atolls, often on multi-day trips, with little infrastructure available to service these vessels.

The ability of the Port of Honiara to better service Annex V wastes (garbage) will greatly improve once the new quarantine waste incinerator is operational. The incinerator has the potential to destroy up to 400 tonnes of garbage/quarantine waste a year.

Table 8 Demand for waste reception facilities: International Port of Honiara

				Number of Requests for Waste Collection				
Ship type	No. of ship visits (2018)	Average range of dead weight (tonnes)	Average no. of pax on board	Oily wastes	NLS	Sewage	Garbage	Quarantine
Oil tankers	48	unknown	25	0	0	0	0	0
Crude oil tankers	0	-	-	-	-	-	-	-
Combination carriers	0	-	-	-	-	-	-	-
Chemical tankers	0	-	-	-	-	-	-	-
General cargo	59	unknown	25	0	0	0	0	0
Container carriers	120	unknown	25	0	0	0	1	1
Bulk carriers	11	unknown	25	0	0	0	0	0
Passenger ships	9	unknown	2,000	0	0	0	2	2
Livestock carriers	0	-	-	-	-	-	0	0
Fishing vessels	62	unknown	25	-	-	-	0	0
Recreational crafts	4	unknown	8	-	-	-	1	1

				Number of Requests for Waste Collection				
Ship type	No. of ship visits (2018)	Average range of dead weight (tonnes)	Average no. of pax on board	Oily wastes	NLS	Sewage	Garbage	Quarantine
Other	29	unknown	50	-	-	-	3	3

7.4 Assessment of Waste Reception Facilities

7.4.1 Oily wastes

There are no port waste reception facilities at the Port of Honiara for oily wastes from international ships. However, some domestic vessels offload used oils/oily wastes under limited conditions under a take-back scheme run by one oil/fuel supplier which will accept its returned end-of-life products but not used oils provided by other suppliers.

Given there is currently little means of treatment, disposal or use of oily wastes in Solomon Islands (minor use occurs in Noro), any potential oily waste received from ships would need to be stored. In most Pacific island countries, stockpiles of waste oils have built up as the result of low oil prices. There is now potential for this waste to be shipped for use in Fiji as a fuel replacement in the steel works and battery smelter.

Waste reception facilities for oily waste at the Port of Honiara were found to be:

1	**Less than satisfactory**	2	Satisfactory	3	Fully meets requirements

Given that every ship visiting Solomon Islands could be expected to have some oily waste on board, reception facilities for oily waste are inadequate to the requirements of ships using the port. This includes not only the international ships in Solomon Islands waters but also the considerable domestic shipping fleet which is both poorly regulated and has limited services except on a voluntary basis.

Management approaches could therefore be used to address oily wastes from both international and the domestic shipping in Solomon Islands waters in further supporting systems such as an extended producer responsibility schemes or introduction of advanced recycling fees for oil products.

It should be noted that Solomon Islands is able to invoke the regional reception facilities arrangements mentioned in Section 4.1.2 in having another port provide these services (such as in Fiji).

7.4.2 Noxious Liquid Substances (NLS)

Chemical tankers do not visit Honiara, so there is currently no demand for reception of NLS cargo residues in Honiara.

Based on the above information and the fact that NLS bulk carriers do not visit the port, the provision of waste reception facilities for NLS at the Port of Honiara was found to be:

1	Less than satisfactory	2	Satisfactory	**3**	**Fully meets requirements**

7.4.3 Sewage

There are no port waste reception facilities at the Port of Honiara for sewage from international or domestic ships. This reflects the general lack of systems for land-generated sources of sewage in Honiara as well.

Based on the lack of infrastructure and systems, the provision of waste reception facilities for sewage at the Port of Honiara was found to be:

1	**Less than satisfactory**	2	Satisfactory	3	Fully meets requirements

Given that every ship visiting the Solomon Islands could be expected to have some sewage on board, reception facilities for sewage are inadequate to the needs of ships using the port. This includes not only the international ships in Solomon Islands waters but also the considerable domestic shipping fleet which is both poorly regulated and has limited services except on a voluntary basis.

Management approaches could therefore be used to address sewage from both international and the domestic shipping in the Solomon Islands waters in further supporting systems connected to overall improvements of sewage management in Honiara itself that could be connected to the port.

It should be noted that the Solomon Islands is able to invoke the regional reception facilities arrangements mentioned in Section 4.1.2 in having another port (such as in Fiji) provide these services.

7.4.4 Garbage Disposal

The assessment of waste reception facilities for garbage disposal at the Port of Honiara is detailed in Table 9. The assessment found only a small number of international vessels request garbage to be accepted in port, including cruise ships, naval vessels, container ships and yachts, and such garbage is subject to appropriate quarantine and disposal procedures.

Table 9: Assessment of waste reception facilities for garbage disposal: Port of Honiara

		Yes	No
Garbage disposal – on shore			
1	Where is the garbage disposed of?		
	Local government dump/landfill	x	
	Private dump/landfill		
	Transfer station		
	Materials recycling facility		

		Yes	No
	Don't know		
2	Where are quarantine wastes disposed of?		
	incinerator		
	sterilisation		
	deep burial		
	normal landfill	x	
Garbage disposal – ship to shore			
3	Are there any restrictions on receipt or collection of garbage wastes?		x
	Minimum quantity		
	Maximum quantity		
	Vessel type		
	Vehicle access to berths		
4	Are garbage waste reception facilities available?		
	24 hours a day, 7 days per week		
	24 hours a day, 5 days per week	x	
	business hours only, 7 days per week		
	business hours only, 5 days per week		
	other (specify)		
5	Is prior notice for receipt of waste required:		
	0 hours		
	12 hours		
	24 hours		
	48 hours	x	
6a	Is the waste receipt service available:		
	at no cost		
	at a cost incorporated into standing port use charge		
	at a cost charged in addition to other services	x	
6b	Is the cost:		
	reasonable in terms of service	x	
	a disincentive		
	other		
7	Is a waste collection service available:		
	at all berths	x	
	at most berths		
	at only one berth		
	to vessels anchored within the port		
	to vessels anchored outside the port		
	other		

Based on the above, the assessment of the provision of waste reception facilities for garbage disposal at the Port of Honiara was found to be:

1	Less than satisfactory	**2**	**Satisfactory**	3	Fully meets requirements

Garbage at the Port of Honiara is generally only accepted from some naval vessels, cruise liners and visiting yachts, and is generally restricted to dry garbage. Dry garbage is subject to appropriate quarantine and disposal procedures at a cost of $1,000 SBD per 100 kilograms. While a large fishing fleet also operates in Solomon Islands waters, these vessels do not appear to offload waste at the

Port of Honiara and may instead offload waste at the Port of Noro or discharge wastes at other ports such as Fiji.

Other findings of relevance are as follows:

Figure 15 Port of Honiara: other relevant observations

During the field visit, Honiara Council advised that the Japanese style semi aerobic landfill (Fukuoka Method) that serves the city meets Japanese landfill standards but not the stricter US EPA standards and that the quarantine waste is destroyed through open burning.

A modern high temperature quarantine waste incinerator is being built with the Port of Honiara. This is a modern two stage, diesel powered unit capable of destroying 800 kg of quarantine waste per burn in accordance with minimum best practice requirements. It is being provided by the same company as the Honiara healthcare waste incinerator (Advanced Combustion Engineering).

The new incinerator should give the Port of Honiara the capability to destroy all garbage/quarantine waste generated by port of call ships (up to 400 vessels) which could assist in minimising waste leakage from ships with poor waste storage capabilities and improve revenue for the port to maintain waste infrastructure.

It has been noted by agents that cost may be a reason for deciding not to land garbage in the Port of Honiara. Tankers moored at the offshore discharge point do not currently land garbage.

The Biosecurity Act prohibits the landing of waste without permission from an authorised officer.

Quarantine bins are only provided when it is known quarantine waste will be unloaded from the ship. Security is afforded by normal port security arrangements. Quarantine wastes are immediately disposed of under the direction of a quarantine officer.

There are no signs.

7.4.5 Ozone-depleting Substances

No information was available on the demand for Annex VI reception facilities. No agents reported receiving requests for ODS or EGCS residues. Information was not available on the frequency of maintenance of refrigeration, fire or air-conditioning systems on ships in Honiara, and no information was available on the number of ships equipped with EGCS visiting Honiara.

7.4.6 Waste Management System

The assessment of the waste management system at the Port of Honiara is detailed in Table 10 . The assessment found that a waste management plan has not been developed specifically for the port or for waste from ships, though a separate Port Emergency Plan does exist.

The assessment of the waste management system at the Port of Honiara is detailed below.

