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Secretariat of the Pacific Regional Environment Programme

PacWastePlus
PACIFIC WASTE MANAGEMENT

This initiative is supported by **PacWastePlus**-a 85-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.**

*This has been produced with assistance from the **European Union**. Its contents are the sole responsibility of **SPREP** and do not necessarily reflect the views of the European Union.*

Cook Islands National Waste Audit Analysis Report

June 2025

This Waste data collation, analysis and reporting for the Cook 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

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PacWastePlus PACIFIC WASTE MANAGEMENT

www.pacwasteplus.org

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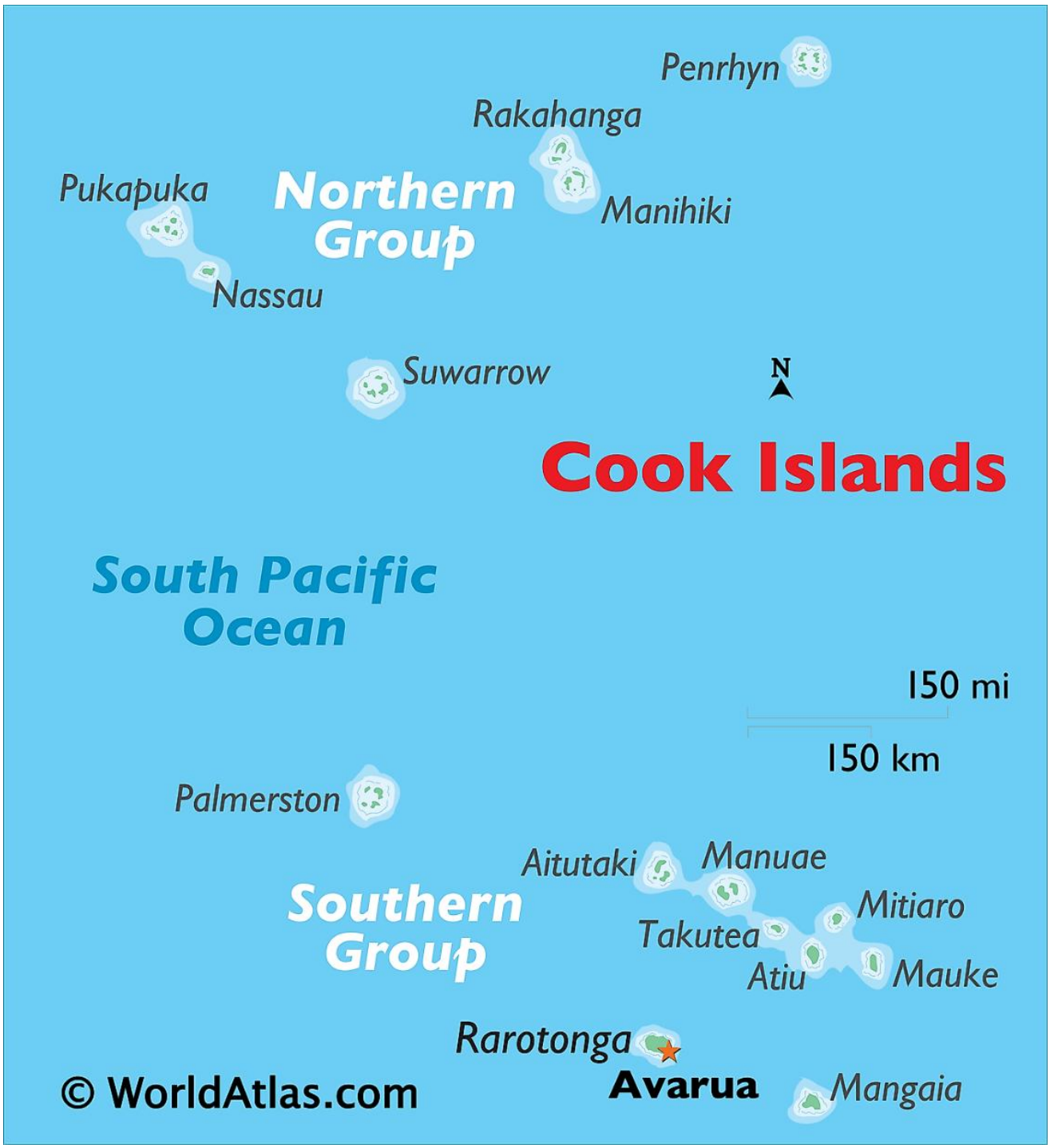
Map of the Cook Islands



Source: World Atlas, 2021.

Glossary

Acronym	Definition
C&D	Construction and Demolition (Waste)
C&I	Commercial and Industrial (Waste)
DCMR	Data Collection, Monitoring, and Reporting (Framework)
KPI	Key Performance Indicator
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
NSW EPA	Australian New South Wales Environment Protection Authority
PRIF	Pacific Regional Infrastructure Facility
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, and have access to equipment and machinery such as a bulldozer. A landfill or dumpsite must employ a leachate management system and a daily cover routine. A waste recovery facility should have fire prevention and control measures in place, and appropriate stormwater runoff controls. Facilities 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 / recovery facilities for dry recyclables (and e-waste), organics recovery facilities, and waste-to-energy facilities. Incinerators are not included in this analysis.

Executive Summary

The Cook Islands Waste Analysis Report provides a comprehensive overview of the current state of waste generation, composition, and management across the country. It serves as a foundational document to guide policy formulation, infrastructure development, and stakeholder coordination toward a more efficient, inclusive, and sustainable waste management system. Data and information captured in this report is guided by the overarching Regional Waste Data Collection, Monitoring, and Reporting Framework (DCMR).

The DCMR Framework outlines 18 KPIs (8 Core KPIs and 10 Supplementary KPIs), and information on how to gather data to calculate them to provide waste management insights nationally and regionally. The 8 core KPIs are the recommended minimum level of data collection and analysis, and the 10 supplementary KPIs should be developed where there is sufficient capacity and resources.

