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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.*

Nauru National Waste Audit Analysis Report

June 2025

This Waste data collation, analysis and reporting for the Nauru 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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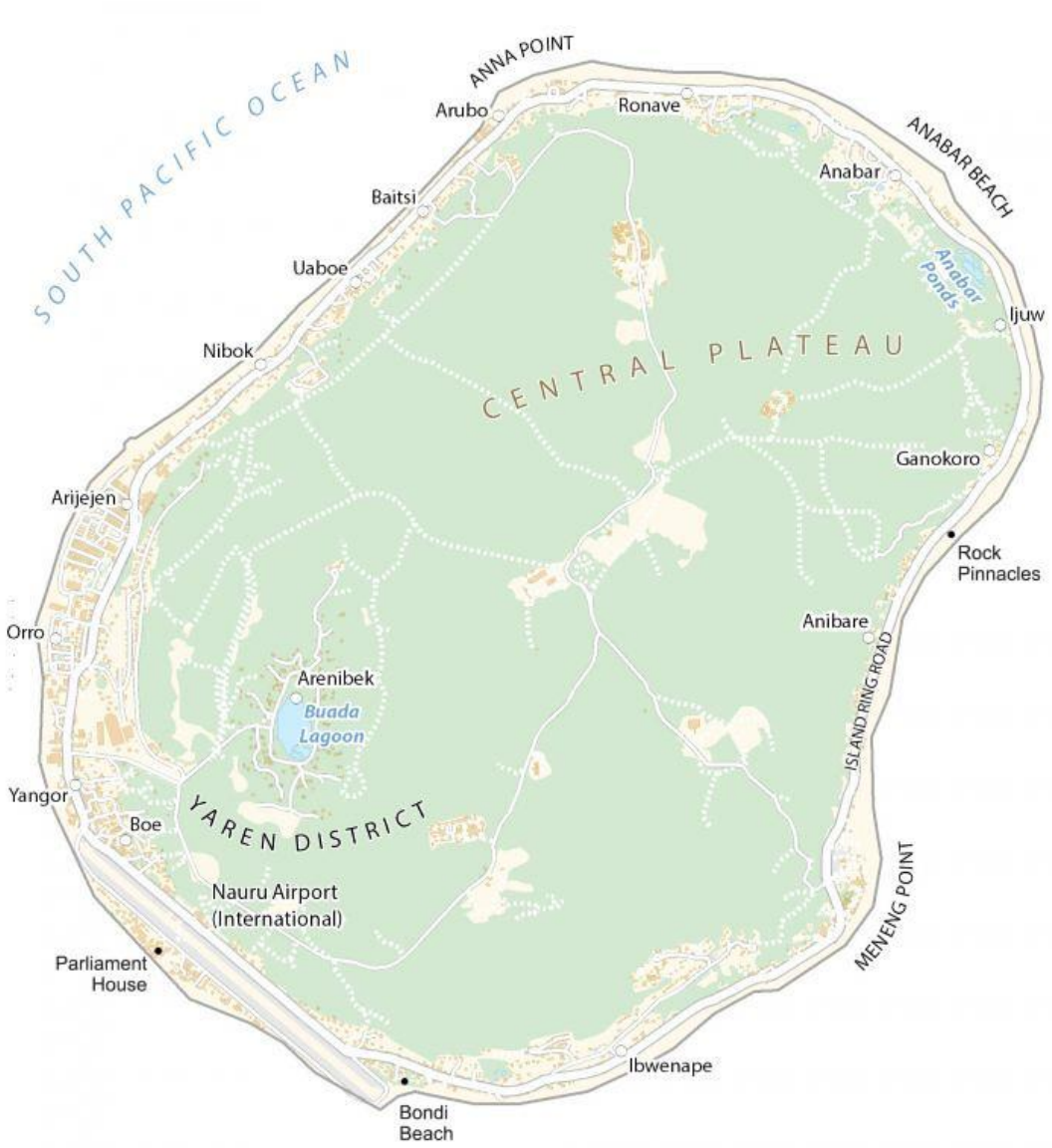
Map of Nauru



Source: GISGeography, 2022

Glossary

Acronym	Definition
C&D	Construction and Demolition (Waste)
C&I	Commercial and Industrial (Waste)
DCMR	Data Strategy & 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
NRC	Nauru Rehabilitation Corporation
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, 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 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.

