



SPREP
Secretariat of the Pacific Regional
Environment Programme



This initiative is supported by **PacWastePlus**-a 72 month project funded by the European Union (EU) and implemented by the Secretariat of the Pacific Regional Environment Programme (SPREP) to **sustainably and cost effectively improve regional management of waste and pollution.**

Solomon Islands National Waste Audit Analysis Report

August 2023



This Waste data collation, analysis and reporting for the Solomon Islands National Waste Audit Analysis Report was guided by the overarching Regional Waste Data Collection, Monitoring, and Reporting (DCMR) Framework for the Pacific Island Countries and Territories (PICT).

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Our vision: A resilient Pacific environment sustaining our livelihoods and natural heritage in harmony with our cultures.

PacWaste Plus Programme

The Pacific – European Union (EU) Waste Management Programme, PacWaste Plus, is a 72-month programme funded by the EU and implemented by the Secretariat of the Pacific Regional Environment Programme (SPREP) to improve regional management of waste and pollution sustainably and cost-effectively.

About PacWaste Plus

The impact of waste and pollution is taking its toll on the health of communities, degrading natural ecosystems, threatening food security, impeding resilience to climate change, and adversely impacting social and economic development of countries in the region.

The PacWaste Plus programme is generating improved economic, social, health, and environmental benefits by enhancing existing activities and building capacity and sustainability into waste management practices for all participating countries.

Countries participating in the PacWaste Plus programme are: *Cook Islands, Democratic Republic of Timor-Leste, Federated States of Micronesia, Fiji, Kiribati, Nauru, Niue, Palau, Papua New Guinea, Republic of Marshall Islands, Samoa, Solomon Islands, Tonga, Tuvalu, Vanuatu.*

Key Objectives

Outcomes & Key Result Areas

The overall objective of PacWastePlus is *“to generate improved economic, social, health and environmental benefits arising from stronger regional economic integration and the sustainable management of natural resources and the environment”*.

The specific objective is *“to ensure the safe and sustainable management of waste with due regard for the conservation of biodiversity, health and wellbeing of Pacific Island communities and climate change mitigation and adaptation requirements”*.

Key Result Areas

- **Improved** data collection, information sharing, and education awareness
- **Policy & Regulation** - Policies and regulatory frameworks developed and implemented.
- **Best Practices** - Enhanced private sector engagement and infrastructure development implemented
- **Human Capacity** - Enhanced human capacity

Learn more about the PacWaste Plus programme by visiting



www.pacwasteplus.org

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Map of Solomon Islands



Source: www.worldatlas.com

Glossary

Acronym	Definition
C&D	Construction and Demolition (Waste)
C&I	Commercial and Industrial (Waste)
Cefas	Centre for Environment Fisheries & Aquaculture Science
DCMR	Data Strategy & Collection, Monitoring, and Reporting (Framework)
KPI	Key Performance Indicator
MECDM	Ministry of Environment, Climate Change, Disaster Management and Meteorology
MEA	Multilateral Environmental Agreement
MSW	Municipal Solid Waste (i.e. waste originating from the general public that is typically managed by local government entities, excludes commercial / business waste)
NGO	Non-Governmental Organisation
PICT	Pacific Island Countries & Territories
SPREP	Secretariat of The Pacific Regional Environment Programme

Terminology	Definition
Capacity	The total maximum waste storage and processing that can take place at a facility (as capped by license conditions).
Capture rate	The proportion of total waste generated that is successfully captured and disposed or recovered in an environmentally responsible manner (e.g. by a formal collection service or self-hauled to a licensed facility)
Coverage	The proportion of total households that have access to a regular waste collection service.
Modern	A 'modern' facility employs 'sound waste management practices' (as defined by the UNEP) and results in minimal adverse impacts on the environment. A 'modern' facility must be licensed, staffed, have access to equipment and machinery such as a bulldozer, employ a leachate management system and implement a daily cover routine at a landfill, and must not be exceeding their maximum storage capacity.
Per capita	Units measured on a per person basis (i.e. to allow for extrapolation over a national population)
Recovery	Any activity that diverts waste material from landfill, including processing of dry recyclables (such as paper, cardboard, metal and plastics such as PET and HDPE), organics recovery, and energy recovery.
Unregulated	Typically unlicensed waste facilities which do not follow international frameworks, rules, and guidelines to protect the health of the environment and community.
Waste facility	'Waste facilities' involved in the handling, disposal, or recovery of waste streams above a minimum processing threshold determined on country basis (i.e. tonnes of waste received per year). Can include landfills or dumpsites (that primarily rely on burying waste in a controlled manner), recycling facilities for dry recyclables, organics recovery facilities, and waste-to-energy facilities. Incinerators are not included in this analysis.

Executive Summary

Waste data collation, analysis and reporting for the Solomon Islands National Waste Audit Analysis Report was guided by the overarching Regional Waste Data Collection, Monitoring, and Reporting (DCMR) Framework for the Pacific Island Countries and Territories (PICT). The implementation of the DCMR Framework ensures that waste data is collected, analysed, and reported consistently and reliably across the Pacific.

Table (a) Summary of Key Performance Indicators (KPIs) for the Solomon Islands

Core KPIs	Result	Supplementary KPIs	Result
1. Count / capacity of modern waste facilities	0 / 0	1. Cost of disposal to landfill (\$/tonne)	No data
2. Count / capacity of unregulated waste facilities	6 / Capacity unknown	2. Weight of waste disposed (tpa)	53,545
3. National recovery rate (%)	No data	3. Weight of waste recovered (tpa)	No data
4. Per capita waste generation rate (kg/capita/year)	71.5	4. Volume and type of stockpiled hazardous waste (m ³)	See Section 3.2
5. Municipal Solid Waste (MSW) composition (%)	See Figure (a)	5. Marine plastic pollution potential (tpa)	3,077
6. Household waste capture rate (%)	26.49%	6. Awareness and support of waste management services (%)	No data
7. Household collection service coverage (%)	15.69%	7. Proportion of strategic waste management initiatives implemented (%)	81.25%
8. Fulfillment of MEA reporting requirements (%)	16.67%	8. Commercial waste capture rate (%)	See Section 3.2
		9. Commercial collection service coverage (%)	See Section 3.2
		10. Total weight of disaster waste disposed (tpa)	No data

Note: 'No data' indicates that the audit did not capture the parameters/measurements necessary to calculate the KPI.