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

Core KPIs	Result	Supplementary KPIs	Result
1. Count / capacity of modern waste facilities	5 / unknown	1. Cost of disposal to landfill ($/annum)	US$181
2. Count / capacity of unregulated waste facilities	15 / Unkown	2. Weight of waste disposed (tpa)	397
3. National recovery rate (%)	23%	3. Weight of waste recovered (tpa)	840
4. Per capita waste generation rate (kg/capita/year)	115	4. Volume and type of stockpiled hazardous waste (m^3)	E-waste: 100m^3 Used oil: 0.4m^3 Obsolete chemicals: 0.6m^3 Batteries 100m^3
5. Municipal Solid Waste (MSW) composition (%)	Figure (a)	5. Marine plastic pollution potential (tpa)	34.6
6. Household waste capture rate (%)	84%	6. Awareness and support of waste management services (%)	93%
7. Household collection service coverage (%)	84%	7. Proportion of strategic waste management initiatives implemented (%)	83%
8. Fulfillment of MEA reporting requirements (%)	15%	8. Commercial waste capture rate (%)	85%
		9. Commercial collection service coverage (%)	76%
		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.*

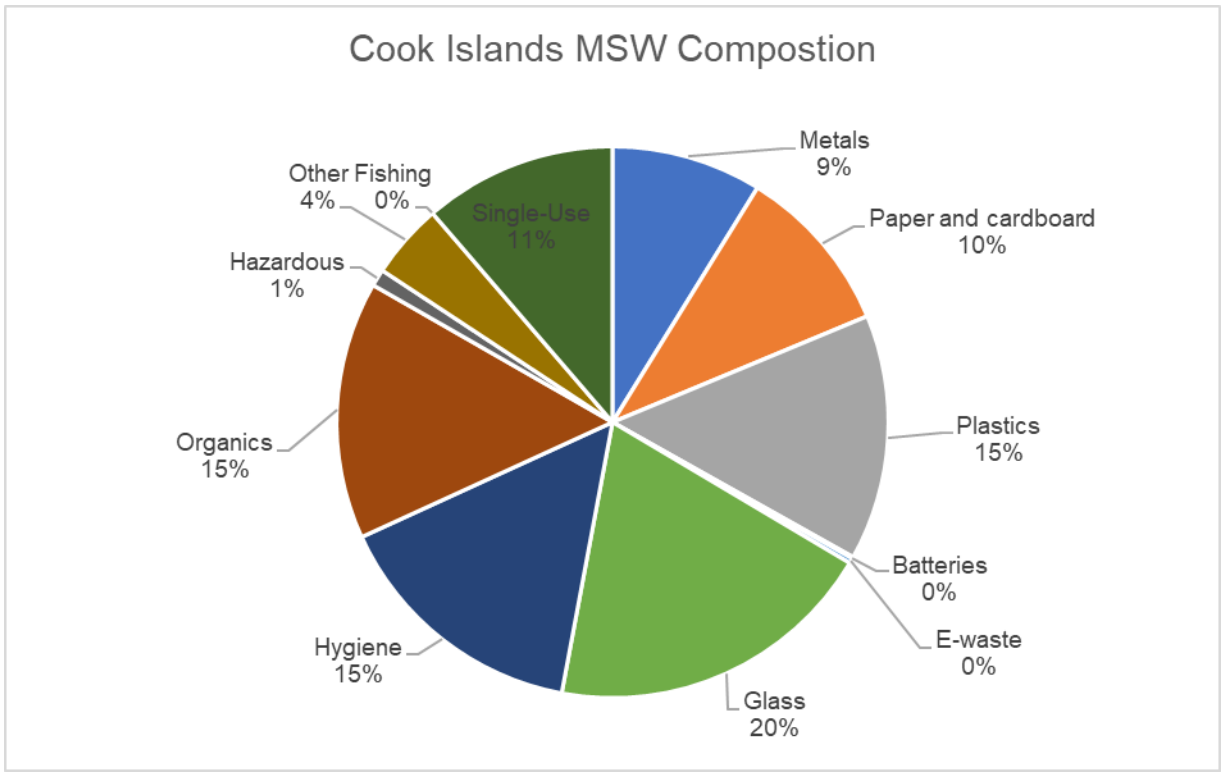


Figure (a) Cook Islands Municipal Solid Waste (MSW) Composition (% by weight)

1 Introduction

1.1 Background

The Cook Islands are one of fifteen Pacific Island Nations which took part in the PacWaste Plus 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 wastes to protect human health and the environment.

The Cook Islands' waste management practices are reliable and diversified. There are a range of collection services and disposal measures in place for different types of waste (e.g. commercial waste, household waste, hazardous waste). Moreover, the public's satisfaction of these services in the local area is high, and enterprises are willing to pay for them. Alternative methods of waste management to the provided collection services are still common (i.e. burning and burying).

1.2 Purpose and Aim

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

The aim of this report is to:

- Validate pre-existing national waste audit data
- Collect additional data to inform data gaps from the Cook Islands 2023 National Waste Analysis Report
- Build national waste insights based on new key performance indicators (KPIs) to understand waste management trends.

The results presented in this report, and the other fourteen country waste data 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 on the Cook Islands:

- Cook Islands waste audit report 2021: The audit was undertaken by Tonkin & Taylor International Ltd in August to September 2020 and provided an evaluation of household and business waste generated in the Cook Islands. Audit data and information was obtained via interviews and waste collections from 146 households and 53 businesses, followed by sorting and weighing. The audit report also provided an assessment of the state of Cook Islands' landfills, including landfill audits and stockpile assessments.

  The audit was undertaken soon after COVID-19 had been declared a global pandemic by the World Health Organisation. The audit report noted that business waste generation rates during the audit were significantly less than typically observed given tourism impacts on Cook Islands.
- Waste Facility Registers collected from stakeholders while in country.
- Cook Islands National Waste Audit Analysis Report 2023.