Executive Summary

Waste data collation, analysis and reporting for the Nauru 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 Nauru

Core KPIs	Result	Supplementary KPIs	Result
1. Count / capacity of modern waste facilities	0 / N/A	1. Cost of disposal to landfill ($/annum)	US $35.74
2. Count / capacity of unregulated waste facilities	3 / Exceed Theoratical Capacity	2. Weight of waste disposed (tpa)	15,702
3. National recovery rate (%)	0%	3. Weight of waste recovered (tpa)	Unknown
4. Per capita waste generation rate (kg/capita/year)	49.0	4. Volume and type of stockpiled hazardous waste (m3)	Asbestos: 664 m3 E-waste: 120m³ Healthcare and pharmaceutical waste: No data Used oil: 62.6 m³ Used tyres: 0 Obsolete chemicals: 0.25 m³
5. Municipal Solid Waste (MSW) composition (%)	See Figure (a)	5. Marine plastic pollution potential (tpa)	10.1
6. Household waste capture rate (%)	86%	6. Awareness and support of waste management services (%)	86
7. Household collection service coverage (%)	86%	7. Proportion of strategic waste management initiatives implemented (%)	84%
8. Fulfillment of MEA reporting requirements (%)	15%	8. Commercial waste capture rate (%)	84%
		9. Commercial collection service coverage (%)	29%
		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.