Legend

Sufficient data	Limited data	No data
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Solomon Islands MSW Composition

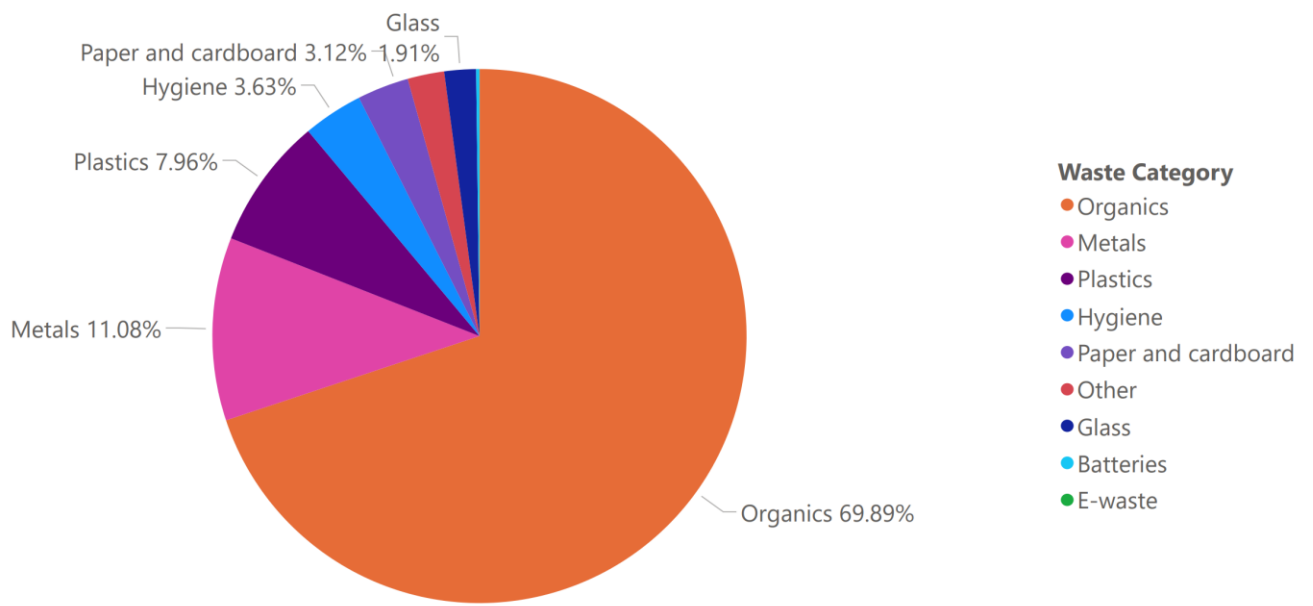


Figure (a) Solomon Islands Municipal Solid Waste (MSW) Composition (% by weight)



1 Introduction

1.1 Background

The Solomon Islands is one of fifteen Pacific Island Nations which took part in the PacWastePlus Programme implemented through SPREP and funded by the European Union Delegation of the Pacific. The PacWaste Plus Programme aims to improve waste management activities across the islands and strengthen the capacity of Governments, industries, and communities to manage waste to protect human health and the environment.

Solomon Islands' waste management practices primarily rely on burying, burning, and dumping. Landfilling is practiced to some extent in Guadalcanal, especially near the capital city of Honiara. There is limited access to proper waste collection and disposal infrastructure and facilities, leading to environmental degradation and health hazards.

Waste recovery in the Solomon Islands is undertaken by small-scale private recycling operations primarily located around Honiara, which export recycled materials to internationally. Profits generated from recycling in the country are largely dependent on international shipping rates and commodity prices. The current focus of recycling is on the collection and compaction of aluminum cans due to their high commodity value. Some businesses purchase directly from residents or waste pickers at disposal sites.

At the time of the audit, a small-scale Container Deposit Scheme (CDS) was operating in Honiara, with certain businesses offering refunds on glass bottles for reuse. Recent contributions under the PacWaste Plus Programme and industry bodies, such as the Solomon Islands Recyclers and Waste Management Association, have contributed to the growth of the country's recycling sector, showcasing the potential for further development in sustainable waste management practices in Solomon Islands.

Investment in infrastructure, implementation of data-guided decision making, and increased general waste management education will improve the current situation.

1.2 Purpose and Aim

The purpose of this audit analysis and report is to establish a baseline position for the Solomon Islands waste data and waste management systems.

The aim of this report is to:

- Validate pre-existing national waste audit data; and
- Build national waste insights based on new key performance indicators (KPIs) to understand waste management trends.

The results of this report, and the other fourteen SPREP country audit analysis reports, will be collated together to inform a broader Pacific Regional Data and Audit Analysis Report.

1.3 Scope

The scope of this report is limited to the following waste data collected in the Solomon Islands:

- **Waste audit report 2019:** The audit was undertaken between November and December 2018 and provided an evaluation of household and business waste in Solomon Islands. Audit data and information was obtained via interviews and waste collections from 218 households and 46 businesses, followed by sorting and weighing.
- **Waste audit report 2022:** The audit was undertaken between October and November 2021 and provided an assessment of the state of Solomon Island's landfills including landfill audits and stockpile assessments.

