



**SPREP**  
Secretariat of the Pacific Regional  
Environment Programme



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

# Republic of Marshall Islands National Waste Audit Analysis Report

August 2023



This Waste data collation, analysis and reporting for the RMI 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



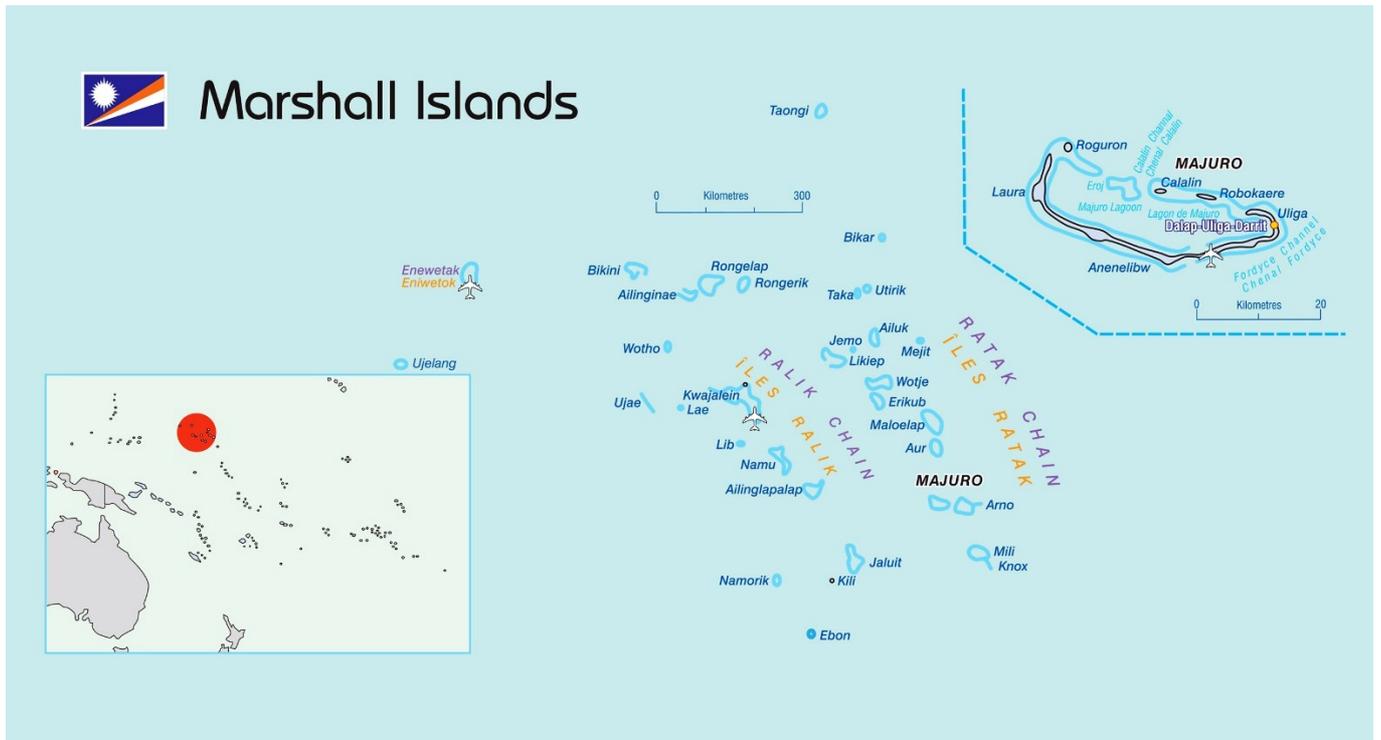
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# Map of Republic of the Marshall Islands (RMI)



Source: Mapsland



# Glossary

Acronym	Definition
<b>C&amp;D</b>	Construction and Demolition (Waste)
<b>C&amp;I</b>	Commercial and Industrial (Waste)
<b>CDL</b>	Container Deposit Legislation
<b>DCMR</b>	Data Strategy & Collection, Monitoring, and Reporting (Framework)
<b>DEMNR</b>	Department of Environment of the Ministry of Natural Resources
<b>KPI</b>	Key Performance Indicator
<b>MEA</b>	Multilateral Environmental Agreement
<b>MSW</b>	Municipal Solid Waste (i.e., waste originating from the general public that is typically managed by local government entities, excludes commercial / business waste)
<b>NGO</b>	Non-Governmental Organisation
<b>PICT</b>	Pacific Island Countries & Territories
<b>RMI</b>	The Republic of the Marshall Islands
<b>SPREP</b>	Secretariat of The Pacific Regional Environment Programme