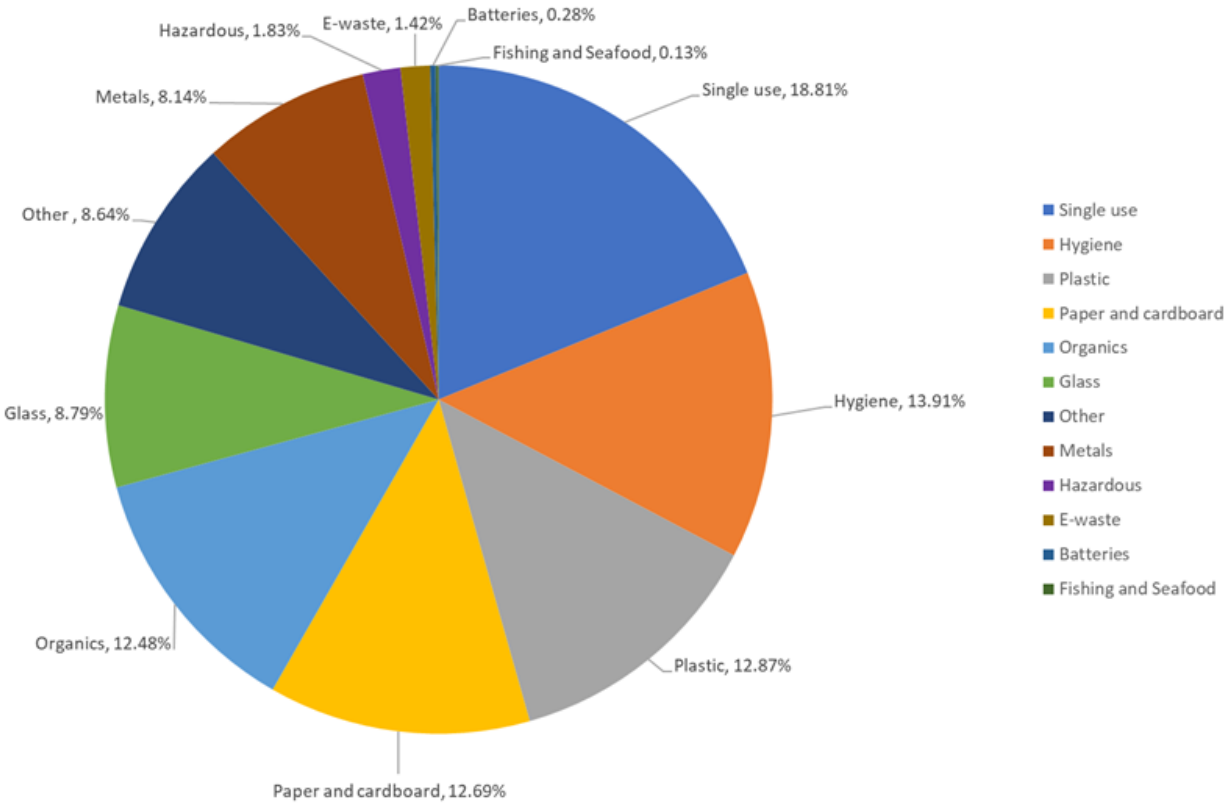


Figure (a) Nauru Municipal Solid Waste (MSW) Composition (% by weight)

Introduction

1.1 Background

Nauru is 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 waste to protect human health and the environment.

Nauru's waste management practices primarily rely on burying, burning, dumping, and landfilling. There is limited access to proper waste collection and disposal facilities, leading to environmental degradation and health hazards. Currently, there is no collection service for recyclables in the country, but there are plans to design and implement one. There is some separation of recyclable materials at the Nauru waste facility with tyres and metals stockpiled, and mulched organics and shredded cardboard reused by locals on plantations or farms.

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 Nauru's 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 in Nauru:

Nauru waste audit report 2020: This audit was undertaken by Tonkin & Taylor International Limited in December 2020 and provided an evaluation of household and business waste generated in Nauru. Audit data and information were obtained via interviews and waste collections from 75 households and 13 businesses, followed by sorting and weighing. The audit report also provided an assessment of the state of Nauru's waste facility including landfill audits and stockpile assessments.

Nauru National Waste Analysis Report 2023

Additional Data Collection commissioned in 2025

This national report examines the MSW, commercial and industrial (C&I), disaster waste and landfill waste streams. Landfills may receive a broad array of waste types including construction and demolition (C&D) waste, hazardous waste, and other types of 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 Republic of Nauru is a small coral island located in the southeast Pacific Ocean with a population of approximately 11,550 people and around 1,647 households. With only a 21 km^2 area, Nauru is the third-smallest country in the world behind Vatican City and Monaco, making it the smallest republic as well as the smallest island nation. The languages spoken include Nauruan and English.

There is no specific waste management legislation in place for Nauru. Instead, waste management falls under the umbrella of general environmental legislation and strategies for solid waste management, such as *Environmental Management and Climate Change Act 2020*, *National Solid Waste Management Strategy 2011-2020* and *Litter Prohibition Act 1983 etc.*

The responsibility for managing solid waste is divided among various institutions in Nauru, which include: the Department of Commerce, Industry and Environment responsible for planning and coordinating the development of the National Waste Management Policy Framework. In addition, it is also responsible for the management of hazardous waste.

Department of Health: Administers the Litter Prohibition Act.

Department of Finance and Economic Planning: Responsible for the Economic Infrastructure Strategy and Investment Plan 2011, which includes solid waste management infrastructure stocktake.

Nauru Rehabilitation Corporation (NRC) carried out the waste management programme for Nauru, including waste collection, disposal (operation of the Nauru dumpsite, herein referred to as the waste facility), composting and recycling.

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.

1.5 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 analysed

Data Source	Year	Location/s	Sample Size/s	Method for Data Collection	Reported Data	Notes
Nauru National Census	2021	Nationwide		Questionnaires distributed to households, arranged by the Nauru Bureau of Statistics	Population and households	
Nauru Waste Audit report Tonkin & Taylor	2020	Nationwide	88 households and 13 businesses	Commercial and household compositional waste audits, commercial and household community surveys.	Commercial and household waste composition and qualitative survey responses.	Used to inform 2023 Nauru National Waste Audit Analysis Report.
Nauru National Waste Audit Analysis Report MRA Consulting Group	2023	Nationwide	The National Waste Audit Analysis Report uses data from the Waste Audit Report outlined above).			
Waste Facility Register Eunomia Research & Consulting	2025	Nationwide	One facility (NRC Waste Facility)	Waste Facility Register distributed to the NRC Facility	Facility details.	Used to inform the 2025 Nauru National Waste Audit Analysis Report.