This national report examines the MSW, commercial and industrial (C&I), and landfill waste streams. Landfills may receive a broad array of waste types including construction and demolition (C&D) waste, hazardous waste and disaster waste, in addition to MSW and C&I waste. As such, landfill waste is considered a separate waste stream.

The potential for marine plastic pollution is considered for macroscopic plastic waste (i.e. plastics that can be identified through compositional audits) originating from household sources. Accurate data on the amount and management of macroscopic plastic waste in the region is limited.

1.4 Country Overview

The Solomon Islands are in the Melanesia region of the Pacific Ocean and are composed of six major islands (Choiseul, Isabel, Malaita, Makira, New Georgia and Guadalcanal) and over 900 smaller islands (a map is provided on page 4). It covers a total land area of approximately 28,896 square kilometres.

The Solomon Islands has a population of over 720,000 people, of which 26% of people live in urban areas while 74% of people live in rural areas. Urban populations are largely concentrated in the capital cities of Honiara and Auki (located in Malaita Province). The population has a current growth rate of approximately 2.6% per year.

There are various stakeholders responsible for the management of waste in the Solomon Islands, including:

- **National Government:** Responsible for national legislation, strategies, and policy frameworks for waste, primarily under the jurisdiction of the MECDM and the Ministry of Health and Medical Services (MHMS).
- **Provincial Government:** Establish the local regulatory framework for waste management and management of waste disposal facilities.
- **Municipal Governments:** Responsible for providing household waste collection and management of landfill sites. There are only two town councils in the Solomon Islands; Honiara City Council (HCC) and Gizo Town Council.

Some specific waste streams, such as wastewater treatment solids, fall within the jurisdiction of the relevant government agency or government-owned enterprise. Collaboration between stakeholders, capacity building within lead agencies, and proactive adherence to legislated responsibilities, are all required to address waste and pollution in the Solomon Islands.



2 Methodology

Waste data collation, analysis and reporting were guided by the overarching Regional Waste Data Collection, Monitoring, and Reporting (DCMR) Framework for the Pacific Island Countries and Territories (PICT). The implementation of the DCMR Framework ensures that waste data is collected, analysed, and reported consistently and reliably across the Pacific.

2.1 Data Sources

Data collated and examined in this audit analysis report was sourced from the data sources listed in **Table 1**.

Table 1 Data sources examined and available data

Data Source	Methods for data collation	Reported data
Waste audit 2018	<ul style="list-style-type: none"> Household waste audits Business waste audits Household interviews 	<ul style="list-style-type: none"> Access to general waste collection service Household waste separation methods Waste disposal methods Willingness to pay for, and collection service satisfaction Household waste disposal rates Commercial disposal rates Household waste composition
Waste audit 2021	<ul style="list-style-type: none"> Landfill audits Stockpile audits Customs data 	<ul style="list-style-type: none"> Landfilled waste (weight per year) Landfill waste composition Import and export material flow
2019 Solomon Island National census	<ul style="list-style-type: none"> National census 	<ul style="list-style-type: none"> Populations Household data

The 2018 and 2020 audits were performed with separate methodologies, scopes and objectives and were completed by different organisations.

2.1.1 Soloman Islands Waste Audit 2018

The study included a desktop review of national waste management practices, waste infrastructure and the legislative framework, as well as an audit of household and commercial waste. The audit was undertaken between November and December 2018 and utilised the Cefas Consultant Methodology. The methodology used in the 2018 audit predates the publication of the Pacific Regional Infrastructure Facility (PRIF) waste audit guidelines (completed in 2020), leading to some differences in waste material sorting categories (used to group similar waste types) and audit methodology compared to more recent audits undertaken for the region.

Interviews were conducted with all households receiving a waste collection to cross-reference socioeconomic and waste behaviour data with the types and quantities of waste being disposed of. The resulting report presented the data, analysis and recommended best practice activities to address gaps in the management of waste within the Solomon Islands.

2.1.2 Solomon Islands Waste Audit 2021

To complement the household and commercial waste audit, an audit of the Solomon Islands landfills was undertaken between October and November 2021 utilising the newly adopted Waste Audit Methodology produced by the Pacific Region

Infrastructure Facility (PRIF). The waste audit was undertaken with support from provincial officers and other key stakeholders, with samples collected from six landfill sites in 2021.

Results from the audit were used to characterise the composition of waste disposed to landfills, estimate the national waste disposal rate and determine the size and nature of waste stockpiles.

2.1.3 Sample Locations

Table 2 Sample locations for audits

Sample Location	Population (2019)	Classification
Honiara	130,176	Urban
Malaita	173,346	Rural
Guadalcanal	154,150	Peri-urban

2.2 Data Analysis

Each country's audit reports, audit data, and other data sources were inspected for relevant information which was subsequently collated into country-specific databases. These databases were then used to calculate the DCMR Framework KPIs. KPI reporting followed the calculation methodologies as detailed in the DCMR Framework.

The main assumptions made during the analysis are discussed below.

Where it was necessary to modify calculation methodologies or assumptions (e.g. in cases of missing data or when certain parameters had to be calculated using assumptions derived from external data sources like census data), details of the changes are provided under their corresponding KPI in **Section 3.2**.

2.2.1 Main Assumptions

- The data from 'urban' areas (Honiara), Peri-urban areas (Guadalcanal) and 'rural' areas (Malaita) populations sampled during the audits (see Table 2) is assumed to be representative of the rest of the country.
- All population estimates used to calculate performance indicators are based on national census data from 2021, which predates the initial audit (completed in 2018).
- All waste plastics which are not managed in an environmentally sound manner are assumed to have the potential risk of polluting oceans and estuarine waterways.
- Commercial waste service coverage reporting has relied primarily on survey information conducted during audits of commercial business waste.