Table 10 Assessment of waste management system: Port of Honiara

		Yes	No
1	Has a waste management plan (WMP) been developed and implemented for ship wastes?		x
2	Is the WMP part of an overall Environmental Management System (EMS) for the port?		x
3	Are marinas and fishing harbours covered by the port EMS or required to develop their own EMS?		x
4	Does the WMP provide a brief summary of the types of wastes received and the collection and disposal facilities/services?		x
5	Does the WMP address and provide management objectives for:		x
6	Operations:		x
	Facility management		x
	Maintenance		x
	Signage		x
	Infrastructure		x
	Contractual arrangements		x
	Emergency response		x
	Seasonal variations		x
	Training and education		x
	Delegation of responsibilities and accountability		x
	Compliance with regulatory conditions, including auditing		x
7	Technical standards:		
	Facility requirements		x
	Incorporation of new technologies		x
	Cleaning requirements		x
	Maintenance of equipment to technical standards		x
8	Environmental considerations:		
	Prevention of pollution to surface waters		x
	Noise emissions		x
	Visual impacts		x
	Odour emissions		x
	Special considerations due to surrounding environment (eg. proximity to wetland or mangrove areas)		x
	Coastal processes (eg. extreme tides)		x
9	Plans for future expansion/upgrades:		
	Oily wastes		x
	Noxious liquid substances		x
	Sewage		x
	Garbage	x	
	Recycling of wastes		x
	Quarantine wastes	x	
10	Are contact details held for all waste service providers?	x	
11	Are the service providers licensed/approved as required by legislation?		x
12	Are copies of the licences on file?	x	
13	Are copies of the licences for the waste disposal facilities used by the service providers held on file?		x
14	Have receipts for waste disposal been sighted/copies held on file?		x
15	Are alternative waste service providers or disposal facilities available (e.g. spare drums, waste oil recyclers)?	x	
16	Is there a procedure for choosing waste disposal service providers (e.g. list of preferred contractors)?		x
17	Are the details of back-up facilities available on file?		x

		Yes	No
18	Does the WMP include an emergency response plan?	x	
19	Is the plan adequate in that it addresses at least the following issues	x	
	spillage of liquid	x	
	spillage of solids	x	
	leakage of gas	x	
	fire or explosion	x	
	emergency contacts	x	
	other (specify)		
20	Is information recorded on the quantities of each waste stream received; date of receipt; disposal contractor; and method of disposal or treatment? (Data sighted/copies attached)		
	Oily wastes	N/A	
	Noxious liquid substances	N/A	
	Sewage	N/A	
	Garbage	x	
	Recycling of wastes	N/A	
	Quarantine wastes	x	
21	Are there variations in the quantities of each waste stream received?		
	in any one month (e.g. due to shipping variations)		
	in any one year (e.g. due to seasonal effects)		
	over a number of years (e.g. due to industry growth)		
	don't know		x
22	Is this information analysed on an on-going basis to detect changes in usage (both short-term season variations and long-term growth or reductions) and assist in formulating future plans? (Graphs sighted)		
23	Is on-going consideration given to changes in demand for waste reception facilities?		x
24	Do plans exist for future upgrades, extensions or reductions to the waste reception facilities?	x	
25	Is there an on-going process for reviewing existing facilities and determining changes that may be required to meet adequacy, timing or waste generation demands?		x
26	Are there provisions for audits against the WMP (at least within two (2) years of implementation and thereafter every three (3) years?		x
27	Is there provision for periodic review of the WMP?		x
28	Are the relevant requirements of the MARPOL 73/78, UNCLOS and IMO generally adhered to by the users of the port?	x	
29	Is there information on the state and local regulations regarding (please list legislation if known):	x	
	Waste management	x	
	Pollution of water	x	
	Pollution of air	x	
	Noise emissions	x	
	Discharges to sewer	x	
	Storage of dangerous goods	x	
30	Is there information on waste minimisation hierarchy i.e. avoid/reduce/reuse/recycle/reprocess?		x
31	Is an open and co-operative relationship maintained between the port authority and the relevant authorities and agents?	x	
32	Are there channels of communication and consultation with relevant organisations to ensure that particular changes in demand are considered in providing waste reception facilities? (Give examples of consultation methods)	x	
33	Do training programmes for port employees (both of the port authority and users) include a section on waste management and the facilities provided at the port?		x

		Yes	No
34	Is there a section in the WMP or a separate document which is included in agreements with port users and specifies requirements for the usage of port waste reception facilities?		x
35	Is clear and visible signage for waste reception facilities present and includes:		
	advice at initial vessel contact point of waste reception facilities:		x
	direction to receptacle or disposal point location:		x
	labelling of all receptacles and disposal points:		x
	contact numbers:	x	
	emergency procedures:	x	
	translation into other languages as required:		x
36	Are there information sheets/leaflets available for each waste reception facility?		x
37	Is this information conveyed to ships?		x

Based on the above, the waste management system at the Port of Honiara was assessed as being:

1	**Less than satisfactory**	2	Satisfactory	3	Fully compliant

8 Gap Analysis – Port of Noro

8.1 Overview

The Port of Noro on the Island of Munda is a secondary international port for the Solomon Islands. It contains a single berth with a limitation of 64 metres length overall (LOA) and a channel draft of 15 m. It experiences over 900 international ship visits per year (mostly fishing and logging vessels) and approximately 5,000 containers (TEU) landed and loaded per year. There are no other limitations other than the berth size. There are very few facilities and limited port infrastructure.