The data in this report is drawn from two main sources: the 2023 report by MRA Consulting and information collected by Eunomia during this project through waste facility registers. Some data gaps remain due to waste facilities being unable to complete the forms within the required timeframes.

1.4 Country Overview

The Cook Islands is a self-governing island country in the South Pacific Ocean in free association with New Zealand (a map is provided on Page 4 of this report). It comprises 15 islands with a total land area is 240 square kilometres. The population of the Cook Islands is about 15,040. Residents speak Cook Islands Māori and English. Over 74% of the population live on Rarotonga with about 10,898 people and it is the administrative centre for the region. Aitutaki is the second most populated island, with about 1,900 people.

There is no specific waste management legislation in place for the Cook Islands. Instead, waste management falls under the umbrella of general environmental and public health legislation. The Cook Islands government developed the *National Solid Waste Strategy 2013–2016* which provides analysis and context for local waste management. The strategy provides a framework for waste management in the country and aims to improve waste reduction, recycling, and disposal practices across the islands. The document identifies the lack of reliable data on waste generation and management as a major barrier to understanding the national waste situation.

Government departments with waste responsibilities in the Cook Islands include:

- National government:
  - National Environment Services: responsible for developing environmental policy, enforces regulation on illegal dumping, controls and monitors pollution, ensures environmentally safe disposal of chemicals
  - Ministry of Infrastructure Cook Islands: oversees waste collection services and disposal sites
  - Ministry of Health: Administers the Public Health Act of 2004
  - Ministry of Agriculture: Administers the Pesticides Act of 1987.
- Island Environment Authorities: Each island has an established Island Environment Authority. These authorities are responsible for creating environmental protection and improvement guidelines for the purpose of the Cook Islands' Environment Act.

2 Methodology

Waste data collation, analysis and reporting 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 in a consistent and reliable way across the Pacific.

2.1 Data Sources

The KPIs are calculated from a range of data sources. They are listed in the below table with information about what KPIs they inform, how they work, and how often they need to be collated. 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

Collection Method	What the Collection Method Informs	About the Collection Method	Frequency of Reporting
Waste Facility Register	**KPI 1** Count and capacity of modern waste facilities **KPI 2** Count and capacity of unregulated waste facilities **KPI 3** National recovery rate **SKPI 1** Cost of disposal to landfill **SKPI 2** Weight of waste disposed **SKPI 3** Weight of waste recovered **SKPI 4** Volume and type of stockpiled hazardous waste **SKPI 10** Weight of disaster waste disposed.	The Waste Facility Register is a written survey that can be completed on Word, Excel, Kobo Toolbox, or something similar. It should be completed by or on behalf of waste facility operators.	Annual submission of monthly report (all KPIs and SKPIs). As and when disaster events occur (SKPI 10).
Household Community Survey	**KPI 4** Per capita waste generation rate **KPI 6** Household waste capture rate **KPI 7** Household collection coverage **SKPI 5** Marine plastic pollution potential **SKPI 6** Awareness and support of waste management services.	The Household Community Survey is a written survey that can be completed on Word, Excel, Kobo Toolbox, or something similar. It should be completed by or on behalf of households in Cook Islands. The last survey used was collected by Tonkin & Taylor International Ltd, with the support of the Pacific Region Infrastructure Facility (PRIF). Audit data and information was obtained via interviews and waste collections from 146 households and 53 businesses across Rarotonga and Aitutaki.	Every five years.
Household Compositional	**KPI 4** Per capita waste generation rate	The Household Compositional Waste Audit is a sort and weigh audit	Every five years.

Collection Method	What the Collection Method Informs	About the Collection Method	Frequency of Reporting
Waste Audit	**KPI 5** Municipal solid waste (MSW) composition **KPI 6** Household waste capture rate **SKPI 5** Marine plastic pollution potential.	undertaken according to the Waste Audit Methodology: A Common Approach.[1] Sample size for the 2021 was 146 households and 53 businesses across Rarotonga and Aitutaki.	
Commercial Community Survey	**SKPI 6** Awareness and support of waste management services **SKPI 8** Commercial collection service coverage **SKPI 9** Commercial collection service coverage.	The Commercial Community Survey is a written survey that can be completed on Word, Excel, Kobo Toolbox, or something similar. It should be completed by or on behalf of households in Cook Islands. Sample size for the 2021 was 146 households and 53 businesses across Rarotonga and Aitutaki.	Every five years.
Commercial Compositional Audit	**KPI 4** Per capita waste generation rate **KPI 5** Municipal solid waste (MSW) composition **SKPI 5** Marine plastic pollution potential.	The Commercial Compositional Waste Audit is a sort and weigh audit undertaken according to the Waste Audit Methodology: A Common Approach. Sample size for the 2021 was 146 households and 53 businesses across Rarotonga and Aitutaki.	Every five years.
Landfill Activity Audit	Landfill Activity Audits can help to validate incomplete Waste Facility Register surveys.		Every five years if Waste Facility Register is incomplete.
Hazardous Stockpile Audit	Hazardous Stockpile Audits can help to validate Waste Facility Register surveys that have incomplete data on stockpiled hazardous waste. The audits are typically visual and estimate volumes of the following hazardous waste categories: • Asbestos • E-waste • Healthcare and pharmaceutical waste • Used oil • Used tyres • Obsolete chemicals.		Every five years if Waste Facility Register is incomplete.
Policy Survey	**KPI 8** Fulfilment of MEA reporting requirements **SKPI 7** Proportion of strategic waste management initiatives implemented.	The Policy Survey is a written survey that can be completed on Word, Excel, Kobo Toolbox, or something similar. It quantifies the number of planned national and regional strategic initiatives over time.	Biennial.