1.5.1 Nauru Waste Audit 2020

The waste audit was undertaken by Tonkin & Taylor International Limited in December 2020 and utilised the Waste Audit Methodology produced by Pacific Regional Infrastructure Facility (PRIF).

Audit activities took place over one week across Nauru. The audit plan was developed based on the most recent household and commercial statistics from the Nauru Bureau of Statistics. A total of 88 household samples and 13 commercial samples were gathered. Of this total, 74 households and 17 commercials participated in interviews. Sampling methodologies differed by the type of collection service available to the sampled area. In addition, 88 loads were analysed during the landfill audit, and 43 stockpile assessments were conducted. The waste composition, recycling potential, hazardous waste status and future treatment options were audited for the NRC waste facility over one week.

1.6 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.**

1.6.1 Main Assumptions

- Household and business audits: A sample is the entire contents of a bin or bag/s put out for collection. The sample represents the waste produced by that household over one week. The audit methodology uses weight to determine composition rather than volume. The methodology does not include the identification of moisture content across different waste materials.
- Landfill audit: Waste composition and quantity were estimated, and loads recorded during the audit period. Each load was recorded including photographs and estimated composition and quantity. Assumptions were used for the typical density of waste categories.
- Stockpile assessments: Materials characteristics and quantity were estimated. Each stockpile was recorded including photographs and estimated composition and quantity. Assumptions were used for the typical weights of items identified in stockpile assessments.

1.7 Key Performance Indicators

The DCMR Framework introduces a series of KPIs (see **Table 2**). 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 to using corresponding data collection methodologies. These are:

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

Table 2 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

2 Audit Analysis Results

2.1 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 KPIs

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

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.

There was adequate data provided within the audit report to sufficiently calculate Core KPIs 4 to 8 and Supplementary KPIs 1, 2, 5, and 7.

Limited data was provided within the audit report to calculate all Core KPIs, and Supplementary KPIs 1 to 9.

- Since Nauru has no official recycling system or infrastructure, it was not possible to determine the national rate of recovery, or the weight of waste recovered. No disaster waste amounts were reported as part of audits.

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 Nauru.

2.2 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 Nauru 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: 0** There are 4 facilities in Nauru, all located at the Nauru waste facility, operated by Nauru Rehabilitation Corporation (NRC) None of the facilities meet modern requirements **Capacity of modern waste facilities (tonnes per annum): 0** Since the Nauru waste facility does not meet modern requirements, the capacity of 'modern' facilities is 0.
Assumptions	None
Data gaps	None
Key considerations	The Nauru waste facility is not up to 'modern' standards. The lack of leachate management at the facility means that both the environment and community are at risk of hazards due to contamination and material flow. The 2020 waste audit report noted that the facility had reached its full capacity in 2018. – Materials have since been diverted away from landfill where possible to preserve the remaining air space. Investment to upgrade the existing landfill on Nauru to meet 'modern' standards / best practices will lead to better outcomes for the local environment and community health. – Waste reduction and recovery may be the most beneficial waste management strategies for Nauru due to the limited space and resources available to the island.

Core KPI 2: Count / capacity of unregulated waste facilities

Result	**Count of unregulated waste facilities: 3** The Nauru waste facility houses 3 facilities, with 1 more is under construction: – Landfill – Medical Waste Incinerator – Hazardous Waste Storage – A recycling facility is under construction, but is not yet operational Although licensed, none of the facilities meet modern standards and are therefore all considered unregulated: – The landfill is staffed and has equipment access, however does not have functional leachate management – None of the facilities have fire prevention and control measures, or bunded areas / site wate runoff management **Capacity of unregulated waste facilities (tonnes per annum): Exceeded**
Assumptions	The official capacity of the facility is unknown, although a survey was completed recently, the data has not yet been shared. It is known that the facility reached its capacity in 2018 and has been overfilled since.
Data gaps	There has been no estimate of the capacity of the Organics Processing, Medical Waste Incinerator, or Hazardous Waste Storage facilities.
Key considerations	• Nauru's waste facility is classified as 'unregulated' as it lacks leachate management systems. Fires at the waste facility are common. • The unregulated status of the Nauru waste facility presents investment opportunities to upgrade or rehabilitate the site to align with best practices. Reducing the number of unregulated facilities will lead to better outcomes for the local environment and community health.