Figure 16 Island of Munda, showing location of Port of Noro

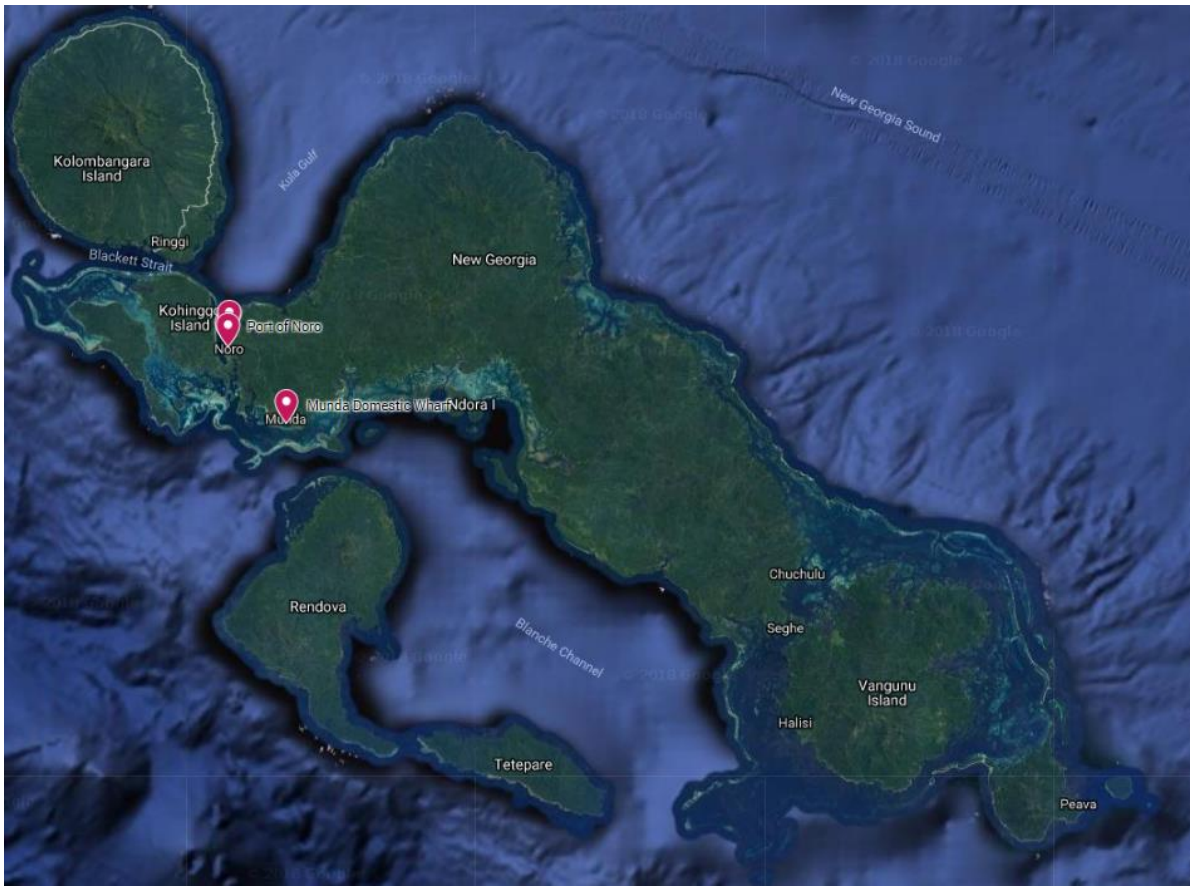


Figure 17 Aerial view of Noro Port

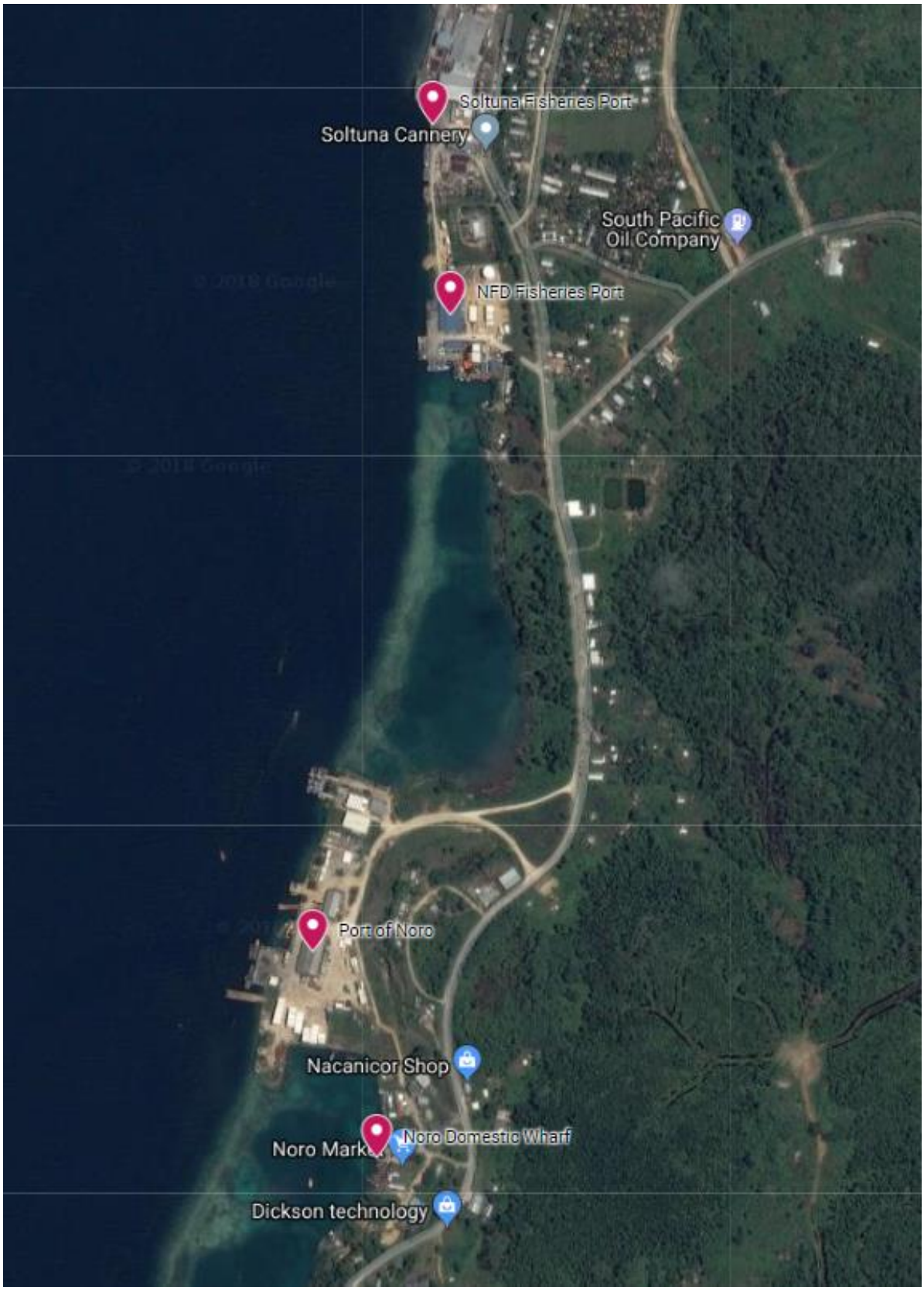


Image 4 Main wharf area and International Container Terminal

Image 5 Fuel storage in Port of Noro

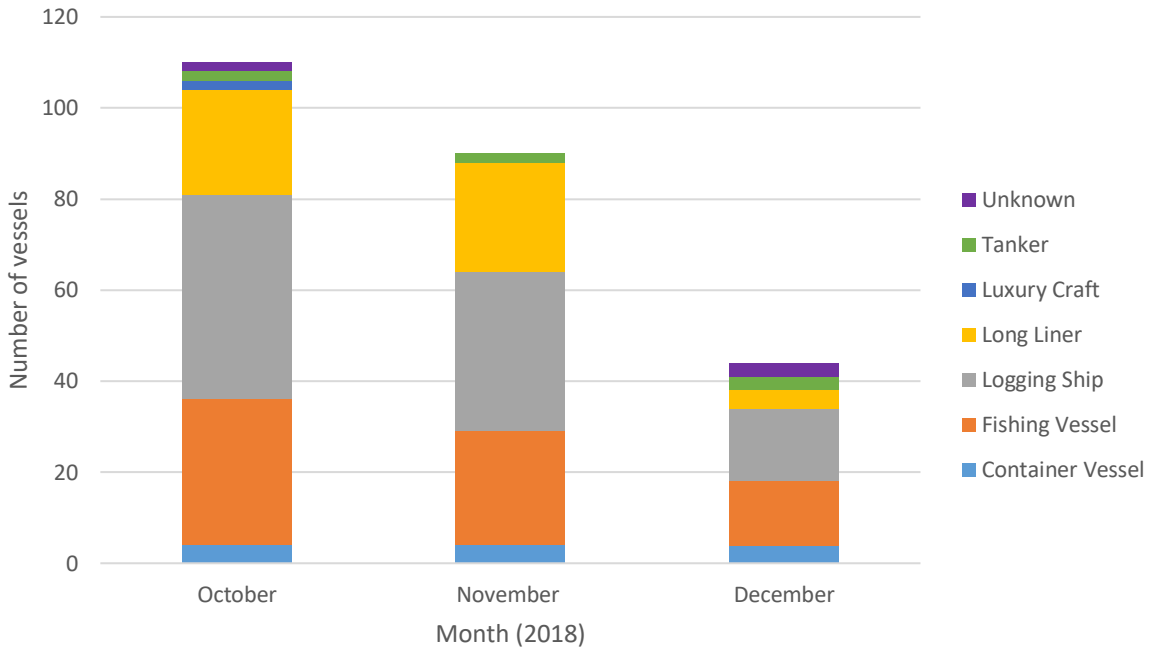
Tradco Shipping Ltd operates in the port with management by SIPA. Noro is home to major fishing fleet activity with both National Fisheries Development Ltd (NFD) and SolTuna operating at the port. Both tranship and export tuna, and SolTuna operates a cannery. The Port of Noro is also a major hub for Solomon Islands international movement of logging ships.

Image 6 SolTuna International Fisheries wharf

Image 7 NFD International Fisheries Wharf, Port of Noro

It is estimated, based on three months of 2018 data, that approximately 976 vessels visited the port in 2018 with an average of 81 vessels per month. Figure 18 depicts the number of vessels received at the port for each month of 2018 by vessel type.

Figure 18 Number of vessels visiting Port of Noro in 2018 by vessel type



8.2 Summary of Waste Reception Facilities: Port of Noro

The Port of Noro provides very limited reception facilities for garbage and quarantine wastes from international vessels. Reception facilities for oily wastes and sewage from international vessels are not available. It should be noted that the two fisheries companies largely manage their own waste as well as operating an aluminium can recycling centre and offering their services to the Township of Noro. Receival facilities for NLS are not present, but it is worth noting that bulk NLS vessels do not visit the Port. The full summary of waste reception facilities at the Port of Noro is outlined in Table 11.

Table 11 Summary of waste reception facilities: Port of Noro

Type of waste	Can waste be received?	Type of reception facility	Any limitations in capacity?	Service provider
Oil tankers: oily tank washings or oily ballast water	No			
All ships: oily bilge water, sludges, used oil lubricants	Domestic only but limited[2]	At the fisheries ports	Only for their product	SolTuna/NFD

[2] There is limited use by the fisheries companies for such wastes from fisheries vessels.

Type of waste	Can waste be received?	Type of reception facility	Any limitations in capacity?	Service provider
Chemical tankers: NLS	No			
Sewage	No			
Garbage: domestic vessels	On request (extrapolated from three months' data)	A few bins at domestic wharves/pick up by council or provincial government contractors	Very limited	Noro Town Council/Provincial Council Munda town
Garbage – recyclables	Yes subject to quarantine	Drop-off to recyclers	No	NFD & SolTuna
Garbage – fishing gear	Yes subject to quarantine. This is only possible for the International Port comprised of Noro and its two satellite fisheries ports of NFD and SolTuna.	Tractor to Noro landfill	No	Shipping agents/NFD & SolTuna
Quarantine waste – all garbage from international vessels	Yes	• Loaded directly onto truck for transport to open at the Noro dumpsite. The Ports Authority is in the process of constructing a high-temperature quarantine waste incinerator at the Port of Noro. This should be functional by February 2019 with a capacity to destroy all landed quarantine waste and garbage.	No 800 kg per day	Quarantine staff/shipping agents/NFD & SolTuna Quarantine staff/Ports Authority
Ozone-depleting substances	No			
Exhaust gas cleaning system residues	No			

8.3 Demand for waste reception facilities

The demand for waste reception facilities for international shipping at the Port of Noro is moderate, with over 700 international vessels making port calls in 2018. This demand is mostly unfulfilled. There is a lack of infrastructure and services within the country to adequately manage wastes that are generated on land, let alone further wastes from shipping. The one exception is the acceptance of garbage in the port from fisheries vessels, which is mostly self-managed by NFD and SolTuna collecting and transporting their own waste to the Noro dumpsite. Additionally, they use their vehicles to collect household and public waste from collection points in the town of Noro. It appears little garbage is collected from other international vessels, though this is unclear as no quarantine data was able to be obtained.

As a result, the Port of Noro does not accept most of the waste that is generated on international shipping and instead utilises the Pacific Regional Reception Facilities arrangements, discussed in

Section 4.1.2. This effectively means that ships are expected to retain most of their wastes onboard, mostly for disposal in Fiji but potentially at other ports in Australia, New Zealand and New Caledonia. The current demand for waste reception facilities at the Port of Noro was unable to be determined as quarantine waste data was not available and the management of garbage from fisheries vessels was also not reported.

There is also no available data to account for waste generated and disposed of by the considerable domestic intra-island fleet. This fleet is estimated to make more than 1,000 port calls to other major islands and atolls, often on multi-day trips, with little infrastructure to service this.

The ability of the Port of Noro to better service Annex V wastes (garbage) will greatly improve once the new quarantine waste incinerator is operational. The new incinerator has the potential to destroy up to 400 tonnes of garbage/quarantine waste a year, which will be sufficient to destroy all garbage and quarantine waste generated by vessels making port calls.

Table 12 Demand for waste reception facilities: International Shipping Port of Noro

				Number of requests for waste collection				
Ship type	No. of ship visits (2018)	Average range of dead weight (Tonnes)	Average no. of pax on board	Oily wastes	NLS	Sewage	Garbage	Quarantine
Oil tankers	28	unknown	25	0	0	0	0	0
Crude oil tankers	0	-	-	-	-	-	-	-
Combination carriers	0	-	-	-	-	-	-	-
Chemical tankers	0	-	-	-	-	-	-	-
General cargo	0	-	-	-	-	-	-	-
Container carriers	48	unknown	25	0	0	0	unknown	unknown
Bulk carriers	0	-	-	-	-	-	-	-
Passenger ships	0	-	-	-	-	-	-	-
Livestock carriers	0	-	-	-	-	-	-	-
Fishing vessels	448	unknown	25	unknown	0	0	unknown	unknown
Recreational crafts	8	unknown	8	unknown	0	0	unknown	unknown
Logging vessels	384			unknown	0	0	unknown	unknown
Other	8	unknown	50	unknown	0	0	unknown	unknown

8.4 Assessment of Waste Reception Facilities

8.4.1 Oily wastes

Noro receives two oil tankers per month. These ships are unloading, and generally only unloading a partial cargo, so there is currently limited need for reception facilities for cargo slops and oily ballast water. Ships larger than 400 GT are required by MARPOL Annex I to have a sludge tank, so most large vessels will be able to store a quantity of sludge on board prior to incineration or disposal.