2.3 Key Performance Indicators

The DCMR Framework introduces a series of KPIs (see **Table 3**). The KPIs were developed to guide data analysis to improve the efficiency of data collection activities by building on pre-existing data collection practices across the region.

Each of the KPIs were designed to be reported using corresponding data collection methodologies. These comprise of:

- a waste facility register;
- household waste audits and community surveys;
- business waste audits and surveys;
- a policy survey; and,
- landfill and stockpile audits.

Table 3 Key Performance Indicators (KPIs) from the DCMR Framework

Core KPIs	Supplementary KPIs
1. Count / capacity of modern waste facilities	1. Cost of disposal to landfill
2. Count / capacity of unregulated waste facilities	2. Weight of waste disposed
3. National recovery rate	3. Weight of waste recovered
4. Per capita waste generation rate	4. Volume and type of stockpiled hazardous waste
5. Municipal Solid Waste (MSW) composition	5. Marine plastic pollution potential
6. Household waste capture rate	6. Awareness and support of waste management services
7. Household collection service coverage	7. Proportion of strategic waste management initiatives implemented
8. Fulfillment of Multilateral Environmental Agreement (MEA) reporting requirements	8. Commercial waste capture rate
	9. Commercial collection service coverage
	10. Total weight of disaster waste disposed



3 Audit Analysis Results

3.1 Summary of Data Availability

The waste audits provided varying levels of data and information to calculate performance via the indicators introduced in the DCMR Framework. The extent to which there was adequate data and information to calculate the KPIs is represented below in **Table 4**.

Table 4 Summary of data availability for reporting against DCMR Framework

Core KPIs		Supplementary KPIs	
1. Count / capacity of modern waste facilities		1. Cost of disposal to landfill	
2. Count / capacity of unregulated waste facilities		2. Weight of waste disposed	
3. National recovery rate		3. Weight of waste recovered	
4. Per capita waste generation rate		4. Volume and type of stockpiled hazardous waste	
5. Municipal Solid Waste (MSW) composition		5. Marine plastic pollution potential	
6. Household waste capture rate		6. Awareness and support of waste management services	
7. Household collection service coverage		7. Proportion of strategic waste management initiatives implemented	
8. Fulfillment of MEA reporting requirements		8. Commercial waste capture rate	
		9. Commercial collection service coverage	
		10. Total weight of disaster waste disposed	

Legend		
Sufficient data	Limited data	No data

Note: ‘No data’ indicates the audit did not capture the parameters/measurements necessary to calculate the KPI.

In summary:

- The audit reports provided adequate information for Core KPIs 4 to 8, and Supplementary KPIs 2, 5, and 7.
- There was limited data available to calculate Core KPIs 1 and 2, and Supplementary KPIs 4, 8 and 9.
 - Storage and processing capacities for waste facilities were not identified in the audit report.
 - There were some measurements of the volume used oil, but no mention of measurements for all other hazardous waste categories. The stockpiles audits for each site were undertaken using different methodologies and so measurements were given in different units.
 - There was some information pertaining to the collection service coverage and waste capture rate for commercials presented in the audit report, however it is difficult to confidently extrapolate the results of the indicator to the national level due to data insufficiency.
 - Limited data to calculate commercial KPIs.
- There was no information on Core KPI 3 and Supplementary KPI 1, 3, 6 and 10.
 - No specific operational costs were presented for the landfills in the Solomon Islands.
 - Not all disposal facilities were represented in the audit report, and so the total amount of waste disposed of in the Solomon Islands is not truly representative of the entire country, only the facilities audited.
 - All recycling in the Solomon Islands is small-scale and private. No measurements for recovered waste or waste recovery facility information was identified.

In the future, improved data capture and data quality will benefit performance assessment by reducing the extent to which assumptions and substitutions are necessary. In turn, the KPIs will reflect a more accurate depiction of the status of waste management in the Solomon Islands.

3.2 KPI Reporting Results

The following sections present the results of the collated and analysed waste audit data for each of the eight core and ten supplementary KPIs introduced in the DCMR Framework. The results of the analysis will serve as a baseline position for the Solomon Islands to compare future data to, and to guide subsequent waste management or waste data-related activities.



Core KPI 1: Count / capacity of modern waste facilities

Result	<p>Count of modern waste facilities: 0</p> <p>Observations made in the audits suggest that all landfills and dumpsites in the Solomon Islands require infrastructure improvements to reduce environmental risks. Many are running out of available airspace, creating additional pressure on the surrounding areas and leading to an increase in waste-burning practices.</p> <ul style="list-style-type: none"> • The largest landfill in the Solomon Islands is Ranadi landfill, servicing the greater Honiara area. <ul style="list-style-type: none"> – The site is staffed and has dedicated equipment. The 2022 audit noted that leachate management ponds and ventilation pipes were either damaged or in a poor state. At the time of the audit, the site was exceeding maximum capacity. As such, it cannot be classified as a ‘modern’ facility under the definitions of the DCMR Framework. • Besides the Ranadi landfill, there are provincial dumpsites operated by Provincial governments to manage waste disposal outside of Honiara & Guadalcanal (see Core KPI 2). <ul style="list-style-type: none"> – Most of these facilities lack security (fencing or locking gates) and dedicated staff. There is very minimal active leachate or litter management at provincial dumpsites. As such they cannot be classified as ‘modern’. <p>Capacity of modern waste facilities (tonnes per annum): 0</p> <ul style="list-style-type: none"> • Since none of the disposal facilities in the Solomon Islands meets ‘modern’ requirements, the capacity of ‘modern’ facilities is 0.
Assumptions	<ul style="list-style-type: none"> • None
Data gaps	<ul style="list-style-type: none"> • No estimates or parameters were used to calculate the maximum annual processing capacity (tpa) of any of the Solomon Island disposal sites.
Key considerations	<ul style="list-style-type: none"> • There are no landfills or dumpsites in the Solomon Islands which are up to ‘modern’ standards. • Future planning to extend the lifespan of the Ranadi landfill or to construct additional disposal sites for Honiara will be critical to future waste management in the Solomon Islands. • The lack of leachate management at these facilities means that both the environment and community are at risk of hazards due to contamination and material flow. • No daily cover usage at the main landfill sites, and limited rehabilitation of the closed landfill site, means that these sites are very susceptible to material flow during climate-related weather events such as cyclones. • The number, location, name and operations of all landfills and dumpsites should be collated for future reporting purposes.