[1] https://www.sprep.org/sites/default/files/documents/publications/waste-audit-methodology-common-approach.pdf

Collection Method	What the Collection Method Informs	About the Collection Method	Frequency of Reporting
Disaster waste	**SKPI 10** Weight of disaster waste disposed	Data on waste generated from disaster events is captured via the Waste Facility Register.	Annual/after disaster events.
Census data	**KPI 4** Per capita waste generation rate **SKPI 5** Marine plastic pollution potential.	Population data to inform the per capita waste generation rate and marine plastic pollution potential.	N/A
Customs Import and Export Data	Can be used to inform KPIs on waste generation, recovery rate, and capture rates.		N/A
Commercial Data	Number of total businesses and type to allow data to be used for national extrapolation.		N/A

2.1.1 Cook Islands Waste Audit Report 2021

The waste audit was undertaken by Tonkin & Taylor International Ltd August to September 2020 and utilised the Waste Audit Methodology produced by Pacific Regional Infrastructure Facility (PRIF).

Data was collected from households in urban and rural areas, as well as commercial premises, over the course of 14 days. A total of 146 household participated in sort & weigh sampling, and 169 participated in interviews. 120 household samples were taken from Rarotonga and 26 from Aitutaki. A total of 53 business participated in sort & weigh sampling, and 62 participated in interviews. 49 commercial samples were taken from Rarotonga and 4 in Aitutaki.

In addition, around 95 landfill audits and 100 stockpile assessments were conducted. The waste composition, recycling potential, hazardous waste status and future treatment options were audited for Rarotonga and Aitutaki landfills over a two-week period.

Table 2 Sample locations for audits

Sample Location	Population (2021)	Classification
Rarotonga	10,898	Urban
Aitutaki	3,040	Rural

2.2 Data Analysis

Each country's audit reports, audit data, and other relevant data sources were inspected for relevant information which was subsequently collated into country specific databases. The extracted audit data was 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 following. 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

- Audit data presented the composition proportions of waste sampled at Aitutaki and Rarotonga landfills, with volumetric estimates for each category, based on visual assessment only. To calculate the weights of landfilled waste on the Cook Islands, density conversion factors were used based on Australia's New South Wales Environment Protection Authority's (NSW EPA) "Disposal-based audit Commercial and industrial waste stream in the regulated areas of New South Wales". The PRIF audited waste categories were matched to equivalent waste categories presented in the NSW EPA's density conversion factors list.
- 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.
- The audit data provided for 'urban' areas (Rarotonga) and 'rural' areas (Aitutaki) (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.
- 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 with the aim of improving 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 to 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 KPI reporting results and data availability

The waste audits provided varying levels of data and information for the purposes of calculating 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 KPIs

Core KPIs		Supplementary KPIs	
1. Count / capacity of modern waste facilities		1. Cost of disposal to landfill ($/annum)	
2. Count / capacity of unregulated waste facilities		2. Weight of waste disposed (tpa)	
3. National recovery rate (%)		3. Weight of waste recovered (tpa)	
4. Per capita waste generation rate (kg/capita/year)		4. Volume and type of stockpiled hazardous waste (m^3)	
5. Municipal Solid Waste (MSW) composition (%)		5. Marine plastic pollution potential (tpa)	
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 (tpa)	

Legend

Calculated with additional data	Calculated in Previous Report	No data

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

- There was adequate data provided within the audit report to sufficiently calculate all Core KPIs, and Supplementary KPI's 1 to 9.
- No data was available to calculate Supplementary KPI on volume of disaster waste.

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 Cook 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 Cook 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	**Count of modern waste facilities: 5** • Both Aitutaki landfill and Rarotonga landfill, the country's only two landfills, are licensed, staffed, have access to equipment, manage leachate, and use daily some form of daily cover system. **Capacity of modern waste facilities (tonnes per annum): Unknown**
Assumptions	• The landfill and recycling centre at Aitutaki are meeting requirements of modern facilities, although data was unable to gathered. • The composting facility has not been identified as licensed but has staffing and equipment that have been deemed as a modern facility.
Data gaps	• There are two engineered landfills in the Cook Islands, located on Rarotonga and Aitutaki. Both sites have adjoining recycling centres; however, neither facility is equipped with a weighbridge. This limits the ability to obtain accurate data on waste volumes and types received or diverted. • No data has been received from the Aitutaki landfill to date. Efforts to engage with the site have included direct email correspondence, but no response has been received at the time of reporting. • No data on the capacity of these facilities has been provided when requested.
Key considerations	• It is recommended that maximum capacities for both facilities are investigated and reported on.

Core KPI 2: Count / capacity of unregulated waste facilities

Result	**Count of unregulated waste facilities: 15**
	• There are 15 unregulated, unmanned facilities with no data. These are located in:
	  ○ Atiu x 1
	  ○ Mitiaro x 1 – have secured land for a recycling drop off for glass, and aluminium cans and storage for batteries.
	  ○ Mangaia x 3
	  ○ Mauke x 1
	  ○ Rakanga x 1
	  ○ Pukepuke x 2
	  ○ Manihiki x 2
	  ○ Penriyn x 1
	  ○ Nassau x 1
	  ○ Palmerston x 1 – and recycling drop off
	Capacity of unregulated waste facilities (tonnes per annum): Unknown

Assumptions	• These are the only known dumpsites, likely to be other unregulated waste management happening around the islands.
Data gaps	• No data available on capacity of these sites
Key considerations	• There are recycling centres located at the Aitutaki landfill and the recycling exporter that need to have more data gathered to deem if they are considered modern waste facilities.