There are no port waste reception facilities for oily wastes at the Port of Noro from international ships. Given there is currently little means of treatment, disposal or use of oily wastes in Solomon Islands (minor use occurs in Noro), any potential oily waste received from ships would need to be stored. In most Pacific island countries, stockpiles of waste oils have built up as the result of low oil prices, though there is potential for them to be shipped for use in Fiji as a fuel replacement in the steel works and battery smelter.

Based on the lack of infrastructure and systems, waste reception facilities for oily waste at the Port of Noro were found to be:

1	**Less than satisfactory**	2	Satisfactory	3	Fully meets requirements

Given that every ship visiting Solomon Islands could be expected to have some oily waste on board, reception facilities for oily waste are inadequate to the needs of ships using the port. This includes not only the international ships in Solomon Islands waters but also the considerable domestic shipping fleet, which is both poorly regulated and has limited services except on a voluntary basis.

Management approaches could therefore be used to address oily wastes from both the international and domestic shipping in Solomon Islands waters by further supporting systems such as an extended producer responsibility schemes or the introduction of advanced recycling fees for oil products.

It should be noted that Solomon Islands is able to invoke the regional reception facilities arrangements mentioned in Section 4.1.2 in having another port provide these services (such as in Fiji).

8.4.2 Noxious Liquid Substances (NLS)

Chemical tankers do not visit Noro, so there is currently no demand for reception of NLS cargo residues in Noro.

Based on the above, and the fact that NLS bulk carriers do not visit the port, the provision of waste reception facilities for NLS at the Port of Noro was found to be:

1	Less than satisfactory	2	Satisfactory	**3**	**Fully meets requirements**

8.4.3 Sewage

There are no port waste reception facilities at the Port of Noro for sewage from international or domestic ships. This reflects the general lack of systems for land-generated sources of sewage in the region.

Based on the lack of infrastructure and systems, the provision of waste reception facilities for sewage at the Port of Noro was found to be:

1	**Less than satisfactory**	2	Satisfactory	3	Fully meets requirements

Given that every ship visiting Solomon Islands could be expected to have some sewage on board, reception facilities for sewage are inadequate to the needs of ships using the port. This includes not only the international ships in Solomon Islands waters but also the considerable domestic shipping fleet, which is both poorly regulated and has limited services except on a voluntary basis.

Management approaches could therefore be used to address sewage from both international and domestic shipping in further supporting systems connected to overall improvements of sewage management in Noro itself that could then be connected to the port.

It should be noted that Solomon Islands is able to invoke the regional reception facilities arrangements mentioned in Section 4.1.2 in having another port (such as in Fiji) provide these services.

8.4.4 Garbage Disposal

The assessment of waste reception facilities for garbage disposal at the Port of Noro is detailed in Table 13. The assessment was unable to determine the number of international vessels requesting garbage to be accepted in port, but did identify that garbage from fisheries is self-managed by NFD and SolTuna that conduct their own transport to the Noro dump site where the garbage is subject to appropriate quarantine and disposal procedures.

Table 13 Assessment of waste reception facilities for garbage disposal: Port of Noro

		Yes	No
Garbage disposal – on shore			
1	Where is the garbage disposed of?		
	Local government dump/landfill	x	
	Private dump/landfill		
	Transfer station		
	Materials recycling facility		
	Don't know		
2	Where are quarantine wastes disposed of?		
	incinerator		
	sterilisation		
	deep burial		
	normal landfill	x	
Garbage disposal – ship to shore			

		Yes	No
3	Are there any restrictions on receipt or collection of garbage wastes?		x
	Minimum quantity		
	Maximum quantity		
	Vessel type		
	Vehicle access to berths		
4	Are garbage waste reception facilities available?		
	24 hours a day, 7 days per week		
	24 hours a day, 5 days per week	x	
	business hours only, 7 days per week		
	business hours only, 5 days per week		
	other (specify)		
5	Is prior notice for receipt of waste required:		
	0 hours		
	12 hours		
	24 hours		
	48 hours	x	
6a	Is the waste receipt service available:		
	at no cost		
	at a cost incorporated into standing port use charge		
	at a cost charged in addition to other services	x	
6b	Is the cost:		
	reasonable in terms of service	x	
	a disincentive		
	other		
7	Is a waste collection service available:		
	at all berths	x	
	at most berths		
	at only one berth		
	to vessels anchored within the port		
	to vessels anchored outside the port		
	other		

Based on the above, the assessment of the provision of waste reception facilities for garbage disposal at the Port of Noro was found to be:

1	**Less than satisfactory**	2	Satisfactory	3	Fully meets requirements

It is unknown which particular vessels garbage is generally accepted from at the port, but based on wastes managed by the fisheries companies, garbage appears to generally be restricted to dry garbage and is subject to appropriate quarantine and disposal procedures.

Other findings of relevance are as follows:

Figure 19 Port of Noro: other relevant observations

During the field visit, Noro Town Council advised that the dumpsite is a controlled site where most of the waste is subject to periodic open burning; this does not meet international best practice in relation to emissions. All quarantine waste are destroyed through open burning.

A modern high temperature quarantine waste incinerator is being built with the Port of Noro. This is a modern two stage, diesel powered unit capable of destroying 800 kg of quarantine waste per burn in accordance with minimum best practice requirements. It is being provided by the same company as the Honiara healthcare waste incinerator (Advanced Combustion Engineering).

The new incinerator should give the Port of Noro the capability to destroy all garbage/quarantine waste generated by port of call ships (up to 400 vessels) which could assist in minimising waste leakage from ships with poor waste storage capabilities, and improve revenue for the port to maintain waste infrastructure.

The Biosecurity Act prohibits the landing of waste without permission from an authorised officer.

Quarantine bins are only provided when it is known quarantine waste will be unloaded from the ship. Security is afforded by normal port security arrangements. Quarantine wastes are immediately disposed of under the direction of a quarantine officer.

There are no signs.

8.4.5 Ozone-depleting Substances

No information was available on the demand for Annex VI reception facilities. No agents reported receiving requests for ODS or EGCS residues. Information was not available on the frequency of the maintenance of refrigeration, fire or air-conditioning systems on ships in Noro, and no information was available on the number of ships equipped with EGCS visiting Noro.

8.4.6 Waste Management System

The assessment of the waste management system at the Port of Noro is detailed in Table 14. The assessment found that a waste management plan has not been developed specifically for the port or for waste from ships. However, a separate Port Emergency Plan does exist.

Table 14 Assessment of waste management system: Port of Noro

		Yes	No
1	Has a waste management plan (WMP) been developed and implemented for ship wastes?		x
2	Is the waste management plan part of an overall environmental management system (EMS) for the port?		x
3	Are marinas and fishing harbours covered by the port EMS or required to develop their own EMS?		x

		Yes	No
4	Does the WMP provide a brief summary of the types of wastes received and the collection and disposal facilities/services?		x
5	Does the WMP address and provide management objectives for:		x
6	Operations:		x
	Facility management		x
	Maintenance		x
	Signage		x
	Infrastructure		x
	Contractual arrangements		x
	Emergency response		x
	Seasonal variations		x
	Training and education		x
	Delegation of responsibilities and accountability		x
	Compliance with regulatory conditions, including auditing		x
7	Technical standards:		
	Facility requirements		x
	Incorporation of new technologies		x
	Cleaning requirements		x
	Maintenance of equipment to technical standards		x
8	Environmental considerations:		
	Prevention of pollution to surface waters		x
	Noise emissions		x
	Visual impacts		x
	Odour emissions		x
	Special considerations due to surrounding environment (e.g. proximity to wetland or mangrove areas)		x
	Coastal Processes (e.g. extreme tides)		x
9	Plans for future expansion/upgrades:		
	Oily wastes		x
	Noxious liquid substances		x
	Sewage		x
	Garbage	x	
	Recycling of wastes		x
	Quarantine wastes	x	
10	Are contact details held for all waste service providers?	x	
11	Are the service providers licensed/approved as required by legislation?		x
12	Are a copy of the licences on file?	x	
13	Are a copy of the licences for the waste disposal facilities used by the service providers held on file?		x
14	Have receipts for waste disposal been sighted/copies held on file?		x
15	Are alternative waste service providers or disposal facilities available (e.g. spare drums, waste oil recyclers)?	x	
16	Is there a procedure for choosing waste disposal service providers (e.g. list of preferred contractors)?		x
17	Are the details of back-up facilities available on file?		x
18	Does the WMP include an emergency response plan?	x	
19	Is the plan adequate in that it addresses at least the following issues?	x	
	spillage of liquid	x	
	spillage of solids	x	
	leakage of gas	x	