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

## Executive Summary

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

Table (a) Summary of Key Performance Indicators (KPIs) for RMI

Core KPIs	Result	Supplementary KPIs	Result
1. Count /capacity of modern waste facilities	0 / 0	1. Cost of disposal to landfill (\$/tonne)	US \$63.15
2. Count / capacity of unregulated waste facilities	2 / Capacity unknown	2. Weight of waste disposed (tpa)	17,900
3. National recovery rate (%)	No data (CDS: 85-90%)	3. Weight of waste recovered (tpa)	No data
4. Per capita waste generation rate (kg/capita/year)	41.1	4. Volume and type of stockpiled hazardous waste (m <sup>3</sup> )	See Section 3.2
5. Municipal Solid Waste (MSW) composition (%)	Figure (a)	5. Marine plastic pollution potential (tpa)	176
6. Household waste capture rate (%)	60.35%	6. Awareness and support of waste management services (%)	No data
7. Household collection service coverage (%)	57.94%	7. Proportion of strategic waste management initiatives implemented (%)	84.21%
8. Fulfillment of MEA reporting requirements (%)	43.51%	8. Commercial waste capture rate (%)	See Section 3.2
		9. Commercial collection service coverage (%)	51.07%
		10. Total weight of disaster waste disposed (tpa)	No data

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

### Legend

Sufficient data	Limited data	No data
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## RMI MSW Composition

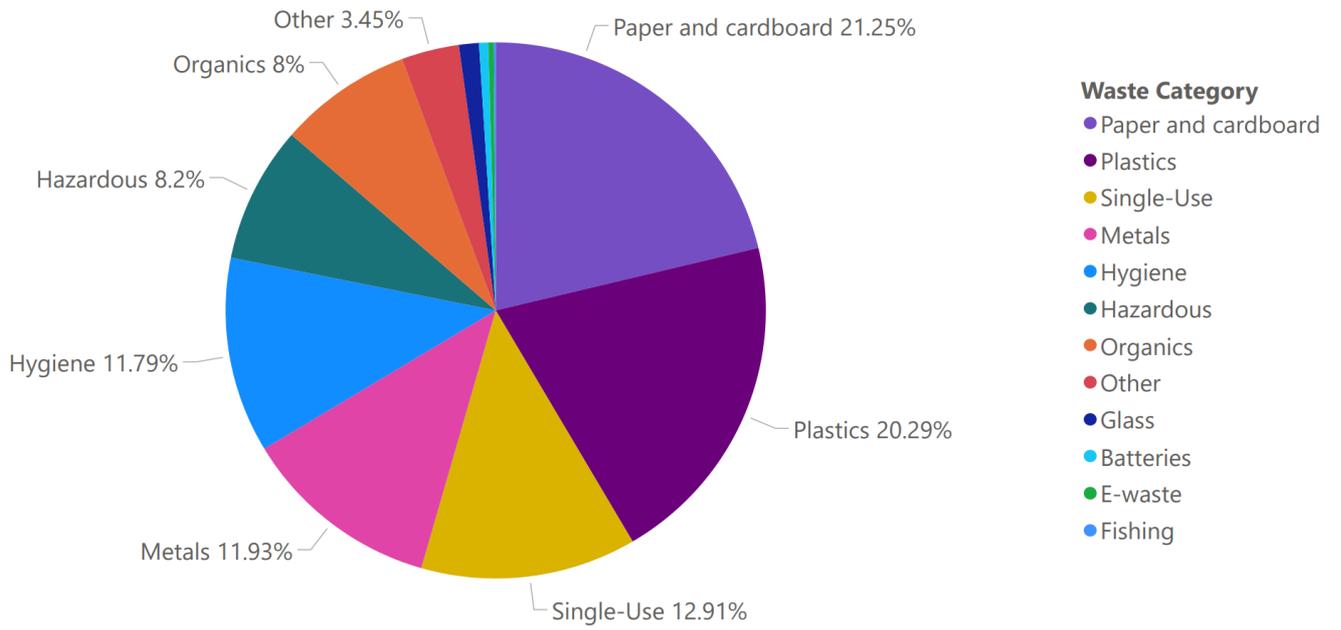


Figure (a) RMI Municipal Solid Waste (MSW) Composition (% by weight)



# 1 Introduction

## 1.1 Background

The Republic of the Marshall Islands (RMI) is one of fifteen Pacific Island Nations which took part in the PacWastePlus Programme implemented through SPREP and funded by the European Union Delegation of the Pacific. The PacWastePlus 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.