Core KPI 2: Count / capacity of unregulated waste facilities

Result	<p>Count of unregulated waste facilities: 6</p> <ul style="list-style-type: none"> • The ‘unregulated’ dumpsites mentioned in the reviewed literature are: <ul style="list-style-type: none"> – Ranadi Landfill (Honiara/Guadalcanal) – Tulagi Disposal site (Central Province) – Auki Disposal site (Malaita) – Kirakira Disposal site (Makira-Ulawa) – Gizo Disposal site (Western Province) – Noro Disposal site (Western Province) • Some provincial governments hire equipment (e.g. bulldozers or excavators) to move or compact waste as the need arises. Others rely on waste burning to control onsite volumes of waste. • Minimal or no active leachate management at provincial dumpsites. • Most of these facilities lack security (fencing or locking gates) or dedicated staff. Due to the ‘unregulated’ nature of disposal, gate fees are rarely charged to residents. <p>Capacity of unregulated waste facilities (tonnes per annum): No data</p>
Assumptions	<ul style="list-style-type: none"> • None
Data gaps	<ul style="list-style-type: none"> • No estimates or parameters were used to calculate the maximum annual processing capacity (tpa) of any of the Solomon Islands’ disposal sites. • Provincial dumpsites were not examined in the provinces of Choiseul, Isabel, Rennel-Bellona, Temotu, and provincial Guadalcanal.
Key considerations	<ul style="list-style-type: none"> • All Solomon Island disposal sites are ‘unregulated’. • There is minimal active leachate or litter management at provincial dumpsites. This means that both the environment and community are at risk of hazards due to contamination and material flow. • No daily cover usage at the sites means that these sites are very susceptible to material flow during climate-related weather events such as cyclones. • The identified unregulated facilities present investment opportunities to upgrade existing sites to align with best practice. Reducing the number of these facilities will lead to better outcomes for the local environment and community health.



Core KPI 3: National recovery rate

Results	<p>National recovery rate (%): No data</p> <ul style="list-style-type: none"> • Audit findings show 4 recycling companies were operating in the country at small scale. <ul style="list-style-type: none"> – Private recycling operations operate at a small scale in the vicinity of Honiara. – Reliant on access to international shipping routes to export recycled material to foreign markets. – Focused on the collection and compaction of aluminium cans. • A small-scale CDS was operating in Honiara, run by businesses offering refunds for glass bottle reuse.
Assumptions	<ul style="list-style-type: none"> • None
Data gaps	<ul style="list-style-type: none"> • No information on the total mass of material diverted from landfill (tpa) via recovery systems or facilities. • No dedicated recovery facilities are mentioned in audit reports.
Key considerations	<ul style="list-style-type: none"> • A national recovery rate is not able to be calculated as no weights of waste diverted from landfill nor recovery facility data were recorded during the audits. • The lack of recovery facilities in the Solomon Islands highlights a need for formal recovery infrastructure and strategy in the Solomon Islands, as all current recovery operations are private. • Changes to the structure and prevalence of recycling operations are also expected to have changed since the 2018 audit. Recent contributions under the PacWaste Plus programme and industry bodies such as the Solomon Islands Recyclers and Waste Management Association will have contributed to growing the local recycling sector. • Poor market conditions for some consolidated recycled materials (such as PET bottles) are a barrier to expanding current recycling operations. Further investigation of barriers to recovery would be beneficial.



Core KPI 4: Per capita waste generation rate

Results	Per capita waste generation rate (kg/capita/year): 71.5 <ul style="list-style-type: none">– kg/capita/day: 0.196– kg/household/day: 1.10
Assumptions	<ul style="list-style-type: none">• Household waste audit data was converted from a per household basis to a per capita basis, then grouped and averaged based on geographic position (i.e. rural, semi-urban or urban), and extrapolated using census data of the national population.• Where provinces had no data (i.e. Choiseul, Temotu, Western Central Rennel-Bellona, Isabel, Makira-Ulawa), an assumed average waste generation rate was used based on data from household audits from either Honiara (urban), Guadalcanal and Western Province (peri-urban), or Malaita and Guadalcanal (rural) provinces.• Population statistics used to calculate per capita information were sourced from 2019 census results.
Data gaps	<ul style="list-style-type: none">• Households were not examined in the provinces of Choiseul, Isabel, Rennel-Bellona, and Temotu.
Key considerations	<ul style="list-style-type: none">• Future per capita waste generation rates will provide insight into waste management trends and changes for the Solomon Islands, and allow for comparison within the Solomon Islands and across the region.





Core KPI 5: Municipal Solid Waste (MSW) composition

Results

Organics are the most prevalent waste type in household waste in the Solomon Islands. This is followed by metal and then plastics.