		Yes	No
	fire or explosion	x	
	emergency contacts	x	
	other (specify)		
20	Is information recorded on the quantities of each waste stream received; date of receipt; disposal contractor; and method of disposal or treatment? (Data sighted/copies attached)		
	Oily wastes	N/A	
	Noxious liquid substances	N/A	
	Sewage	N/A	
	Garbage		x
	Recycling of wastes	N/A	
	Quarantine wastes		x
21	Are there variations in the quantities of each waste stream received?		
	in any one month (e.g. due to shipping variations)		
	in any one year (e.g. due to seasonal effects)		
	over a number of years (e.g. due to industry growth)		
	don't know		x
22	Is this information analysed on an on-going basis to detect changes in usage (both short term season variations and long-term growth or reductions) and assist in formulating future plans? (Graphs sighted)		
23	Is on-going consideration given to changes in demand for waste reception facilities?		x
24	Do plans exist for future upgrades, extensions or reductions to the waste reception facilities?	x	
25	Is there an on-going process for reviewing existing facilities and determining changes that may be required to meet adequacy, timing or waste generation demands?		x
26	Are there provisions for audits against the WMP (at least within two (2) years of implementation and thereafter every three (3) years?		x
27	Is there provision for periodic review of the WMP?		x
28	Are the relevant requirements of the MARPOL 73/78, UNCLOS and IMO generally adhered to by the users of the port?	x	
29	Is there information on the state and local regulations regarding (please list legislation if known):	x	
	Waste management	x	
	Pollution of water	x	
	Pollution of air	x	
	Noise emissions	x	
	Discharges to sewer	x	
	Storage of dangerous goods	x	
30	Is there information on waste minimisation hierarchy i.e. you avoid/reduce/reuse/recycle/reprocess?		x
31	Is an open and co-operative relationship maintained between the port authority and the relevant authorities and agents?	x	
32	Are there channels of communication and consultation with relevant organisations to ensure that particular changes in demand are considered in providing waste reception facilities? (Give examples of consultation methods)	x	
33	Do training programmes for port employees (both of the port authority and users) include a section on waste management and the facilities provided at the port?		x
34	Is there a section in the WMP or a separate document which is included in agreements with port users and specifies requirements for the usage of port waste reception facilities?		x
35	Is clear and visible signage for waste reception facilities present and includes:		
	advice at initial vessel contact point of waste reception facilities:		x
	direction to receptacle or disposal point location:		x
	labelling of all receptacles and disposal points:		x

		Yes	No
	contact numbers:		x
	emergency procedures:		x
	translation into other languages as required:		x
36	Are there information sheets/leaflets available for each waste reception facility?		x
37	Is this information conveyed to ships?		x

Based on the above, the waste management system at the Port of Noro was assessed as being:

1	**Less than satisfactory**	2	Satisfactory	3	Fully compliant

9 Gap analysis – Domestic Ports

9.1 Overview

Domestic ports associated with the Port of Honiara, the Port of Noro and the Port of Gizo were also investigated, as well as wharf areas, small boats areas and other drop-off points on the islands of Guadalcanal, Munda, Gizo and Malaita.

As has been indicated earlier in this report, domestic ports and domestic shipping are not subject to the requirements of MARPOL but instead fall under national legislation requirements.

However, with up to 200 registered domestic vessels in the 30 to 120 tonne range servicing more than 80 port, wharfage and anchorage sites for approximately 80% of the population, it is a critical area, with the quantities of waste and pollution potentially being a similar magnitude to that of international shipping.

The information provided in this report is necessarily limited to a description of what was observed during the in-country visits. There is insufficient information available to calculate potential volumes of wastes and no such information on domestic shipping waste appears to be collected by government authorities.

9.2 Summary of Waste Reception Facilities

Waste reception facilities for domestic ports and wharves in the Solomon Islands vary widely, as does management responsibility. As the size of the domestic port or wharf diminishes, responsibility typically falls to more general levels of government and infrastructure and services decrease. Below is a summary of representative examples of domestic ports and wharves observed during the in-country visits for this project.

Figure 20 Examples of domestic ports

Domestic port associated with Port of Honiara	Port of Gizo	Wharf area in Munda
• Very large and can be expected to rival international ports in the Pacific in relation to the number of ships berthed, ship movements and quantities of goods and people moved. • Administratively as a domestic government port, falls under the regulatory jurisdiction of SIPA.	• In terms of activity, many magnitudes below that of Honiara's domestic port • Administratively , falls under the Gizo Town Council under the Western Province Provincial Government which manages the wharf as part of its overall responsibilities for waste and pollution.	• Services even lower levels of shipping and smaller vessels • No town council with waste responsibilities therefore defaulting directly to the Western Province Provisional Government.

Figure 21 Location of Gizo wharf

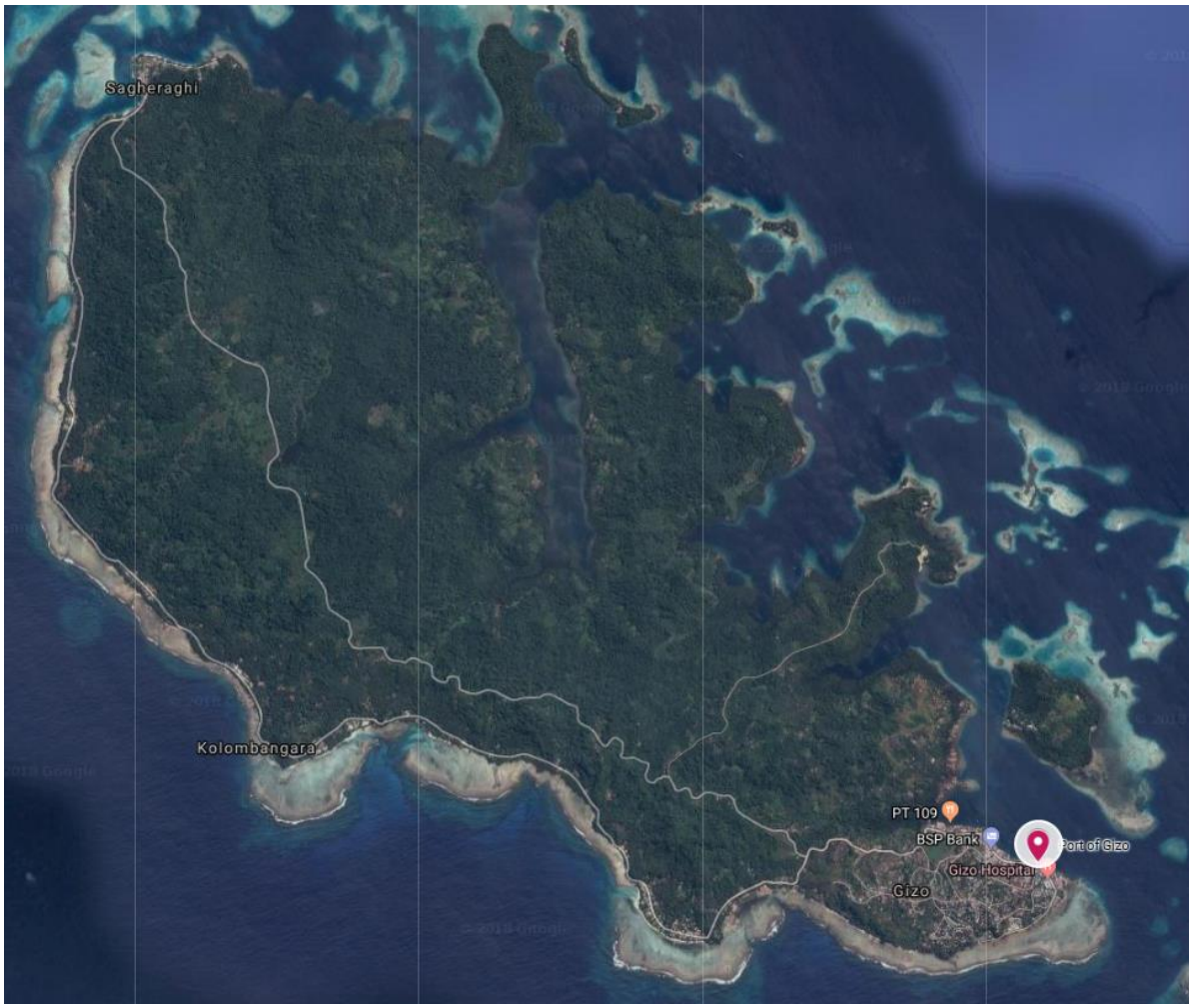


Figure 22 Aerial view of Gizo wharf

Image 8 Government domestic port – Honiara

Image 9 Small domestic boat area – Honiara

Image 10 Gizo main wharf area

Image 11 Gizo Hotel private jetty

9.3 Demand for Waste Reception Facilities

The lack of data on domestic shipping prevents an empirical discussion on demand. The magnitude of goods and services moved and the number of ships and ship movements would correspond to substantial quantities of ship-generated wastes, particularly oily wastes, sewage and garbage (including plastics). More data collection is required.

Image 12 Noro Town domestic wharf

9.4 Assessment of Waste Reception Facilities

Domestic ports typically rely on the waste management facilities that have already been established for the needs of a port, city or township. Where these are larger, such as in Honiara, the domestic shipping waste reception facility requirements are able to tap into established facilities. Where they are moderate, such as in Gizo, it is more challenging, and at smaller areas, such as Munda Ward, they become rudimentary.

For domestic shipping across Solomon Islands, the lack of any infrastructure for receiving and managing oily wastes and sewage for international ships correspondingly means there is no capacity to deal with these wastes domestically. For garbage, domestic shipping wastes can make use of the available systems present for managing municipal garbage and garbage from international shipping, where these systems exist.

Unlike international shipping waste, domestic shipping waste such as sewage and garbage are not deemed quarantine waste, so their management can be integrated into general municipal systems. Unlike international wastes, however, domestic shipping waste is not subject to MARPOL requirements and typically are also under-financed, meaning that the regulatory drivers to use waste reception facilities are weak and the financial barriers may be high.

Image 13 Munda Town domestic wharf

9.4.1 Oily wastes

There was no evidence oily wastes are collected or managed in any organised way across the differently sized domestic ports, with the possible exception of voluntary take-back schemes between the oil providers and some of the larger domestic shipping lines at the Honiara domestic government wharf. Anecdotal information suggests that most oily waste is discarded at sea. Similarly to oily wastes from international shipping vessels, appropriate management is hampered by the lack of disposal capability within Solomon Islands for such wastes.