RMI collects aluminium cans, glass bottles and PET bottles under their Container Deposit Legislation (CDL) scheme in Majuro and in Ebeye (Kwajalein Atoll). The scheme has made a significant impact on cans and bottle litter on Majuro Atoll and a high recovery rate has been achieved.

RMI otherwise has limited access to proper waste collection and disposal facilities, leading to environmental degradation and health hazards. The country requires investment in infrastructure, implementation of data-guided decision-making, and increased general waste management education to improve the current situation.

## 1.2 Purpose and Aim

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

The aim of this report is to:

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

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

## 1.3 Scope

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

- **RMI waste audit report 2021:** The audit was undertaken between March and April 2021 and provided an evaluation of household and business waste generated in the RMI with data and information obtained via interviews and waste collections from 279 households and 59 businesses, followed by sorting and weighing. The audit report also provided an assessment of the state of RMI landfills including landfill audits and stockpile assessments. The aims of the audit were to identify the composition of household commercial and landfilled waste, quantify RMI's national waste disposal rate, and to locate and measure any waste stockpiles.

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 RMI is made up of 29 atolls and five islands located in the central Pacific Ocean (see map provided on page 4). The population across the Republic of Marshall Islands was last assessed in 2019, with a population of approximately 58,800 people (there were 53,158 people reported in the last national census in 2011). Over 74% of the population live on the capital island Majuro and the Kwajalein atoll (also known, and referred to herein, as Ebeye) in urban clusters. Urbanisation has been steadily increasing over the last two decades.

There is currently no specific waste management legislation in place in the RMI. There are several national regulations and state laws and regulations relevant to waste management. A Solid Waste Management Plan exists for both Ebeye (the *Kwajalein Atoll Solid Waste Management Plan, 2019-2028*) and Majuro (the *Solid Waste Management Plan for Majuro, 2019-2028*).

These plans provide some analysis and context for waste management in RMI. A national waste policy is currently being developed but no delivery date was publicly available.

The responsibility for managing solid waste is divided among various institutions in RMI, which include:

- National government: The national government is responsible for creating national level legislation, regulation, and policy frameworks for waste management, as well as fulfilling obligations under international conventions, primarily through the Department of Environment of the Ministry of Natural Resources.
- State government: Responsible for the implementation and conduct of container deposit legislation (CDL) schemes, and development of state waste management plans.
- Local government: Responsible for waste collection, operation, and maintenance of the final disposal site. Perform inspections of the disposal site to ensure environmental standards are met. Also undertake organisation of recycling, and promotion of recycling and environmental education. Monitor and ensure the safe and secure handling of all regulated hazardous waste.

Subordinate agencies also play a role in the waste management cooperate with local government for waste collection, operation, and maintenance of the final disposal location.



## 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

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

Table 1 Data sources examined and available data

Data Source	Methods for data collation	Reported data
<b>RMI waste audit 2021</b>	<ul style="list-style-type: none"> <li>• Sample collection from households and businesses</li> <li>• Sort and weigh of household/business waste</li> <li>• Household and business interviews</li> <li>• Landfill audit</li> <li>• Stockpile assessment</li> </ul>	<ul style="list-style-type: none"> <li>• Access to general waste collection service</li> <li>• Household and business waste composition</li> <li>• Potentially Recyclable Materials</li> <li>• Stockpile types and quantities</li> <li>• Landfilled waste composition and weight</li> <li>• Assessment of Operational Costs</li> <li>• Customs data for imported and exported goods</li> </ul>
<b>2011 RMI National census</b>	<ul style="list-style-type: none"> <li>• National census</li> </ul>	<ul style="list-style-type: none"> <li>• Population data</li> <li>• Household data (size, number)</li> </ul>

#### 2.1.1 RMI Waste Audit 2021

The audit was undertaken between March and April 2021 and utilised the Waste Audit Methodology produced by the Pacific Regional Infrastructure Facility (PRIF).