Core KPI 3: National recovery rate

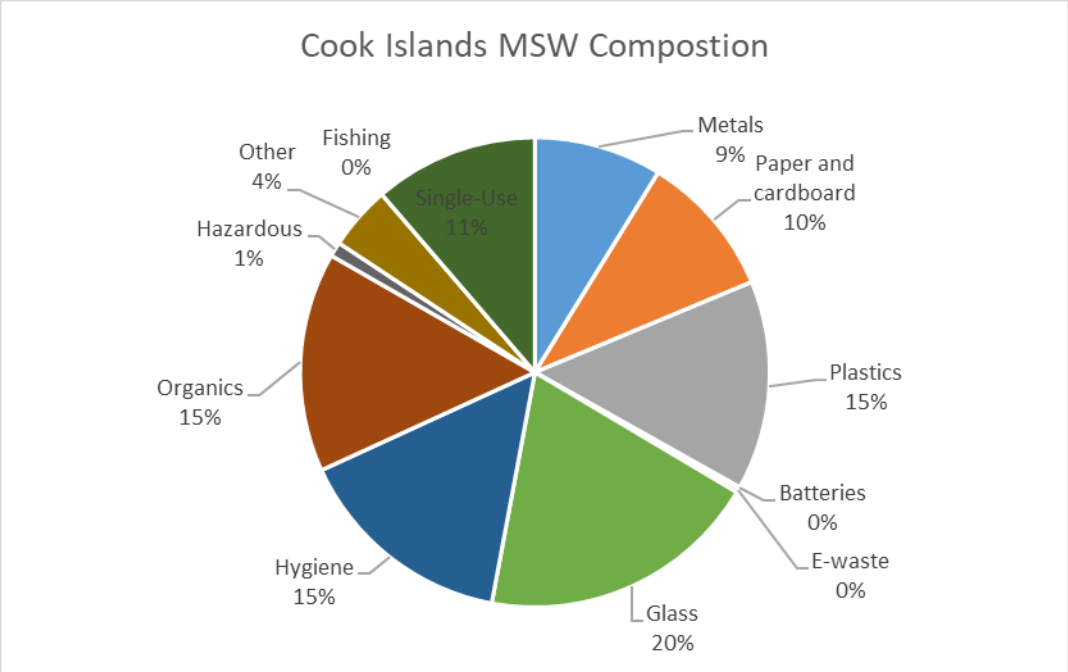
Results	**National recovery rate (%): 34%** • The Cook Islands operates a recycling centre in Arorangi at the Rarotonga Waste Facility. The centre is equipped with a sorting area for plastic and glass bottles at the rear, along with an industrial baler for compacting plastic, aluminium, and tin cans, and a glass crusher is housed within the recycling centre building. • Residents separate glass, cans (aluminium and steel), plastic bottles (PET and HDPE), and glass bottles for recyclables. Recyclables are collected alongside rubbish and are manually loaded into a dedicated collection vehicle and trailer. This collection is undertaken by a private contractor commissioned by the Ministry of Infrastructure Cook Islands. • Small businesses can also use the recyclables service. Collections are undertaken at the same time as household collections. • Recyclables collected from households and businesses are taken to the Rarotonga Waste Facility or Aitutaki Waste Facility. Recyclables at the Rarotonga facility are stored separately in designated bays, including glass bottles, cans, paper, and cardboard (the latter is bailed). The site is nearing capacity. The Aitutaki facility has a plastic bottle baler and a baler for aluminium cans.

Assumptions	• Assumes that reported recovery numbers are representative of country activities.
Data gaps	• This calculation is based solely on data from the landfill and recycling centre in Rarotonga, as data from the Aitutaki sites was not available.
Key considerations	• CIGT is a transport company that also serves as the main recycler and exporter of recyclable materials on the island. Data from CIGT is still pending

Core KPI 4: Per capita waste generation rate

Results	**Per capita waste generation rate (kg/capita/year): 115** – kg/capita/day: 0.314 – kg/household/day: 1.00
Assumptions	• 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 or urban), and extrapolated using census data of the national population. • Aitutaki (part of the Southern Islands) was classified as 'rural', and used to extrapolate data across the rest of the Southern Islands (also classified as 'rural') for which there was a lack of data. • Where there was no data available for the Northern Islands (i.e. Mangaia, and other islands), an assumed 'rural' average waste generation rate was used based on data from household audits from Aitutaki. • Population statistics used are from 2021 census results.
Data gaps	• No information recorded for most of outer islands. • Not all regions, islands or towns / villages represented in audits have corresponding data represented in the 2021 census. • No information available on waste generation rates in semi-urban areas.
Key considerations	• Future per capita waste generation rates will provide insights into waste management trends and changes for the Cook Islands.

Core KPI 5: Municipal Solid Waste (MSW) Composition

Results	Glass waste is the most prevalent waste type found in household waste compositions (in Cook Islands). This is followed by Hygiene as indicated below. • Glass waste 19.4% • Hygiene waste 15.2% • Organics waste 15.1%  Figure 1 Cook Islands Municipal Solid Waste (MSW) Composition (% by weight)
Assumptions	• Data has been weighted by population across Rarotonga and Aitutaki
Data gaps	• No samples taken in the Northern Islands. • Waste data for Aitutaki was used to represent the outer islands.
Key considerations	• Data for the outer islands was not captured. The composition of waste in these rural areas may differ considerably from what was found in Rarotonga and Aitutaki. • 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	**Household waste capture rate (%): 84.35%** – Total weight of household waste generated = 1,723 – Total weight of household waste captured responsibly = 1,454
Assumptions	• The survey and audits did not capture each household's disposal method, nor the weight of waste captured by management services, so census data was used and extrapolated across household audit results. $$Household\ waste\ capture\ rate\ (\%) = \frac{weight\ of\ managed\ waste\ (tpa)}{total\ household\ waste\ generated\ (tpa)}$$ Total weight of managed waste is calculated as the product of: $$weight\ of\ managed\ waste\ (tpa) = \frac{household\ collection\ coverage\ (\%)}{total\ household\ waste\ generated\ (tpa)}$$ Collection service coverage (%) is the product of: $$household\ collection\ coverage\ (\%) = \frac{number\ of\ households\ with\ some\ form\ of\ collection\ service}{total\ number\ of\ households}$$ 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: $$total\ household\ waste\ generated\ (tpa) = average\ waste\ generation\ rate\ of\ location\left(\frac{\frac{kg}{capita}}{year}\right) \times location\ population$$
Data gaps	• Household waste generated is based on waste audits
Key considerations	• The majority of household waste generated in the Cook Islands is captured by waste management services. • 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	**Household collection service coverage (%): 84.35%** • The audit reported that 94% of surveyed households in Rarotonga had access to some form of waste collection service, and 93% in Aitutaki. • Census data from 2021 reported: – 92% of the Rarotongan population had access to some form of waste collection service. – 69% of the population on the Southern Islands had access to some form of waste collection service. – 36% of the population on the Northern Islands had access to some form of waste collection service.
Assumptions	• The performance indicator was calculated based on information from 2021 census data and the number of households. • To calculate this performance indicator, it was necessary to make assumptions on the proportion of the population (by Island group and for Rarotonga) which had access to: – Public waste collection – Drop-off points – Composting services
Data gaps	• Household waste generated is based on waste audits
Key considerations	• The audit report provided adequate data for use in Rarotonga, and data from Aitutaki which could be extrapolated to the rest of the country. However, the 2021 Cook Islands national census provided additional comprehensive information that allowed a weighted average for Rarotonga, the Northern Island group and Southern Island group to be calculated.