9.4.2 Sewage

There was no evidence that sewage is collected or managed in any organised way across the differently sized domestic ports, though the Honiara domestic government wharf does include toilets which can be used for a fee. Advice from the authorities is that sewage is discharged at sea. Consistent with the comments for oily wastes above and for international shipping vessels, this is hampered by the lack of disposal capability within Solomon Islands for such wastes, though development of municipal sewage treatment systems could also incorporate domestic shipping and ports/wharves.

9.4.3 Garbage Disposal

Garbage disposal at the domestic port, wharf or shipping precinct closely mirrors the collection and disposal systems present in the city, town or province. The representative examples of Honiara, Gizo and Munda have the following systems in place for garbage from domestic ships:

Figure 23 Examples of garbage disposal at domestic ports

Domestic port associated with Port of Honiara	Port of Gizo	Wharf area in Munda
• SIPA provides signage warning of fines for littering, disposal points, labelled collection bins (wheelie bins /200 litre drums) and a weekly collection service using their own vehicles. • The collected wastes are disposed of at Ramadi Landfill and SIPA collects fees via the overall wharfage charges. • The collection service covers both the main domestic government wharf as well as the 'yacht area'. Enforcement officers are present at fixed points at the domestic government wharf. • SIPA advised it provides information to domestic ships on the need to retain garbage on board their vessels through providing bins to passengers, not to dispose of such waste at sea and to use the disposal facilities at the port.	• The wharf area is closely associated with the Gizo Market and any waste landed by ships is collected by the Gizo Town Council. • This waste is then transported by compactor truck to the Gizo secure dump site. • However, no waste infrastructure is provided at the port nor are there any signs, enforcement or toilets. • Gizo Town Council collection is provided free of charge throughout the municipal area and the wharf area.	• The wharf area is closely associated with the Munda Market as well as 'Dive Munda' and any waste present in this area is collected by a private contractor funded by the Western Province Provincial Government. • Infrastructure consists of 200 unmarked oil drums placed throughout the small market which can be used for garbage landed by ships at Munda Wharf or by the market. • This waste is transported weekly by a hired truck to an illegal dumpsite via Munda International Airport though there are plans to establish a legal dumpsite and relocate this waste. • For the Munda Wharf, except for the collection bins, there are no signs, enforcement or toilets and no charge for the service.

9.4.4 Waste Management System at domestic ports

Currently, there is no apparent management of oily wastes and sewage from domestic shipping. Regulations prohibiting or controlling this are in place but the level of resourcing for enforcement is low. Management of garbage depends on where the shipping waste is landed and whether enforcement and infrastructure are present, with the only obvious example of this being at Honiara's domestic government wharf under SIPA's regulatory control.

The current management of wastes from domestic shipping is currently incomplete and not covered by a specific mechanism or governed by a specific authority. Instead, domestic shipping waste is dealt with where it intersects with management systems for international shipping wastes and land-based waste systems.

Improvements in the management of domestic shipping waste depend on improvements being made in infrastructure, systems for managing international shipping waste, capacity building, training and

awareness and land-based waste management. Increased investment in these areas is required, as well as specific mechanisms to ensure these improvements also apply to domestic shipping waste.

Data collection is also critical in informing decision-making processes so that investments in improvements are prioritised, and that the impacts of domestic shipping wastes are quantified along with impacts of international shipping and land-based sources.

10 Conclusions and recommendations

10.1 Summary of waste reception assessments

The assessments concluded reception facilities for oily wastes and sewage to be less than satisfactory at both major ports due to the lack of receival infrastructure. Garbage disposal was assessed as satisfactory at the Port of Honiara and unsatisfactory at the Port of Noro. While both locations were assessed as meeting requirements for the reception of residues from NLS, it should be noted that these facilities are not required and therefore can be viewed as meeting the specific requirements at both locations. As outlined in Table 15, both ports received an assessment of less than satisfactory overall.

Table 15 Summary of waste reception assessments for the Port of Honiara and Port of Noro

Waste type	Port of Honiara	Port of Noro
Oily waste	(1) Less than satisfactory	(1) Less than satisfactory
Noxious liquid substances	(3) Meets all requirements	(3) Meets all requirements
Sewage	(1) Less than satisfactory	(1) Less than satisfactory
Garbage disposal	(2) Satisfactory	(1) Less than satisfactory
Waste management system	(2) Less than satisfactory	(1) Less than satisfactory
Overall	**(1) Less than satisfactory**	**(1) Less than satisfactory**

10.2 Recommendations

Noting the challenges faced by the Solomon Islands and many other Pacific island countries in providing adequate waste reception facilities for ships, recommendations have been made in order to:

- Improve waste reception facilities at both locations
- Assist in meeting obligations under international, national and local laws
- Minimise the leakage of ship-based sources of waste into the environment.

The recommendations are as follows:

Figure 24 Summary of recommendations

Each recommendation is discussed in detail below.

10.2.1 Develop a National Port Reception Facility Waste Management Plan

The relationship between the port authority and the relevant authorities and agents is not completely clear, as the system in Solomon Islands is evolving with the designation of a new Solomon Islands Marine Safety Authority and a critically understaffed Environment department. Each agency is aware of the contact details for relevant people in other agencies but there is an urgent need to develop a plan delineating responsibilities and co-ordination. Individually the SIPA and Quarantine services carry out their duties diligently, however there are no apparent co-ordination and consultation mechanisms to allow planning to occur efficiently.

It is recommended that a plan be developed that defines roles, assigns tasks, sets standards and provides an interface for communication and co-ordination between stakeholders. It should integrate all the requirements for port and shipping wastes to ensure that the Solomon Islands meets its obligations under international, national and local laws. It can also help highlight where human resource and capability gaps exist so that responses can be made to address these, matched to processes and timelines. It is also recommended that the plan is expanded to include both international and domestic shipping.

This recommendation has been discussed with stakeholders in government including the PIMC Governing Council representatives, SPC, fisheries, SIMSA, SIPA, quarantine services, Environment department, councils and wards as well as the maritime training college and private sector representatives. Stakeholders are supportive of this recommendation.

10.2.2 Extend waste requirements for international shipping to include domestic shipping

It is recommended that waste management requirements for international shipping be extended to cover the significant amount of domestic shipping. Domestic shipping is poorly regulated, with very limited services. This should particularly focus on garbage (including plastic), sewage and oily wastes.

This could build on the work by early self-starters, such as who have already voluntarily transposed MARPOL requirements onto their domestic fleet. As this is already a specific focus of SIMSA and SIPA in concert with regional partners, assistance could be given for the translation of legislation, procedures and planning. This should, in turn, be used to identify the infrastructure, equipment, capacity building, training and awareness that would be required to achieve the goal.

10.2.3 Link to existing maritime training and regional initiatives

There is great potential to extend waste management training relevant to both domestic and international shipping through links with the existing mandatory maritime courses and national fisheries observer courses provided by the Maritime College. This would introduce improved waste management practices to hundreds of currently trained Solomon Islands mariners a year, and further utilise the National Fisheries observers to conduct improved reporting on waste from fishing vessels.

There are two other regional initiatives of relevance to improved port and ship waste management co-ordinated by the Secretariat of the Pacific Community (SPC): the Pacific Domestic Ship Safety Initiative (PDSSI) and the Green Ports Programme. These can be used to promote better waste management through encouraging infrastructure improvements for waste at ports and on ships, as well as raising awareness, training and further development of a waste services industry.

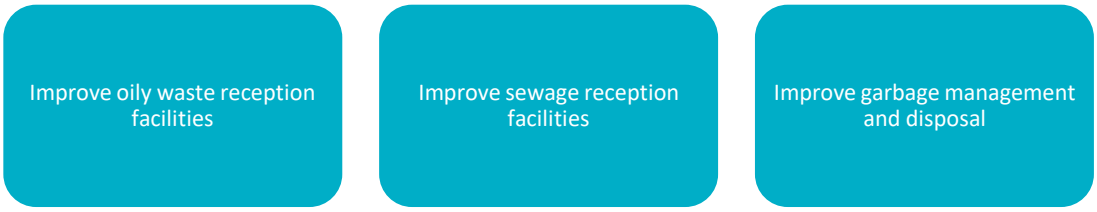
This recommendation has been discussed with national stakeholders as well as with the governing council representatives and SPC. These stakeholders are interested in this recommendation and have requested that CLiP present at the next governing council meeting planned for February 2019.

10.2.4 Improve arrangements for waste management for international and domestic shipping

There are a number of infrastructure and arrangement improvements which are recommended for oily wastes, sewage and garbage management from ports and shipping. These need to be considered as part of the overall management of waste streams generated from both land and ship sources (international and domestic shipping) and should be included in the National Port Reception Facility Waste Management Plan (see Section10.2.1).

The recommended improved arrangements are summarised as follows:

Figure 25 Summary of recommended improvements in shipping waste management



Each is discussed in detail below.

10.2.4.1 Improve oily waste reception facilities

There are very few avenues available to dispose of oily wastes and there is a concern that much of the oily waste from domestic vessels is disposed of or lost at sea or in harbours. Only a few domestic shipping companies are anecdotally known to collect and dispose of such waste on land.

There is no option for international vessels to dispose of oily wastes, meaning they have to store such wastes until they can dispose of them to a 'regional port' able to receive them, such as the Port of Suva in Fiji.

For smaller international vessels with limited storage capacity and longer residence time in Solomon Island waters, this increases the risk that oily waste will be disposed of within Solomon Islands EEZ (along with other wastes).

Take-back systems are present in other Pacific islands. While these systems are currently predominantly linked with land-based sources of oily wastes (power stations, commercial, vehicles etc.), port and ship sources could be linked to this as part of a comprehensive oily waste management system, building on other successful approaches in the Pacific.

This is expected to be largely an industry-led approach, with government creating and maintaining an enabling environment. If there is no viable domestic use for these wastes, links will be necessary into regional outlets for oily wastes such as those in Fiji (steel works, lead smelter).