Data was collected from households on Majuro, and Kwajalein Atoll (in Ebeye), as well as commercial premises, over the course of 14 days. A total of 279 household participated in sort & weigh sampling, with 259 participating in interviews. 138 household samples were taken from Ebeye and 141 from Majuro.

A total of 59 business participated in sort & weigh sampling, with 55 participating in interviews. 28 commercial samples were taken from Ebeye and 31 in Majuro.

In addition, 24 landfill load audits and 46 stockpile assessments were conducted. The waste composition, recycling potential, hazardous waste status and future treatment options were audited for Ebeye and Majuro landfills over a two-week period.

Table 2 Sample locations for audits

Sample Location	Population (2011)	Classification
<b>Majuro</b>	27,797	Urban
<b>Ebeye</b>	11,408	Urban

## 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 below.

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

### 2.2.1 Main Assumptions

- The audit data from Majuro and Ebeye (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 2011, which predates the audit (completed in 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 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	
2. Count / capacity of unregulated waste facilities		2. Weight of waste disposed	
3. National recovery rate		3. Weight of waste recovered	
4. Per capita waste generation rate		4. Volume and type of stockpiled hazardous waste	
5. Municipal Solid Waste (MSW) composition		5. Marine plastic pollution potential	
6. Household waste capture rate		6. Awareness and support of waste management services	
7. Household collection service coverage		7. Proportion of strategic waste management initiatives implemented	
8. Fulfillment of MEA reporting requirements		8. Commercial waste capture rate	
		9. Commercial collection service coverage	
		10. Total weight of disaster waste disposed	

Legend		
Sufficient data	Limited data	No data

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

In summary:

- The audit reports provided adequate information for Core KPIs 4 to 8, and supplementary KPIs 1, 2, 5, 7 and 9.
- There was limited data available to calculate Core KPIs 1 and 2, and Supplementary KPIs 4 and 8.
  - Storage and processing capacities for waste facilities (tonnes per annum) were not identified in the audit report.
  - Not all hazardous waste categories were presented in the stockpile audit section of the report. Recorded stockpiles are measured in conflicting units, either by count, tonnage, or area.
  - The processing and storage capacities of Majuro and Ebeye disposal facilities were not provided, and no information was identified to calculate it.
  - There was some information pertaining to the waste capture rate for commercials presented in the audit report, however it is difficult to confidently extrapolate the results of the indicator to the national level due to data insufficiency. See Section 3.2.
- No data was available to inform Core KPI 3 and Supplementary KPIs 3, 6 and 10.

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 PNG.

### 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 RMI 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

<b>Result</b>	<p><b>Count of modern waste facilities: 0</b></p> <ul style="list-style-type: none"> <li>• Audited facilities include one public landfill in Majuro, and one public disposal site in Ebeye.</li> <li>• Majuro landfill is staffed and has access to dedicated equipment. The status of a leachate management system is unknown, and daily cover is not practiced on site.</li> <li>• Ebeye disposal site is staffed and has access to dedicated equipment. There is no lining or leachate management system. Leachate has been reported to discharge into the surrounding lagoon around the disposal site. No information as to the use of daily cover at site was provided and so it is assumed daily cover activities are not practiced. <ul style="list-style-type: none"> <li>– Due to the lack of leachate management systems, reported discharges of leachate, and lack of daily cover at the Majuro and Ebeye disposal facilities, they cannot be classified as ‘modern’ under the definition set out by the DCMR framework.</li> </ul> </li> </ul> <p><b>Capacity of modern waste facilities (tonnes per annum): 0</b></p> <ul style="list-style-type: none"> <li>• Since none of the disposal facilities in RMI meet ‘modern’ requirements, the capacity of ‘modern’ facilities is 0.</li> </ul>
<b>Assumptions</b>	<ul style="list-style-type: none"> <li>• None</li> </ul>
<b>Data gaps</b>	<ul style="list-style-type: none"> <li>• No estimates or parameters were identified to calculate the maximum annual processing capacity (tpa) of the RMI disposal facilities.</li> </ul>
<b>Key considerations</b>	<ul style="list-style-type: none"> <li>• There are no landfills or dumpsites in RMI which are up to ‘modern’ standards.</li> <li>• Lack of leachate management at these facilities means that both the environment and community are at risk of hazards due to contamination and material flow.</li> <li>• No daily cover usage at the landfill sites means that these sites are very susceptible to material flow during climate-related weather events such as cyclones.</li> <li>• Investment to upgrade existing landfills on RMI to meet with modern standards/best practice will lead to better outcomes for the local environment and community health.</li> </ul>