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

Results	**Fulfillment of MEA reporting requirements (%): 15.56%**

Convention	Status	Reporting requirements	Reports delivered
Basel Convention	Accession	Annual reports (18)	2
Stockholm Convention	Accession	5 reporting cycles (5)	1

Assumptions	• None
Data gaps	• Only MEA's with mandatory reporting requirements were included in the calculation of this KPI. • For conventions like the Waigani Convention of which the Cook Islands is a member, strict reporting requirements are not enforced and so are not included in the calculation.
Key considerations	• The Cook Islands is behind on the required MEA reports for the agreements of which it is party to.

Supplementary KPI 1: Cost of disposal to landfill

Results	**Cost of disposal to landfill ($/tonne): US$181**
Assumptions	• None
Data gaps	• It was estimated that the cost of operating Rarotonga landfill was around NZ$ 100,000 to $150,000 per annum. – This calculation assumed a median cost of NZ $125,000 per annum. – The annual tonnes of waste disposed was calculated as 397 tpa. (See Supplementary KPI 2) • No operational costs were provided for Aitutaki landfill or the Arorangi recycling centre.
Key considerations	• The disposed waste used in this calculation is taken from audit data. There is a different figure that is received at the Rarotonga landfill, but this also does not consider waste received at Aitutaki landfill, therefore the figure from the audits was used. • A waste facility register to be completed by the Aitutaki landfill site would aid in a more accurate figure.

Supplementary KPI 2: Total weight of waste disposed

Results	**Total weight of waste disposed (tonnes per annum): 397**
Assumptions	• Volumetric data from the audit was converted to weight using density conversion factors published by the NSW EPA.
Data gaps	• This figure comes from converted weight from the audit. It is missing actual tonnages from both landfills.
Key considerations	• Data from both landfill sites would be more accurate for representing total weight of waste disposed.

Supplementary KPI 3: Total weight of waste recovered

Results	**Total weight of waste recovered (tonnes per annum): 840**
Assumptions	• This data comes from recycling facility based on Rarotonga and is estimated as there is no weigh bridge.
Data gaps	• There is no data available from the recycling facility on Aitutaki
Key considerations	• Calculation of this performance indicator requires the completion of the waste facility register with the inclusion of data for any recovery facilities operating in the Cook Islands. This will provide an indication of 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: Volumes of stockpiled hazardous waste

Results	**Volumes of stockpiled hazardous wastes (m^3):** – Asbestos: No data – E-waste: 100 m^3 – Healthcare and pharmaceutical waste: No data – Used oil: 0.4m^3 – Used tyres: No data – Obsolete chemicals: 0.6m^3 – Batteries: 100m^3 • The audit recorded 17m^3 of stockpiled "hazardous" waste in the country.
Assumptions	• None
Data gaps	• No data has been made available for asbestos. • incinerator at Rarotonga hospital and 2 on outer islands for medical waste, no data has been made available.
Key considerations	• There is also a stockpile of 200 old solar batteries (each about 0.5m3). Will be an issues on the other islands too. Solar batteries require replacing every 4 to 5 years. • Obsolete chemicals – Ministry of Marine Resources have a store of about 500 litres of liquid chemicals and 100 kg of solid chemicals that they don't know how to dispose of. There may be other govt departments with similar stockpiles. • Some e-waste stockpiles have been reported on. However, the volume of other hazardous waste stockpiles in the Cook Islands remains unknown. • Future data should aim to record the estimated volume of each suggested category of hazardous waste separately to provide an indication of the size and presence of stockpiled hazardous waste in the Cook Islands.

Supplementary KPI 5: Marine plastic pollution potential

Results	**Marine plastic pollution potential (tonnes per annum): 34.6**
Assumptions	• Assumes a national weight of mismanaged waste, based on household audit samples. – 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 proportion of plastics captured in MSW composition.
Data gaps	• Requires a more reliable metric for mismanaged waste.
Key considerations	• Waste plastics which are not managed in an environmentally sound manner are assumed to pose a significant risk of polluting oceans and estuarine waterways. • Waste plastics made up a high proportion of the MSW in the Cook Islands, at about 14% percent of waste generated. Therefore, mismanaged waste plastics which are not captured and potentially polluting marine environments should be considered for proper management.

Supplementary KPI 6: Awareness of waste management services

Results	**Awareness of waste services (%): 93%**
Assumptions	• If a survey respondent noted that they did have a waste service available, this was taken as awareness of waste services.
Data gaps	• A detailed community survey of awareness of services available has not been conducted.
Key considerations	• Monitoring the community's awareness provides an indication of the success of education initiatives and effective use of existing waste management services.