It is therefore recommended that the results and approaches for the SPREP-administered GEF-PAS uPOPS project, which generated a used oil management plan in 2014, should also be considered and linked to the new National Port Reception Facility Waste Management Plan (see Section 10.2.1).

10.2.4.2 Improve sewage reception facilities

There is concern that much of the sewage from domestic vessels is disposed of or lost at sea and in harbours.

Apart from Honiara, there are no toilets at domestic ports, and while pump-out sewage tankers can access the ports, there are no standard arrangements for such a service. Even the international terminal has a critical lack of sewage collection and treatment just for the port staff. There is no capacity for international sailors, tourists from cruise ships or naval personnel who regularly visit the ports.

There is currently no option for international vessels to dispose of sewage, which means they must store sewage until they can dispose of it to a regional port capable to receive it, such as the Port of Suva in Fiji. The only alternative is disposal at sea.

For smaller international vessels with limited storage capacity and longer residence time in Solomon Islands waters, this increases the risk that sewage will be disposed of within Solomon Islands EEZ (along with other wastes). However, there is potential for certain volumes of sewage to be landed and treated or disposed of using the current systems. This should be included in overall port and country plans for sewage treatment.

The planned relocation of fish transshipments for international export from the Port of Honiara to the Port of Noro will greatly increase the need for port reception facilities at the Port of Noro, as almost all of the fishing vessels operating in the Port of Honiara will start to make port calls for the first time instead of offloading their catch elsewhere and resupplying at other ports.

As with the management of waste oil, the management of ship-generated sewage in Solomon Islands needs to be integrated with the land-based system and linked with the expansion of port activities, requiring improved waste infrastructure.

It is therefore recommended that a ports sewage plan is developed for both domestic and international ports and shipping, and that this plan is linked to the National Port Reception Facility Waste Management Plan (see Section 10.2.1). The Ports Sewage Plan should identify and prioritise actions and infrastructure such as further enabling ship sewage pump-out, establishing toilets on wharves, introducing fees and charges, regulation, ship audits and enforcement.

10.2.4.3 Improve garbage management and disposal

While the quarantine services effectively manage the removal of limited dry waste from international shipping, transportation is typically in open vehicles which may easily lose materials on route to the disposal site, as the bags are typically tied down with ropes. This should be rectified by using enclosed caged trays.

Recording of waste data is also poor and should be corrected through training, appropriate templates and provision of software and hardware. Data should be regularly reported via a system linked to the National Port Reception Facility Waste Management Plan (see Section10.2.1).

The disposal sites themselves are generally unsecured and quite distant from the ports, which creates a chain of custody issues and adds time and transport costs for quarantine staff directly conducting the work or supervising contractors. For Port of Noro, provision of waste services for free by the tuna companies is not ideal in terms of propriety and governance.

Disposal by open burning or burning in incinerators does disinfect the waste, but also produces air pollutants and products of incomplete combustion. This is poor practice and does not meet best available technology or best environmental practice. It is also potentially harmful to human health and the environment and contrary to the Stockholm Convention.

However, the investment by SIPA in modern and large quarantine waste incinerators at both the Port of Honiara and Port of Noro can potentially eliminate this issue, allowing treatment of all garbage and quarantine waste generated by international shipping within Solomon Islands EEZ. This is likely to increase the current cost to the customer. Such a system is not however feasible for domestic shipping waste as it would be cost-prohibitive. Domestic garbage is not classified as quarantine waste and can therefore be disposed of to landfill at a much lower cost.

Waste awareness campaigns, signs and infrastructure such as bins are absent from most domestic ports, while only wheelie bins are provided at international ports. It is recommended these are provided for in the National Port Reception Facility Waste Management Plan (see Section 10.2.1). Domestic shipping needs to be the target of a specific garbage management plan with emphasis on best-practice training, regulation and raising of awareness around these issues.

10.2.5 Improve data collection for shipping waste in Solomon Island waters

Data was collected directly for international shipping through reports provided by the Ports Authority and Quarantine department as well as from international and regional organisations, using previously published estimates for numbers of passengers on board and using previous estimates for the waste generation per person. This is the general approach used by all port reception waste facility audits, as the resources and time required to measure ship-generated wastes directly would be considerable.

Data from Quarantine on the number of international shipping vessels requesting waste disposal in Solomon Islands territory was also used, but this was provided for the Port of Honiara only, is recorded manually, is not required to be reported on nor is it subject to audit, therefore rendering its accuracy uncertain. No data is collected by Solomon Islands (or any other authority) for those international shipping vessels operating in the Solomon Islands waters but not landing, nor is it collected for domestic shipping vessels conducting intra-island trade, so the type and quantities of waste, and the impact on the environment, is currently unknown.

It is therefore recommended that data collection is improved for waste generated on ships for all three groups of shipping:

Figure 26 Shipping types recommended for data collection improvement

The focus should be on those with port registration. Improved data collection should prioritise the highest risk groups for waste leakage from ship to sea and where there is the least information available.

For international vessels making port calls, it is recommended that further audits are conducted on the ships' garbage management plan and garbage record book. These are required for all ships of 100/400 gross tonnage (GT) and above and every ship certified to carry 15 persons or more. The garbage management plan must include written procedures for minimising, collecting, storing, processing and disposing of garbage. The garbage record book must include the date, time, position of the ship, and a description of the garbage. The estimated amount incinerated or discharged must

be logged and signed. Appendix 2 of MARPOL Annex V provides a standard form for a garbage record book.

For international fishing vessels, it is recommended that there is an enhanced audit project which builds on the work already conducted by the National Fishing Observers Programme. This programme reported on garbage and other waste management activities and violations under the Generation 6 SPC/FFA Observer GEN-6 Forms from 2003–2015 as discussed in Section 6.3. This could include targeted high-resolution audits similar to those conducted by APWC on land in collaboration with FFA, which is currently also working in this area. The Solomon Islands National Fisheries Observers could play an important role in improving data collection.

For domestic shipping, high resolution APWC audits are also recommended, combined with other activities that SIMSA and other stakeholders are advocating and progressing to address marine litter and other pollution impacts from the domestic fleet. This could also build on other approaches used by IMO (garbage management plans/garbage books).

10.2.6 Consider effectiveness of Regional Port Reception Facility Arrangements

A Regional Port Reception Facility Plan was launched in 2015 for the Pacific and is the current approach used by many, however there is little data on its efficacy. The limited capability of ports to track ship waste generation and disposal across jurisdictions is a very complicated matter which may be contributing to waste leakage from vessels as discussed in Section 6.3.

FFA (2018) has recently examined this in relation to international fishing vessels that operate across multiple economic exclusion zones. This was instigated in response to concerns about waste leakage due to varied practice from different flagged vessels, variable observer coverage and reporting, and the low volumes of garbage being landed. FFA is considering how a viable system may be developed to address this.

An over-reliance on port reception facilities combined with limited investment in infrastructure and regulation may contribute to leakage of garbage into Solomon Islands waters from international vessels with little capacity to store waste for long periods.

The lack of port waste reception infrastructure available to domestic vessels is also likely to contribute to waste leakage.

The effectiveness of the Regional Port Reception Facility Arrangements should be reviewed, with an emphasis on leakage.

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Appendix A: Agent survey questions

Agents survey questions and contact details

Questions

1. What kinds of ships do you manage?
2. Approximately what number and/or proportion of your ships would request
    a. Garbage
    b. Oily waste
    c. Sewage
    d. Noxious liquid substances prewash
    e. Solid bulk cargo residues (dry or contained in hold wash water)
    f. Ozone depleting substances
    g. Exhaust gas cleaning system residues
    h. Antifouling systems waste
    i. Ballast tank sediments
3. Do you have any views on why your ships might or might not choose to deliver waste to shore in port?
4. How/with whom do you make arrangements for waste reception?
5. Have you had any particular difficulties in making these arrangements?
6. Overall, are you satisfied with waste reception facilities in port?

Appendix B: Questionnaire

QUESTIONNAIRE ELEMENTS

Derived from *RESOLUTION MEPC.83(44), adopted on 13 March 2000: GUIDELINES FOR ENSURING THE ADEQUACY OF PORT WASTE RECEPTION FACILITIES*

Contents

Section A Assessment Details

Auditor	Organisation & Address	Contact Details Phone: Fax:	Date

Name of Port and Location			
Name and Contact Details of Port Representatives			
	Name: **Position:** **Organisation:** **Address:** **Telephone/Fax:** **e-mail:**		
	Name: **Position:** **Organisation:** **Address:** **Telephone/Fax:** **e-mail:**		
	Name: **Position:** **Organisation:** **Address:** **Telephone/Fax:** **e-mail:**		

Section B Summary of Waste Reception Facilities Provided

Type of waste	Can Waste be Received (Y or N)	Type of Reception Facility (Fixed, Road Tanker or Barge)	Any Limitations in Capacity (m^3)	Service Provider (Port, Private Contractor, State Authority or Other) Indicate the number of service providers
Oily[8]				
Oily tank washings				
Dirty ballast water				
Oily bilge water				
Oil Sludges				
Used lubricating oil				
Noxious Liquid Substances[9]				
Category A				
Category B				
Category C				
Category D				
Sewage				
Garbage[10]				
Category 1				
Category 2				
Category 3				
Category 4				
Category 5				
Quarantine Wastes				

Section C Demand for Waste Reception Facilities

				Number of Requests for Waste Collection				
Ship Type*	No of ship visits during the period of review	Average Range of dead weight (Tonnes)	Average No. of Persons on Board	Oily Wastes	Noxious Liquid Substances	Sewage	Garbage	Quarantine Wastes
Oil Tankers								
Crude oil tankers								
Combination carriers*								
Chemical Tankers								
General Cargo								
Container Carriers								
Bulk Carriers								
Passenger ships								
Livestock Carriers								
Fishing Vessels								
Recreational Crafts								
Other								

*The ship types marked with an asterisk (*) are defined in the Annexes to MARPOL 73/78. The other types of ships have been indicatively inserted as their operations may influence the reception facilities required.