Core KPI 3: National recovery rate

Results	**National recovery rate (%): 0** • The recycling facility is not yet operational, so no segregation or recovery currently takes place • A very small amount of organic waste is mulched or shredded when brought to the facility by the local community on an ad hoc basis. The quantity is estimated to be extremely low, so considered negligible.
Assumptions	None
Data gaps	No records are kept of the quantity of organic material being processed, although it is known to be negligible in comparison with the material being accepted to the landfill.
Key considerations	• There are no significant government or private recycling operations in Nauru. – There is currently no recycling collection service in place. – Recycling in Nauru consists of small-scale community not-for-profit recycling groups operating during events and special occasions. – Previous recycling activities in Nauru included the recycling of copper radiators and aluminium cans by an individual, but this no longer occurs. • Community surveys highlighted that Nauruan households want to participate in recycling, but a lack of resources and capacity presents a significant challenge to establishing recycling on the island. • There is some capture of recyclable materials at the Nauru waste facility - tyres, metals, food and garden organics, and cardboard. Tyres and metals are stockpiled, while mulched organics and shredded cardboard are reused by locals in plantation areas or on farms. • There are plans in place by the NRC to commence a recycling collection service, waste segregation program, and recycling management system. Proposed materials for collection include: – glass, by utilising a glass crusher to process glass bottles; – aluminium cans and plastic bottles, by introducing compactors at the facility; and – cardboard through continued use of an existing cardboard shredder to size reduce cardboard at the waste facility. • There is a need for formal recovery infrastructure and strategy in Nauru, as all current recovery operations are informal. • A Nauruan recovery system would increase the waste recovery rate of Nauru and relieve pressure on the waste facility's remaining air space.

Core KPI 4: Per capita waste generation rate

Results	**Per capita waste generation rate (kg/capita/year): 49.0** – kg/capita/day: 0.134 – kg/household/day: 0.899
Assumptions	Household waste audit data was converted from a per household basis to a per capita basis and extrapolated using census data of the national population. A total of 88 households were sampled during the household waste audits. Audit samples are assumed to be representative of the entirety of Nauru. Relies on census data from the Nauru mini census of 2019: – Population data; – Number of households; and – Household size.
Data gaps	None
Key considerations	The per capita waste generation rate for Nauru is 49.0 kg/capita/year. Future per capita waste generation rates will provide insight into waste management trends and changes for Nauru.

Core KPI 5: Municipal Solid Waste (MSW) composition

Results	Single-use items are the most prevalent waste type for household waste in Nauru. This is followed by hygiene product waste, plastics, paper and cardboard and organics. Single-use: 18.81% Hygiene: 13.91% Plastics: 12.87% Paper and cardboard: 12.70% Organics: 12.48%