### Core KPI 2: Count / capacity of unregulated waste facilities

<b>Result</b>	<p><b>Count of unregulated waste facilities: 2</b></p> <ul style="list-style-type: none"> <li>Neither of the audited disposal facilities meet the requirements of a ‘modern’ facility and as such are classified as ‘unregulated’. <ul style="list-style-type: none"> <li>No leachate management infrastructure</li> <li>No use of daily cover</li> </ul> </li> <li>There was no mention of other dumpsites or landfills.</li> </ul> <p><b>Capacity of unregulated waste facilities (tonnes per annum): No data</b></p>
<b>Assumptions</b>	<ul style="list-style-type: none"> <li>None</li> </ul>
<b>Data gaps</b>	<ul style="list-style-type: none"> <li>No estimates or parameters were used to calculate the maximum annual processing capacity (tpa) of either audited RMI disposal sites.</li> </ul>
<b>Key considerations</b>	<ul style="list-style-type: none"> <li>All facilities are ‘unregulated’.</li> <li>Lack of leachate management at these facilities means that both the environment and community are at risk of hazards due to contamination and material flow.</li> <li>No daily cover usage at the landfill sites means that these sites are very susceptible to material flow during climate-related weather events such as cyclones.</li> <li>The identified ‘unregulated’ facilities present investment opportunities to upgrade existing sites to align with best practice. Reducing the number of these facilities will lead to better outcomes for the local environmental and community health.</li> </ul>



### Core KPI 3: National recovery rate

<b>Results</b>	<p><b>National recovery rate (%): No data (CDS: 85 to 90%)</b></p> <ul style="list-style-type: none"> <li>Majuro has a Container Deposit Scheme (CDS) which requires users to take their recyclable materials such as aluminium cans, PET beverage containers, and glass beverage bottles to designated drop off points. People who use the scheme are paid five cents for each container, while one cent is charged by the Recycling Program System Operator as a handling fee. Aluminium cans collected are exported. The glass and PET bottles collected scheme are landfilled.</li> <li>At the time of the audit, there was no recycling collection service in Ebeye. A CDS program has since been implemented.</li> <li>The SPREP “Container Deposit Schemes in the Pacific Islands – A Guide for Policy Makers (March 2022)” has indicated that the CDS in RMI is achieving very high recovery rates at about 85 to 90% recovery.</li> </ul>
<b>Assumptions</b>	<ul style="list-style-type: none"> <li>None</li> </ul>
<b>Data gaps</b>	<ul style="list-style-type: none"> <li>No dedicated recovery facilities mentioned in audit reports.</li> <li>No information on the total mass of material diverted from landfill (tpa).</li> <li>No information on the estimated mass of material recovered per annum (tpa) at any facility.</li> </ul>
<b>Key considerations</b>	<ul style="list-style-type: none"> <li>A representative national recovery rate is not able to be calculated as no weights of waste diverted from landfill or recovery facility data were recorded during the audits.</li> <li>High export costs for consolidated recycled material is a barrier to expanding current recycling operations. Further investigation of barriers to recovery is recommended.</li> </ul>



#### Core KPI 4: Per capita waste generation rate

<b>Results</b>	<b>Per capita waste generation rate (kg/capita/year): 41.1</b> <ul style="list-style-type: none"><li>– kg/capita/day: 0.112</li><li>– kg/household/day: 0.766</li></ul>
<b>Assumptions</b>	<ul style="list-style-type: none"><li>• Household waste audit data was converted from a per household basis to a per capita basis, then grouped and averaged based on geographic position (i.e., rural, semi-urban or urban), and extrapolated using census data of the national population.</li><li>• All areas in RMI besides Majuro and Ebeye had no data. As such, an assumed ‘rural’ average waste generation rate was used based on data from household audits from Ebeye.</li><li>• Population data was taken from publicly available census data.</li></ul>
<b>Data gaps</b>	<ul style="list-style-type: none"><li>• No information recorded outside of Majuro and Ebeye.</li></ul>
<b>Key considerations</b>	<ul style="list-style-type: none"><li>• Future per capita waste generation rates will provide insight into waste management trends and changes for RMI.</li><li>• It is recommended that this performance indicator result is updated when more recent census data becomes available.</li></ul>