Section D Assessment of Waste Reception Facilities

Section D 1 Oily Wastes

	Question	Yes	No
1	How are the oily wastes disposed of? (Please give details, on separate sheet, if available) separation of oil and water then recycling land disposal recycled incineration other (specify)		
2	Are there any restrictions on receipt or collection of oily wastes by service providers? (Please give details if available) Minimum quantity Maximum quantity Discharge rate (m^3 /hour) Vessel type Vehicle Access to Berth Other (specify)		
4	Are oily waste reception facilities available – 24 hours a day, 7 days per week 24 hours a day, 5 days per week Business hours only, 7 days per week Business hours only, 5 days per week		
5	Is prior notice for receipt of oily wastes required – 0 hours 12 hours 24 hours 48 hours		
6	.1 Is the waste receipt service available: At no cost at a cost incorporated into standing port use charge at a cost charged in addition to other services .2 Is the cost: reasonable in terms of service a disincentive other (specify)		
7	Is a waste collection service available: At all berths At most berths At only one berth to vessels anchored within the port To vessels anchored outside the port Other (specify)		
Comments:			

Based on the above, please provide an assessment of the provision of waste reception facilities:
1 - Less than satisfactory 2 - Satisfactory 3 - Fully meets the requirements

Section D 2 Noxious Liquid Substances (NLS)

Question		Yes	No
1	Where is the NLS disposed of? (Please give details if available) Directly from the ship to a mobile facility Ships to a holding tanks prior to being pumped out Other (specify)		
2	Are there any restrictions on receipt or collection of NLS wastes by service providers? (Please give details if available) Minimum quantity Maximum quantity Discharge rate (m^3 /hour) Vessel type Vehicle Access to Berth		
3	Are NLS reception facilities available - 24 hours a day, 7 days per week 24 hours a day, 5 days per week Business hours only, 7 days per week Business hours only, 5 days per week Other (specify)		
4	Is prior notice for receipt of NLS required - 0 hours 12 hours 24 hours 48 hours		
5	Is the waste receipt service available: at no cost at a cost incorporated into standing port use charge at a cost charged in addition to other services		
7	Is a waste collection service available: At all berths at most berths At only one berth To vessels anchored within the port To vessels anchored outside the port Other (specify)		
Comments:			

Based on the above, please provide an assessment of the provision of waste reception facilities:

1 - Less than satisfactory **2 - Satisfactory** **3 - Fully meets the requirements**

Section D 3 Sewage

Question		Yes	No
1	Where is the sewage disposed of? (Please give details if available) Directly to a reticulated sewerage system Directly to a mobile facility Ships to holding tanks then pumped to a mobile facility Ships to on-site treatment facility to sewerage system Other (specify)		
2	Are there any restrictions on receipt or collection of sewage wastes by service providers? (Please give details if available) Minimum quantity Maximum quantity Discharge rate (m^3 /hour) Vessel type Vehicle Access to Berth		
3	Are sewage reception facilities available - 24 hours a day, 7 days per week 24 hours a day, 5 days per week Business hours only, 7 days per week Business hours only, 5 days per week Other (specify)		
4	Is prior notice for receipt of sewage required - 0 hours 12 hours 24 hours 48 hours		
5	Is the waste receipt service available: At no cost At a cost incorporated into standing port use charge At a cost charged in addition to other services		
7	Is a waste collection service available to : At all berths at most berths At only one berth Vessels anchored within the port Vessels anchored outside the port		
Comments:			

Based on the above, please provide an assessment of the provision of waste reception facilities:

1 - Less than satisfactory 2 - Satisfactory 3 - Fully meets the requirements

Section D 4 Garbage Disposal – On Shore

Question	Yes	No
1 Where is the garbage disposed of? (Please give details if available) Local Government dump/landfill Private dump/landfill Transfer Station Materials Recycling Facility Don't know		
2 Where are quarantine wastes disposed of? (Please give details if available) incinerator sterilisation deep burial normal landfill		
Garbage Disposal – Ship to Shore		
3 Are there any restrictions on receipt or collection of garbage wastes? (Please give details if available) Minimum quantity Maximum quantity Vessel type Vehicle Access to Berths		
4 Are garbage waste reception facilities available - 24 hours a day, 7 days per week 24 hours a day, 5 days per week Business hours only, 7 days per week Business hours only, 5 days per week		
5 Is prior notice for receipt of waste required - 0 hours 12 hours 24 hours 48 hours		
6 Is the waste receipt service available: at no cost at a cost incorporated into standing port use charge at a cost charged in addition to other services		
7 Is a waste collection service available : at all berths at most berths at only one berth to vessels anchored within the port to vessels anchored outside the port		
Comments:		

Based on the above, please provide an assessment of the provision of waste reception facilities:

1 - Less than satisfactory 2 - Satisfactory 3 - Fully meets the requirements

Section D 5 Waste Management System

Question		Yes	No
1	Has a waste management plan (WMP) been developed and implemented for ship wastes?		
2	Is the waste management plan part of an overall environmental management system (EMS) for the port?		
3	Are marinas and fishing harbours covered by the port EMS or required to develop their own EMS?		
4	Does the WMP provide a brief summary of the types of wastes received and the collection and disposal facilities/services?		
5	Does the WMP address and provide management objectives for:		
6	*Operations:* Facility Management Maintenance Signs Infrastructure Contractual arrangements Emergency Response Seasonal Variations Training and Education Delegation of Responsibilities and Accountability Compliance with regulatory conditions, including auditing		
7	*Technical Standards*: Facility Requirements Incorporation of new technologies Cleaning requirements Maintenance of equipment to technical standards		
8	*Environmental Considerations:* Prevention of pollution to surface waters Noise Emissions Visual impacts Odour Emissions Special considerations due to surrounding environment (eg. proximity to wetland or mangrove areas) Coastal processes (e.g. extreme tides)		

9 *Plans for future expansion / upgrades:* Oily Wastes Noxious Liquid Substances Sewage Garbage Recycling of wastes Quarantine wastes		
10 Are contact details held for all waste service providers?		
11 Are the service providers licensed/approved as required by legislation?		
12 Are a copy of the licences on file?		
13 Are a copy of the licences for the waste disposal facilities used by the service providers held on file?		
14 Have receipts for waste disposal been sighted / copies held on file?		
15 Are alternative waste service providers or disposal facilities available (eg spare drums, waste oil recyclers)?		
16 Is there a procedure for choosing waste disposal service providers (eg list of preferred contractors)?		
17 Are the details of back-up facilities available on file?		
18 Does the WMP include an emergency response plan?		
19 Is the plan adequate in that it addresses at least the following issues? Spillage of liquid Spillage of solids Leakage of gas fire or explosion Emergency contacts Other (specify)		
20 Is information recorded on the quantities of each waste stream which are received, date of receipt, disposal contractor and method of disposal or treatment? (Data sighted/copies attached) Oily wastes Noxious Liquid Substances Sewage Garbage Recycling of wastes Quarantine wastes		
21 Are there variations in the quantities of each waste stream received? In any one month (e.g. due to shipping variations) In any one year (e.g. due to seasonal effects) Over a number of years (e.g. due to industry growth) Don't know		
22 Is this information analysed on an on-going basis to detect changes in usage (both short term season variations and long-term growth or reductions) and assist		

in formulating future plans? (Graphs sighted)		
23 Is on-going consideration given to changes in demand for waste reception facilities?		
24 Do plans exist for future upgrades, extensions or reductions to the waste reception facilities?		
25 Is there an on-going process for reviewing existing facilities and determining changes that may be required to meet adequacy, timing or waste generation demands?		
26 Are there provisions for audits against the WMP (at least within 2 years of implementation and thereafter every 3 years?)		
27 Is there provision for periodic review of the WMP?		
28 Are the relevant requirements of the MARPOL 73/78, UNCLOS and IMO generally adhered to by the users of the port?		
29 Is there information on the state and local regulations regarding (please list legislation if known): Waste management Pollution of water Pollution of air Noise emissions Discharges to sewer Storage of dangerous goods Local Government requirements		
30 Is there information on waste minimisation hierarchy, i.e. avoid/reduce/ reuse/recycle/reprocess?		
31 Is an open and co-operative relationship maintained between the port authority and the relevant authorities and agents?		
32 Are there channels of communication and consultation with relevant organisations to ensure that particular changes in demand are considered in providing waste reception facilities? (Give examples of consultation methods)		
33 Do training programmes for port employees (both of the port authority and users) include a section on waste management and the facilities provided at the port?		
34 Is there a section in the WMP or a separate document which is included in agreements with port users and specifies requirements for the usage of port waste reception facilities?		
35 Is clear and visible signage for waste reception facilities present and includes: advice at initial vessel contact point of waste reception facilities: direction to receptacle or disposal point location: labelling of all receptacles and disposal points: contact numbers: emergency procedures:		

translation into other languages as required:		
36 Are there information sheets/ leaflets available for each waste reception facility?		
37 How is this information conveyed to ships?		

Comments:

Based on the above, please provide an assessment of the waste management systems:

1 - Less than satisfactory 2 - Satisfactory 3 - Fully meets the requirements

Section E Assessment of Adequacy of Service

Organisation:	Representative Interviewed:	Contact Details Address: Phone: Fax:	Interview Date:

In the view of the representative interviewed, what overall rating would be given for the waste reception service?:

1 - Less than satisfactory 2 - Satisfactory 3 - Fully meets the requirements

Please provide details of the good aspects of the waste reception services:

Please provide details of the deficiencies of the waste reception services:

Based on the above, please provide an assessment of the adequacy of waste reception service:

1 - Less than satisfactory 2 - Satisfactory 3 - Fully meets the requirements