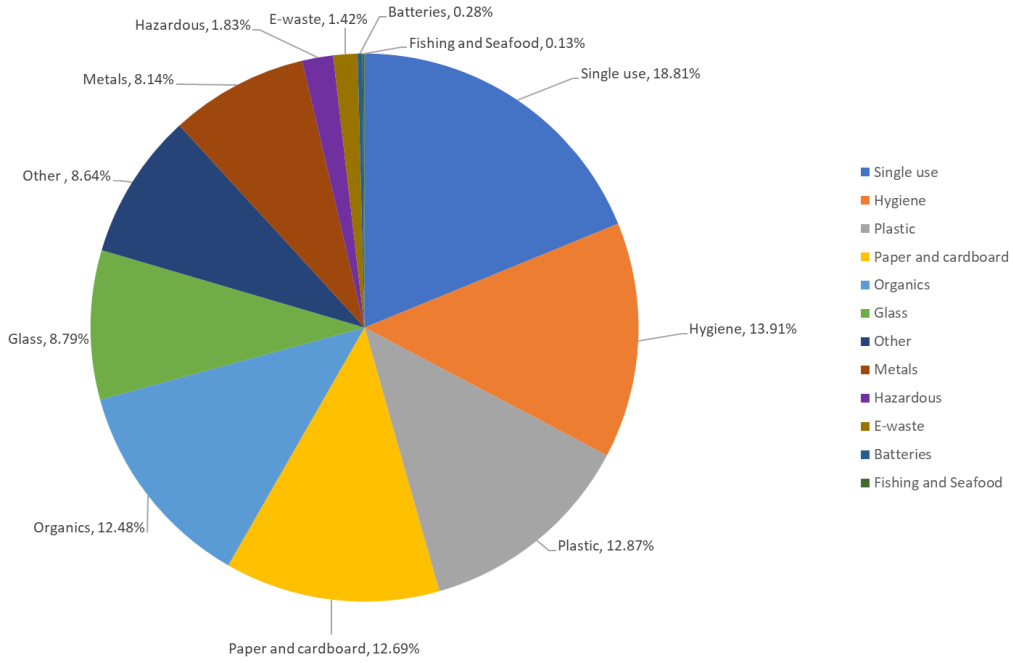


Figure 1 Nauru Municipal Solid Waste (MSW) Composition (% by weight)

Assumptions	None
Data gaps	The categories presented are based on the PRIF waste audit guidelines. Past audits may record different categories.
Key considerations	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.

Note: Single Use includes beverage containers, cigarette butts, cigarette packets, straws, coffee cups, bags - heavy glossy typically branded carry bags, light weight carry bags, plastic takeaway containers, other EPS/Styrofoam, paper, bottle lids.

Core KPI 6: Household waste capture rate

Results	**Household waste capture rate (%): 86.00%** – Total weight of household waste generated = 566 tpa – Total weight of household waste captured responsibly = 487 tpa
Assumptions	• 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. $$Household\ waste\ capture\ rate\ (\%) = \frac{weight\ of\ managed\ waste\ (tpa)}{total\ household\ waste\ generated\ (tpa)}$$ 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: $$total\ household\ waste\ generated\ (tpa) = average\ waste\ generation\ rate\ of\ location\left(\frac{\frac{kg}{capita}}{year}\right) \times location\ population$$ It is assumed that the remaining 14% of unmanaged waste includes waste that is burned, dumped, littered or buried, as well as waste that is delivered to the landfill directly.
Data gaps	Methods for household waste disposal Weight of waste captured by management services
Key considerations	This KPI figure did not include the amount of waste delivered directly to the Nauru waste facility. It relies solely on the collection service coverage percentage, derived from household interview data. It is assumed that the remaining 14% of unmanaged waste includes waste that is burned, dumped, littered, or buried, as well as waste that is delivered to the landfill directly.

Core KPI 7: Household collection service coverage

Results	**Household collection service coverage (%): 86.00%** A free weekly waste collection service is offered to all households across Nauru. To access this service households are required to purchase a 240-litre wheelie bin from the NRC for AUD $110. Households that do not use the service can drop their waste off directly at the Nauru waste facility.
Assumptions	Calculated based on information from 2019 mini-census data: – Number of households
Data gaps	An increase in the sample size of households interviewed may yield a more representative picture of the household collection service coverage in Nauru.
Key considerations	Based on household interviews and census data, household waste collection service coverage is 86.00%, which represents a high coverage proportion. Waste can be transported by residents directly to landfill, but this was not quantified during the audit.

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

Results	**Fulfillment of MEA reporting requirements (%): 14.76%**

Convention	Status	Reporting requirements	Reports delivered
Basel Convention	Accession	Annual reports (21)	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 MEA's such as the Waigani and Rotterdam Conventions, strict reporting requirements are not enforced and so are not included in the calculation.
Key considerations	Nauru is behind on national reports for the Basel and Stockholm Conventions.

Supplementary KPI 1: Cost of disposal to landfill

Results	**Cost of disposal to landfill ($/tonne): AU $47.65** Costs for operation and contracts associated with the waste facility were not made available for the audit. The presented results are based on estimates from the audit team.
Assumptions	The NRC reported an average of AUD $13.1 per cubic metre of waste sent to landfill, based on an estimate of 57,283 m^3 being disposed of at the facility in 2020. The report states that this would have cost AUD $748,194, based on the facility's standard charges. Using the DCMR Framework calculation method, assuming an annual cost of $748,194 (NRC) and input of 15,702 tonnes per annum to the facility yields a cost of disposal at AUD $47.65.
Data gaps	Costs for operation and contracts associated with the Nauru waste facility
Key considerations	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

Results	**Total weight of waste disposed (tonnes per annum): 15,702**
Assumptions	None
Data gaps	None
Key considerations	Future audits should follow the suggested methodology presented in the DCMR Framework. This KPI indicates the effectiveness of a country's waste management system in diverting waste from the environment via landfill and allows for comparison against past and future results across Nauru and the region.