### Core KPI 5: Municipal Solid Waste (MSW) Composition

**Results**

- Paper & cardboard is the most prevalent waste type for household waste in RMI. This is followed by plastics and then single use plastics.
- Paper & Cardboard: 21.25%
- Plastic: 20.29%
- Single Use: 12.91%

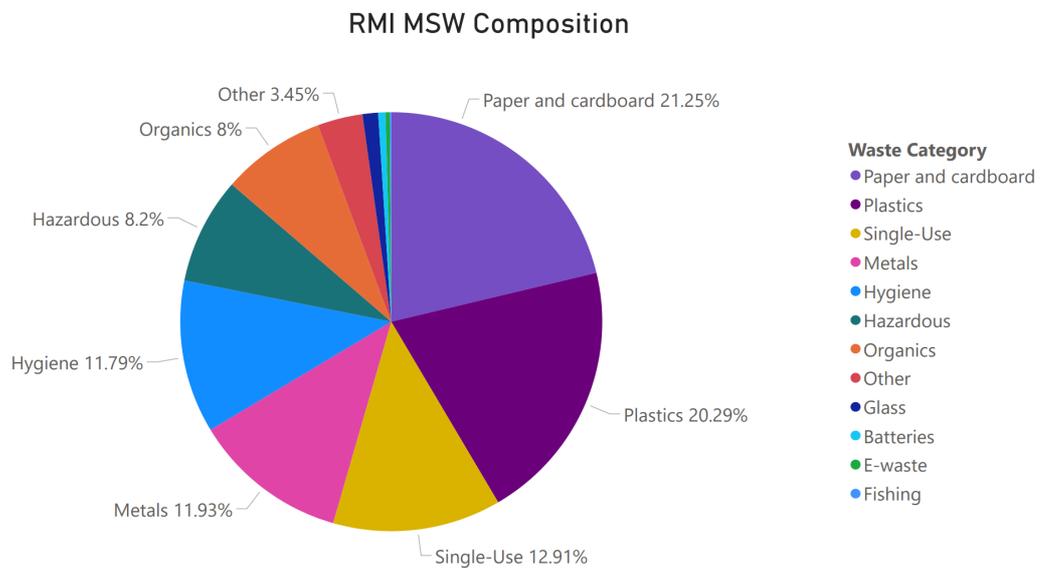


Figure 1 RMI Municipal Solid Waste (MSW) composition (% by weight)

**Assumptions**

- None

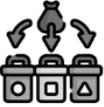
**Data gaps**

- No samples taken from outside Majuro and Ebeye.
- Future and past audits may record different categories. The categories presented in this performance indicator are based on the categories suggested by the PRIF waste audit guidelines.

**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**

<b>Results</b>	<p><b>Household waste capture rate (%): 60.35</b></p> <ul style="list-style-type: none"> <li>– Total weight of household waste generated = 1,319</li> <li>– Total weight of household waste captured responsibly = 2,186</li> </ul>
<b>Assumptions</b>	<ul style="list-style-type: none"> <li>• 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.</li> </ul> $\text{Household waste capture rate (\%)} = \frac{\text{weight of managed waste (tpa)}}{\text{total household waste generated (tpa)}}$ <p>Total weight of managed waste is calculated as the product of:</p> $\text{weight of managed waste (tpa)} = \frac{\text{household collection coverage (\%)}}{\text{total household waste generated (tpa)}}$ <p>Collection service coverage (%) is the product of:</p> $\text{household collection coverage (\%)} = \frac{\text{number of households with some form of collection service}}{\text{total number of households}}$ <p>Total household waste generated is the summation of waste generation tonnages for all sampling locations. Waste generation rates for individual sampling locations are calculated by:</p> $\text{total household waste generated (tpa)} = \text{average waste generation rate of location} \left( \frac{\text{kg}}{\text{capita}} \right) \times \text{location population}$
<b>Data gaps</b>	<ul style="list-style-type: none"> <li>• The audit and conducted survey did not capture: <ul style="list-style-type: none"> <li>– Information to quantify each household’s disposal method.</li> <li>– The weight of waste captured by management services.</li> </ul> </li> </ul>
<b>Key considerations</b>	<ul style="list-style-type: none"> <li>• 60% of the waste generated in RMI is captured by formal collection services (i.e., successfully captured and disposed or recovered in an environmentally responsible manner).</li> <li>• This KPI is expected to change significantly in the future as relevant data is collected to calculate the household waste capture rate more accurately.</li> </ul>