- Organics: 69.89%
- Metal: 11.08%
- Plastics: 7.96%

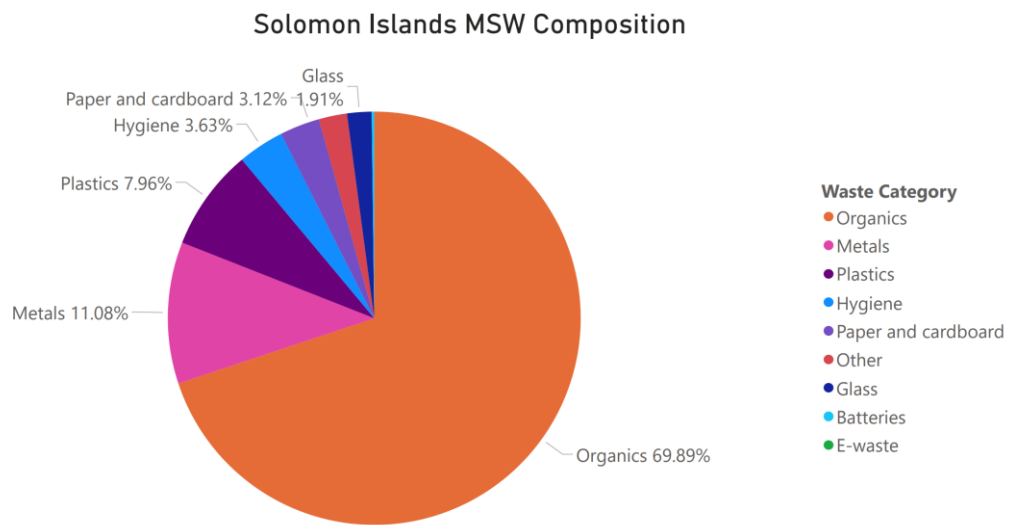


Figure 1 Solomon Islands Municipal Solid Waste (MSW) composition (% by weight)

Assumptions

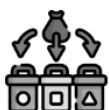
- None

Data gaps

- Categories reported in the audit are based on the 2018 waste audit, which predates the PRIF waste audit guidelines. These categories were converted to the PRIF audit guideline categories to report to this performance indicator.

Key considerations

- The prevalence of organics in the household waste stream is likely due to reliance on local subsistence agriculture, as rural communities often have fewer options for food and goods, which can result in a greater reliance on locally grown or produced items.
- Organics recovery systems, such as a local or national composting service could help support local farmers and reduce the amount of organic waste destined for landfill.
- It is recommended that compositional data is updated data on a regular basis. Impacts of the pandemic and climate change or weather events will have changed the proportions of waste types sourced from households.
- Household waste compositions provide an insight into the types of waste contained inside the MSW stream. Knowledge of the waste types and proportion of these wastes present within the household waste stream allows for targeted decision making and prioritisation of problem waste types.



Core KPI 6: Household waste capture rate

Results	<p>Household waste capture rate (%): 26.49%</p> <ul style="list-style-type: none"> – Total weight of household waste generated = 52,723 tpa – Total weight of household waste captured responsibly = 13,968 tpa
Assumptions	<ul style="list-style-type: none"> • The survey and audits did not capture each household’s disposal method or the weight of waste captured by management services, so census data was used and extrapolated across household audit results. <p style="text-align: center;"><i>Household waste capture rate (%) = $\frac{\text{weight of managed waste (tpa)}}{\text{total household waste generated (tpa)}}$</i></p> <p>Total weight of managed waste is calculated as the product of:</p> <p style="text-align: center;"><i>weight of managed waste (tpa) = $\frac{\text{household collection coverage (%)}}{\text{total household waste generated (tpa)}}$</i></p> <p>Collection service coverage (%) is the product of:</p> <p style="text-align: center;"><i>household collection coverage (%) = $\frac{\text{number of households with some form of collection service}}{\text{total number of households}}$</i></p> <p>Total household waste generated is the summation of waste generation tonnages for all sampling locations. Waste generation rates for individual sampling locations are calculated by:</p> <p style="text-align: center;"><i>total household waste generated (tpa) = average waste generation rate of location $\left(\frac{\text{kg}}{\text{capita}}\right)$ × location population</i></p>
Data gaps	<ul style="list-style-type: none"> • Information to quantify each household’s disposal method. • The weight of waste captured by management services. • Data was not captured for all provinces.
Key considerations	<ul style="list-style-type: none"> • Just over 26% of the waste generated in the Solomon Islands is captured by formal collection services, either officially collected or dropped off at dumpsites personally. • The remaining proportion of waste generated which is not captured via waste management services is at risk of being burned, littered, buried, or dumped, and uncaptured waste poses a risk to both environmental and community health.



Core KPI 7: Household collection service coverage

Results	<p>Household collection service coverage (%): 15.69%</p> <ul style="list-style-type: none"> • The vast majority of households in the Solomon Islands do not have access to a waste collection service. This means many likely rely on dumping, burning, or burying waste as their primary form of disposal. • A total of 181 households were surveyed during the 2018 audit, representing ‘urban’ (Honiara) and ‘rural’ (Guadalcanal and Malaita provinces) populations. The survey found the following households had access to a general waste collection service: <ul style="list-style-type: none"> • Urban: <ul style="list-style-type: none"> – Honiara (39 surveyed): 56% • Rural: <ul style="list-style-type: none"> – Guadalcanal rural (71 surveyed): 34% – Kilusakwalo, Malaita (29 surveyed): 0% – Ambu, Malaita (18 surveyed): 0% – Arabella, Malaita (22 surveyed): 0%
Assumptions	<ul style="list-style-type: none"> • Calculated based on information from 2019 census data: <ul style="list-style-type: none"> – Number of households • Peri-urban areas were assigned a representative ‘rural’ coverage rate and extrapolated across their corresponding populations.
Data gaps	<ul style="list-style-type: none"> • Lack of peri-urban samples.
Key considerations	<ul style="list-style-type: none"> • Less than a quarter of the population of the Solomon Islands have access to some reliable form of waste collection service. • Collections in Honiara are unreliable and do not cover the entire city. However, there has been a significant change in disposal behaviour (i.e. less burning of waste) in Honiara compared to localities having no system in place. • Survey results revealed that ‘rural’ residents were willing to pay more for waste collection services than ‘urban’ communities.