Supplementary KPI 3: Total weight of waste recovered

Results	**Total weight of waste recovered (tonnes per annum): 0** • As the recycling facility is not yet operational, no waste is recovered.
Assumptions	None
Data gaps	None
Key considerations	A recycling facility is under construction but is not yet operational.

Supplementary KPI 4: Volume and type of stockpiled hazardous waste

Results	**Volume and type of stockpiled hazardous wastes (m^3):** – Asbestos: 664 m^3 – E-waste: 120m^3 – Healthcare and pharmaceutical waste: No data – Used oil: 62.6 m^3 – Used tyres: No data – Obsolete chemicals: 0.25 m^3
Assumptions	Asbestos was stored in 20 x full 20 ft shipping containers. It was assumed that these shipping containers had a volume of 33.2 m^3 each. 1 container was not full and was not included in the calculation.
Data gaps	Stockpiles of e-waste and used tyres had weights recorded, but not volumes.
Key considerations	According to the audit report, there are stockpiles in Nauru for most hazardous waste categories except healthcare and pharmaceutical waste. The 2020 audit report noted that the asbestos stockpile is substantial and may require management efforts to reduce or remove the hazard. 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 Nauru. 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	**Marine plastic pollution potential (tonnes per annum): 10.1**
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 a 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 Nauru, at about 12% percent or more 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 (%): 86**
Assumptions	Survey respondents who responded positively indicating awareness of their waste services were counted.
Data gaps	None
Key considerations	None

Supplementary KPI 7: Proportion of strategic waste management initiatives implemented

Results	**Proportion of waste management initiatives implemented (%): 84.21%** − Number of successfully implemented waste initiatives = 16 out of 19 − Number of planned/pipeline initiatives = 3 Implemented initiatives include: – National Solid Waste Management Strategy 2017-2026 – National Implementation Plan for Persistent Organic Pollutants 2012 – National Solid Waste Management Strategy 2017-2026 – Environmental Management and Climate Change Act 2020 • Pipeline initiatives include: – Development of environmental management legislation – Single Use Plastics Strategy – Work with UNEP Chemicals and Waste Programme to strengthen institutional capacity for chemicals and waste management
Assumptions	None
Data gaps	None
Key considerations	Until October 2020, Nauru lacked specific regulations for waste management and governance. Instead, solid waste management was primarily controlled by the *Litter Prohibition Act 1983*. Following the introduction of the *Environmental Management and Climate Change Act 2020,* Nauru now has dedicated legislation in place for waste management. – Includes penalties for the burning of plastics or hazardous wastes. In planning at the time of the audit, a legislative review and planned policy development to strengthen Nauru's capacity to commit to the obligations and goals of the Stockholm and Basel Conventions.

Supplementary KPI 8: Commercial waste capture rate

Results	**Commercial waste capture rate (%): 29**
Assumptions	Results from the audit and survey carried out indicate that 29% of commercial waste is captured. The total number of businesses in Nauru is 685 as per the DoJ annual reporting on business license renewals.
Data gaps	For future reporting, a more accurate method would be for commercial waste to be recorded as it is collected and received at the landfill. Data is currently recorded on the amount of waste being received but is not categorised by its source
Key considerations	None

Supplementary KPI 9: Commercial collection service coverage

Results	**Commercial collection service coverage (%): 29.00%** 17 businesses across Nauru were interviewed during the audit. Interview responses noted that collection services were not available to all businesses in Nauru. Businesses can opt in to receive paid waste collection or transport their waste to the landfill directly.
Assumptions	Audit sample coverage is assumed to be representative of all of Nauru. No information as to service coverages or the number of participating businesses beyond the conducted surveys was identified.
Data gaps	The total number of businesses participating nationally is categorised by region/state/province and business type.
Key considerations	Based on the interviews conducted, 29% of businesses in Nauru have access to some form of 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** Measured as a sum of the recorded weight of disaster waste disposed to a landfill or received and stockpiled at a waste facility following a disaster event. No disaster waste data was recorded during the examined audits.
Assumptions	There have been no disaster events in Nauru in the past year, and so no disaster waste has been disposed.
Data gaps	None
Key considerations	None