Supplementary KPI 7: Proportion of strategic waste management initiatives implemented

Results	**Proportion of waste management initiatives implemented (%): 83.33%** – Number of successfully implemented initiatives = 10 out of 12 – Number of pipeline initiatives = 2 • Implemented initiatives include: – Environment Act 2003 including the plastic bag import ban – Single Use Plastic Ban Policy 2018-2023 – Solid Waste Management Policy 2016-2026 – National Solid Waste Management Strategy 2013-2026 • Pipeline initiatives include: – Introduction of the Solid and Hazardous Waste Bill – Introduction of a ban on Single Use Plastics
Assumptions	• None
Data gaps	• None
Key considerations	• The Cook Islands have several implemented and upcoming waste management initiatives which reflect the country's efforts towards proper waste management. However, at the time of the audit, no specific waste management legislation was in place. Waste management falls under general environmental and public health legislation. • The Cook Islands' *National Solid Waste Strategy 2013 - 2016* offers insight and perspective on waste management, highlighting the absence of information on waste management and production as a barrier to understanding it's waste situation.

Supplementary KPI 8: Commercial waste capture rate

Results	**Commercial waste capture rate (%): 85%** • Measured as the fraction of the total waste captured through formal waste management services over the total waste generated by businesses. • Without estimates of commercial waste generation rates and the number of businesses, this indicator cannot be calculated.
Assumptions	• This figure was calculated by the awareness of waste service collections by interviewed businesses.
Data gaps	• No estimate for the number of businesses in the Cook Islands in the audit report. • No information available on the total amount of waste generated by businesses. • No information on waste generation rates by business type in the audit report.
Key considerations	• 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	**Commercial collection service coverage (%): 75.72%** • 52 businesses in Rarotonga and 8 businesses in Aitutaki were interviewed during the audit. – Rarotonga coverage: 92.31% – Aitutaki coverage: 38.50%
Assumptions	• Results for businesses sampled assumed to be representative of the remaining Cook Island businesses.
Data gaps	• No information on service coverages or number of participating businesses beyond the conducted surveys were identified. • The audit report did not quantify access to other disposal methods used by businesses (e.g. waste disposal-points or self-haul), however the different disposal methods indicated by respondents was listed.
Key considerations	• Based on interviews conducted in Rarotonga and Aitutaki, around 75% of businesses in the Cook Islands have access to some form of waste collection service. • 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	**Weight of disaster waste disposed (tpa): No data**
Assumptions	• None
Data gaps	• The last disaster was in 2010 and therefore there is 0 tonnes of disaster waste.
Key considerations	• 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. • Future disasters can be measured and recorded for the amount of waste that is received and related to disasters. Regularly updating waste facility registers can help with this data collection.

4 Conclusion

The analysis shows that while the Cook Islands has made meaningful progress in some areas, such as the recovery rate of recyclable materials (34%), household waste capture rate (84%), and community support for waste management services (93%), there remain substantial challenges to establishing a comprehensive and consistent waste data system. Notably, limited access to accurate facility-level data, particularly from Aitutaki and the outer islands, and the absence of weighbridges at landfill sites have constrained the accuracy of disposal and recovery figures.

Data gaps were evident in several KPIs, particularly those related to disaster waste disposal, hazardous waste stockpiles, and the capacity of unregulated facilities. The reliance on visual assessments, extrapolated assumptions, and partially completed surveys also introduced uncertainty in some indicator calculations. Furthermore, with 15 unregulated and unmanned waste sites across the outer islands, there is an ongoing risk of unmanaged waste impacting local environments and communities.

Despite these limitations, this report establishes a starting point for ongoing performance monitoring. It demonstrates the importance of improving data collection practices, including greater use of standardised tools such as Kobo Toolbox, more frequent and complete reporting from waste facilities, and engagement with recycling exporters and transporters for accurate materials flow data.

To strengthen future reporting and enhance waste management outcomes across the Cook Islands, it is recommended that:

- Data collection protocols be standardised and integrated into routine operations at all waste facilities
- Capacity-building and support be provided to operators across all islands to improve data submission rates and accuracy
- Investment be made in infrastructure such as weighbridges to provide more precise measurement of waste flows
- Engagement with stakeholders—particularly in outer islands—is deepened to address the challenges of managing and monitoring unregulated sites
- A centralised data platform be developed to consolidate and track performance indicators over time.

Overall, the Cook Islands has demonstrated a strong commitment to improving waste management systems. Continued focus on data quality, stakeholder engagement, be critical to realising a true baseline of data for these KPIs

5 Appendix

5.1 A.1.0 KPI Calculations

KPI	Data Source/s	Formula and Notes	Definitions
1. Count / capacity of modern waste facilities	**Waste Facility Register**	**Count of modern facilities** The number of modern waste facilities, including incinerators. **Capacity of modern facilities** The theoretical maximum facility capacity based on the facility license in tonnes per annum for each modern waste facility, including incinerators.	**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, and have access to equipment and machinery such as a bulldozer. A landfill or dumpsite must employ a leachate management system and a daily cover routine. A waste recovery facility should have fire prevention and control measures in place, and appropriate stormwater runoff controls. Facilities must not be exceeding their maximum storage capacity. **Waste facilities** – 'Waste facilities' involved in the handling, disposal, or recovery of waste streams above a minimum processing threshold determined on Cook Islands 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 / recovery facilities for dry recyclables (and e-waste), organics recovery facilities, and waste-to-energy facilities.
2. Count / capacity of unregulated waste facilities	**Waste Facility Register**	**Count of unregulated facilities** The number of unregulated waste facilities. **Capacity of unregulated facilities** The theoretical maximum facility capacity based on the facility license in tonnes per annum for each unregulated waste facility.	**Unregulated** – typically unlicensed waste facilities which do not follow international frameworks, rules, and guidelines to protect the health of the environment and community. **Waste facilities** – refer to **KPI 1** definitions above.
3. National recovery rate (%)	**Waste Facility Register**	**National recovery rate** Calculated using the below formula: $\frac{\text{Tonnes per annum of waste diverted from landfill}}{\text{Tonnes per annum of waste received by all waste facilities}}$ This excludes informal and small-scale recovery activities that take place outside of waste facilities. However they can be calculated separately using the following formula where waste generated is the sum of what is recovered and disposed of:	**Recovery** – any activity that diverts waste material from landfill, including: • Dry recycling – the separation and reprocessing of dry recyclables including paper, cardboard, metal, and certain plastics. • Organics recovery – the mulching or composting of mixed organics to produce new products. • Energy recovery – waste processing that allows for the capture and reuse of