Core KPI 8: Fulfillment of Multilateral Environmental Agreement (MEA) reporting requirements

Results		Fulfillment of MEA reporting requirements (%): 16.67%			
		Convention	Status	Reporting requirements	Reports delivered
		Basel Convention	Ratification	Annual reports (1)	0
		Stockholm Convention	Accession	5 reporting cycles (5)	1
Assumptions	<ul style="list-style-type: none"> Only MEA's with mandatory reporting requirements were included in the calculation of this KPI. For conventions like the Waigani Convention, strict reporting requirements are not enforced and so are not included in the calculation. 				
Data gaps	<ul style="list-style-type: none"> None 				
Key considerations	<ul style="list-style-type: none"> The Solomon Islands are behind on national reports for the Stockholm Conventions. Investigation into additional resources or capacity could be developed to improve PNG's fulfilment of MEA obligations. The Solomon Islands ratified the Basel Convention in 2022. 				



Supplementary KPI 1: Cost of disposal to landfill

Results		Cost of disposal to landfill (\$/tonne): No data
Assumptions	<ul style="list-style-type: none"> None 	
Data gaps	<ul style="list-style-type: none"> No information is presented in audit reports on the annual facility operating cost for any facilities. 	
Key considerations	<ul style="list-style-type: none"> Completion of the waste facility register suggested by the DCMR Framework will provide sufficient data to accurately calculate this indicator to work as a benchmark for comparing disposal costs against previous periods, other countries, and the region. 	



Supplementary KPI 2: Total weight of waste disposed

Supplementary KPI 2: Total weight of waste disposed	
Results	Total weight of waste disposed (tonnes per annum): 53,545
Assumptions	<ul style="list-style-type: none">• None
Data gaps	<ul style="list-style-type: none">• Limited information to calculate the annual quantity of waste disposed (tpa).<ul style="list-style-type: none">– The total amount of provincial dumpsites and their associated tonnages were not identified in the report aside from the six ‘unregulated’ facilities identified in the audits.
Key considerations	<ul style="list-style-type: none">• The audit captured disposal estimates in some of Solomon Island’s most most densely populated provinces. However, the current weight of waste disposed may not be representative of all waste sent to landfill in the Solomon Islands, due to data gaps for the unaudited provinces.• The total amount of waste is expected to show an increase once data is collected from other sites in the future using the waste facility register suggested in the DCMR Framework.



Supplementary KPI 3: Total weight of waste recovered

Supplementary KPI 3: Total weight of waste recovered	
Results	Total weight of waste recovered (tonnes per annum): No data
Assumptions	<ul style="list-style-type: none">• None
Data gaps	<ul style="list-style-type: none">• No information was available on the recorded weights of any waste recovered in the Solomon Islands.
Key considerations	<ul style="list-style-type: none">• Calculation of this KPI requires the completion of the waste facility register with the inclusion of data for any recovery facilities operating in the Solomon Islands. This will indicate the effectiveness of a country’s waste management systems, recovery systems & infrastructure, and a comparative data point for other countries and time periods.



Supplementary KPI 4: Volume and type of stockpiled hazardous waste

Results	Volume and type of stockpiled hazardous wastes (m³): <ul style="list-style-type: none">– Asbestos: No data– E-waste: Insufficient data– Healthcare and pharmaceutical waste: No data– Used oil: 13 m³– Used tyres: No data– Obsolete chemicals: No data <ul style="list-style-type: none">• Audits of stockpiles in the following five locations were conducted from November to December 2021:<ol style="list-style-type: none">1. Design and Technology Centre, Honiara2. Gold Ridge Mining Company, Guadalcanal3. Solomon Power Company, Honiara4. National Fisheries Development, Noro, Western Province5. Gizo Recycling Centre, Gizo, Western Province• Informal stockpiling is commonly practiced, particularly for end-of-life vehicles, in the vicinity of Honiara and provincial town centres.
Assumptions	<ul style="list-style-type: none">• None
Data gaps	<ul style="list-style-type: none">• Additional stockpiles are assumed to exist.• No information on asbestos, healthcare and pharmaceutical waste, used tyres, and obsolete chemical waste was reported in the audit report.• Used oil quantities were reported using a variety of unit measurements, from volumes to tonnes, and using simple qualitative estimations. The recorded volumes are presented above but do not represent all of the used oil that was audited.• Audits conducted in 2021 lacked some consistency between sites.
Key considerations	<ul style="list-style-type: none">• The volume of other hazardous waste stockpiles in Niue remains unknown which makes it difficult to assess the potential risk posed to the community and environment.• Landfill audits, stockpile assessments, and the completion of the waste facility register proposed by the DCMR Framework will provide the information required to calculate this performance indicator.



Supplementary KPI 5: Marine plastic pollution potential

Results	
Results	Marine plastic pollution potential (tonnes per annum): 3,077
Assumptions	<ul style="list-style-type: none"> • Assumes a national weight of mismanaged waste, based on household audit samples. <ul style="list-style-type: none"> – This calculation uses the total weight of waste generated, subtracted by the weight of waste captured by collection services. The difference is the estimate for mismanaged waste used in this calculation. – Mismanaged waste is defined as all waste which is not captured in collection services, and ends up buried/burned/littered etc. • Uses a proportion of plastics captured in MSW composition.
Data gaps	<ul style="list-style-type: none"> • Requires a more reliable metric for mismanaged waste.
Key considerations	<ul style="list-style-type: none"> • Waste plastics which are not managed in an environmentally sound manner are assumed to pose a significant risk of polluting oceans and estuarine waterways.