Conclusion

This report provides several key updates to the 2023 Nauru National Waste Analysis Report, including:

- Data on stockpiled hazardous waste has been updated to reflect the recent removal of asbestos stockpiles and use found for waste oil stockpiles as a feedstock for kiln operations
- Increased granularity of the MSW composition is provided
- Updated data on the quantity of waste received at the NRC Waste Facility
- Calculations of awareness and support of waste management services, commercial capture rate, and commercial collection service coverage is completed

Although it is known that the NRC Waste Facility has exceeded its theoretical capacity, a quantification of that capacity has not been recorded. The NRC recently completed a survey which has quantified this, but was not provided.

The completion of the recycling facility that is currently under construction will provide huge opportunity for Nauru to improve its recycling rate, which is currently minimal with only very small-scale organics processing taking place.

3 Apppendix

3.1 Collection Methods

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.

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 Nauru. A target sample of 100 households is appropriate.	Every five years.

Collection Method	What the Collection Method Informs	About the Collection Method	Frequency of Reporting
Household Compositional Waste Audit	**KPI 4** Per capita waste generation rate **KPI 5** Municipal solid waste (MSW) composition **KPI 6** Household waste capture rate **SKPI 5** Marine plastic pollution potential.	The Household Compositional Waste Audit is a sort and weigh audit undertaken according to the Waste Audit Methodology: A Common Approach.[1] A target sample of 100 households is appropriate.	Every five years.
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 Nauru. A target sample of 20 businesses is appropriate.	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. A target sample of 20 businesses is appropriate.	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

The specific sources that informed the calculation of KPIs for Nauru are outlined in the Datasets section below.

3.2 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 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.
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** – 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.

		unregulated waste facility.	
3. National recovery rate (%)	**Waste Facility Register**	**National recovery rate** Calculated using the below formula: $$\frac{\textit{Tonnes per annum of waste diverted from landfill}}{\textit{Tonnes per annum of waste received by all waste facilities}}$$ 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: $$\frac{\textit{Tonnes per annum of target waste stream recovered}}{\textit{Tonnes per annum of target waste stream generated}}$$ • Where facilities do not have weighbridges conversion factors can be applied to convert volume (m^3) to tonnage (t).	**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 energy.
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: $$\frac{\textit{Tonnes per annum of waste generated}}{\textit{National population}}$$ 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	**Municipal Solid Waste** (MSW) – waste originating from the public (typically managed by local government entities) and excludes commercial waste.

		• Hygiene • Metals • Organics • Other • Paper and cardboard • Plastics • 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: $\frac{Tonnes\ per\ annum\ of\ waste\ captured\ responsibly}{Tonnes\ per\ annum\ of\ waste\ generated}$ 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**	**Household collection service coverage** Calculated using the below formula: $\frac{Number\ of\ people\ surveyed\ with\ access\ to\ a\ service}{Total\ number\ of\ people\ surveyed}$ This calculation needs to consider the locations where compositional surveys were undertaken to apply the	• **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

	(for validation)	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 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.	to negative environmental impacts or disrupted engagement. • Accessible – drop-off points should be 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.

References

[1]Secretariat of the Pacific Regional Environment Programme (SPREP), 2020. **Nauru Waste Audit Report**. Available at: https://pacwasteplus.org/resources/nauru-waste-audit-report/

[1]Nauru Bureau of Statistics, 2020. **Mini Census Factsheet: Population.** Available at: https://spccfpstore1.blob.core.windows.net/digitallibrary-docs/files/06/06fc7414bd5910467f54ab71d5785c92.pdf.


EUROPEAN UNION

SPREP
Secretariat of the Pacific Regional
Environment Programme

PacWastePlus
PACIFIC WASTE MANAGEMENT