KPI	Data Source/s	Formula and Notes	Definitions
		energy. $\frac{\text{Tonnes per annum of target waste stream recovered}}{\text{Tonnes per annum of target waste stream generated}}$ • Where facilities do not have weighbridges conversion factors can be applied to convert volume (m^3) to tonnage (t).	
4. Per capita waste generation rate (kg/capita/year)	**Household waste audit** **Household Community Survey** **Census data** (population distribution, socio-economic conditions)	**Per capita waste generation rate** Calculated using the below formula: $\frac{\text{Tonnes per annum of waste generated}}{\text{National population}}$ This KPI considers household waste only. This calculation needs to consider the locations where compositional waste audits and surveys were undertaken to apply the audit results appropriately over the PICT. Waste generation varies between settlement types (urban/rural, main island/outer islands, etc.) and as these settlements are distributed uniquely in each PICT it needs to be considered in the calculation. This will be addressed in Section 3.0 Analysis of KPI Results to provide more detail about how the calculation was addressed for each PICT.	**Per capita** – units measured in a per capita (i.e., per person) basis to allow for extrapolation over a national population. **Waste generation rate** – waste generation measured at the point of origin and includes all disposal pathways (formal collection, dumping, burning, burying or other means).
5. Municipal Solid Waste (MSW) composition (%)	**Household waste audit** **Household Community Survey**	**MSW composition** The breakdown of the following waste materials by percentage: • Batteries • E-waste • Fishing • Glass • Hazardous • Hygiene • Metals • Organics • Other • Paper and cardboard • Plastics	**Municipal Solid Waste** (MSW) – waste originating from the public (typically managed by local government entities) and excludes commercial waste.

KPI	Data Source/s	Formula and Notes	Definitions
		• Single-use This calculation needs to consider the locations where compositional waste audits were undertaken to apply the audit results appropriately over the PICT. Waste generation varies between settlement types (urban/rural, main island/outer islands, etc.) and as these settlements are distributed uniquely in each PICT it needs to be considered in the calculation. This will be addressed in Section 3.0 Analysis of KPI Results to provide more detail about how the calculation was addressed for each PICT.	
6. Household waste capture rate (%)	**Household waste audit** **Household Community Survey** **Census data**	**Household waste capture rate** Calculated using the below formula: $\frac{\textit{Tonnes per annum of waste captured responsibly}}{\textit{Tonnes per annum of waste generated}}$ This calculation needs to consider the locations where compositional waste audits and surveys were undertaken to apply the audit results appropriately over the PICT. Waste generation and access to formal waste management services vary between settlement types (urban/rural, main island/outer islands, etc.) and as these settlements are distributed uniquely in each PICT it needs to be considered in the calculation. This will be addressed in Section 3.0 Analysis of KPI Results to provide more detail about how the calculation was addressed for each PICT.	**Capture rate** – the proportion of total waste generated that is successfully captured and disposed of or recovered in an environmentally responsible manner. Waste capture can include: • Waste collected by a household collection service. • Waste that is self-hauled to a licensed waste disposal facility. • Materials that are source separated and diverted to a recovery facility.
7. Household collection service coverage (%)	**Household Community Survey** **Census data** **Waste department records** (for validation)	**Household collection service coverage** Calculated using the below formula: $\frac{\textit{Number of people surveyed with access to a service}}{\textit{Total number of people surveyed}}$ This calculation needs to consider the locations where compositional surveys were undertaken to apply the results appropriately over the PICT. Access to waste services varies between settlement types (urban/rural, main island/outer islands, etc.) and as these settlements are distributed uniquely in	• **Collection service** – a waste collection, transportation, and disposal service for household waste. Collection services can be either a house-to-house kerbside collection or community drop-off point. It is a requirement that the collection service be: • Regular – services are provided consistently in a way the does not lead to negative environmental impacts or disrupted engagement. • Accessible – drop-off points should be

KPI	Data Source/s	Formula and Notes	Definitions
		each PICT it needs to be considered in the calculation. This will be addressed in Section 3.0 Analysis of KPI Results to provide more detail about how the calculation was addressed for each PICT.	close to households included in the service. • Affordable – if the service is user-pay, then it should be priced in a manner that is affordable to the target population. **Coverage** – the proportion of the total households that have access to a regular waste collection service.
8. Fulfilment of MEA reporting requirements (%)	**Policy Survey**	**Fulfilment of MEA reporting requirements** Calculated using the below formula: $\frac{Number\ of\ satisfactorily\ completed\ reports}{Total\ number\ of\ reports\ required}$	**Fulfilment** – to satisfy the condition of a reporting requirement to be fulfilled, it must: • Delivered on time (whether by a specific deadline or at a regular reporting interval) • Presented in the required format and units of measurement. • Utilise the correct information portal or platform for reporting. • Be based on accurate data collection methods. **Multilateral environmental agreement** (MEA) – agreements between countries, usually taking the form of international conventions that strive to protect the environment through the implementation of actions to meet specific environmental goals. Some MEAs have obligations which are legally binding. **Reporting requirements** – MEAs often require member nations to regularly report implementation plans, progress reports, and other information to the authoritative body of the MEA.

6 References

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