Supplementary KPI 6: Awareness of waste management services

Results	
Results	Awareness of waste services (%): No data
Assumptions	<ul style="list-style-type: none"> • None
Data gaps	<ul style="list-style-type: none"> • Unable to calculate based on audit reports as this performance indicator requires completion of a community survey, specifically gathering responses on: <ul style="list-style-type: none"> – Number of positive responses indicating awareness; – Number of available services; and – Number of survey participants.
Key considerations	<ul style="list-style-type: none"> • Completion of a community survey in the future is required to report to this KPI. Monitoring the community's awareness provides an indication of the success of education initiatives and the effective use of existing waste management services.



Supplementary KPI 7: Proportion of strategic waste management initiatives implemented

Results	<p>Proportion of waste management initiatives implemented (%): 81.25%</p> <ul style="list-style-type: none"> – Number of initiatives successfully implemented = 13 out of 16 – Number of pipeline/planned initiatives = 3 • Implemented initiatives include: <ul style="list-style-type: none"> – National Waste Management and Pollution Control Strategy 2017-2026 – National Implementation Plan for Stockholm Convention on Persistent Organic Pollutants 2018 – National Development Strategy 2016-2035 • Pipeline initiatives include: <ul style="list-style-type: none"> – Review and development of policy relevant to environmental health and sanitation – Guidelines for disaster waste management – Plastic waste initiatives
Assumptions	<ul style="list-style-type: none"> • None
Data gaps	<ul style="list-style-type: none"> • None
Key considerations	<ul style="list-style-type: none"> • The Solomon Islands have several policies, legislations, strategies, and multilateral agreements that address solid waste management and control of pollution. • The MECDM is responsible for national waste management coordination under the <i>Environment Act 1998</i>. EHOs from the Ministry of Health manage operations. Specific waste streams may fall under Government agencies or government-owned enterprises.





Supplementary KPI 8: Commercial waste capture rate

Results	<p>Commercial waste capture rate (%): Insufficient data</p> <ul style="list-style-type: none"> • Measured as the fraction of the total waste captured through formal waste management services over the total waste generated by businesses. • A total of 46 businesses were sampled, 31 in Honiara and 15 in Auki. It is noted that commercial collection services are only available in Honiara. <ul style="list-style-type: none"> – The average commercial disposal rate for Honiara was 16.3 kg/business/day. • The report presented a count of 312 businesses in Honiara sending waste to landfill, which at the average rate corresponds to an estimate of 5,085 kg/day disposed of by businesses. <ul style="list-style-type: none"> – For Auki, the average disposal rate was 2.1 kg/business/day. An estimated count of businesses was not available. • Due to the small number of commercial businesses audited, it is not possible to accurately extrapolate commercial generation rates at the national level.
Assumptions	<ul style="list-style-type: none"> • None
Data gaps	<ul style="list-style-type: none"> • No estimate for the total amount of commercial waste successfully captured by management services was identified within the audit report. • No estimate for the number of businesses in the Solomon Islands in the audit reports. • Insufficient information available on the total amount of waste generated by businesses outside of samples from Honiara and Auki. • No information on waste generation rates of businesses outside of Honiara and Auki in the audit reports.
Key considerations	<ul style="list-style-type: none"> • Accurate calculation relies on an estimate of total numbers of businesses in the country categorised by business type, and an estimate of the commercial waste generation rates for each business type. • Completion of business surveys suggested in the DCMR Framework will provide an indication of how many businesses are using collection services, and other forms of waste management, and to what extent these businesses access the service.



Supplementary KPI 9: Commercial collection service coverage

Results	<p>Commercial collection service coverage (%): Insufficient data</p> <ul style="list-style-type: none"> Waste collection for businesses is only available in Honiara, on a request-only basis. Businesses are required to pay for collection services. No information was available in the audit reports to quantify the proportion of businesses in the Solomon Islands with access to collection services.
Assumptions	<ul style="list-style-type: none"> None
Data gaps	<ul style="list-style-type: none"> The audit reports did not quantify access to alternative collection services used by businesses (e.g. waste disposal points or self-haul). No information is available on the total number of businesses participating nationally,.
Key considerations	<ul style="list-style-type: none"> Accurate calculation relies on understanding the total number of businesses participating nationally, and specific collection service coverages for businesses. Completion of business surveys suggested in the DCMR Framework, would provide an indication of how regular, accessible, and affordable collection services are for businesses.



Supplementary KPI 10: Weight of disaster waste disposed

Results	<p>Weight of disaster waste disposed (tpa): No data</p> <ul style="list-style-type: none"> Measured as a sum of the recorded weight of disaster waste disposed to a landfill or received and stockpiled at the waste facility following a disaster event. No disaster waste data was recorded during the examined audits.
Assumptions	<ul style="list-style-type: none"> Only captures disaster waste which ends up disposed of or stored at waste facilities, including landfills, disposal sites and recovery facilities. Assumes that the waste facility register has been completed to capture disaster waste information separately of other waste loads received post-event (i.e. information on disaster waste categorised separately to other waste types/streams).
Data gaps	<ul style="list-style-type: none"> The calculation of this performance indicator relies on estimations of the weight of disaster waste (tonnes) landfilled or received at a waste disposal facility following disaster events.
Key considerations	<ul style="list-style-type: none"> Calculation of this performance indicator provides an estimate of the amount of disaster waste being effectively managed and the total amount of disaster waste generated in a year. Calculating this KPI can be undertaken by regularly updating the waste facility register. Tracking the vehicle capacity and percentage fullness of the load of any 'disaster waste' carrying vehicles entering the facility will help reconcile waste amounts disposed of if these wastes are not managed separately.



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