### Core KPI 7: Household collection service coverage

<b>Results</b>	<p><b>Household collection service coverage (%): 57.94</b></p> <ul style="list-style-type: none"> <li>• Collections are provided in Majuro and Ebeye. There is no collection service outside of the Ebeye mainland area. <ul style="list-style-type: none"> <li>– Majuro: 82.7% of 113 households interviewed.</li> <li>– Ebeye: 80.2% of 126 households interviewed.</li> </ul> </li> </ul>
<b>Assumptions</b>	<ul style="list-style-type: none"> <li>• This performance indicator was calculated based on information from 2011 census data: <ul style="list-style-type: none"> <li>– Population measurements and number of households.</li> </ul> </li> <li>• It is assumed that collections do not take place outside of Majuro and the Ebeye mainland areas.</li> </ul>
<b>Data gaps</b>	<ul style="list-style-type: none"> <li>• None</li> </ul>
<b>Key considerations</b>	<ul style="list-style-type: none"> <li>• Nearly 40% of households in the RMI do not have access to a household waste collection service.</li> <li>• It should be noted that collection service coverage is a significant challenge for the RMI due to the remote, isolated, and dispersed nature of the islands.</li> <li>• For serviced areas, interviewees reported late collections and occasional spillages of wastes.</li> </ul>



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

<b>Results</b>	<p><b>Fulfillment of MEA reporting requirements (%): 43.51%</b></p> <table border="1"> <thead> <tr> <th>Convention</th> <th>Status</th> <th>Reporting requirements</th> <th>Reports delivered</th> </tr> </thead> <tbody> <tr> <td><b>Basel Convention</b></td> <td>Accession</td> <td>Annual reports (19)</td> <td>2</td> </tr> <tr> <td><b>Minamata Convention</b></td> <td>Accession</td> <td>First national report due 2019 (1)</td> <td>1</td> </tr> <tr> <td><b>Stockholm Convention</b></td> <td>Accession</td> <td>5 reporting cycles (5)</td> <td>1</td> </tr> </tbody> </table>				Convention	Status	Reporting requirements	Reports delivered	<b>Basel Convention</b>	Accession	Annual reports (19)	2	<b>Minamata Convention</b>	Accession	First national report due 2019 (1)	1	<b>Stockholm Convention</b>	Accession	5 reporting cycles (5)	1
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<b>Assumptions</b>	<ul style="list-style-type: none"> <li>• None</li> </ul>																			
<b>Data gaps</b>	<ul style="list-style-type: none"> <li>• Only MEA's with mandatory reporting requirements were included in the calculation of this KPI.</li> <li>• For conventions such as the Waigani Convention, strict reporting requirements are not enforced and so are not included in the calculation.</li> </ul>																			
<b>Key considerations</b>	<ul style="list-style-type: none"> <li>• RMI submitted its 2014 report to the Basel Convention in 2018.</li> <li>• RMI has satisfied the current reporting requirements of the Minamata Convention.</li> <li>• The RMI is behind on required reports for the Stockholm Convention.</li> </ul>																			



### Supplementary KPI 1: Cost of disposal to landfill

<b>Results</b>	<p><b>Cost of disposal to landfill (\$/tonne): US \$63.15</b></p> <ul style="list-style-type: none"> <li>For 2018, the cost of operating the disposal site was \$1,062,273. The site received roughly 10,826 tonnes of waste annually, resulting in a cost of around \$98 per tonne for disposal to the Majuro Landfill.</li> <li>In 2020-21, the Ebeye disposal site cost \$68,720 to operate, covering personnel, fuel, and equipment expenses. 7,084 tonnes of waste were disposed of at the site at a cost of approximately \$9.70 per tonne.</li> </ul>
<b>Assumptions</b>	<ul style="list-style-type: none"> <li>None</li> </ul>
<b>Data gaps</b>	<ul style="list-style-type: none"> <li>None</li> </ul>
<b>Key considerations</b>	<ul style="list-style-type: none"> <li>Based on the costs of disposal at Majuro and Ebeye disposal sites, it costs US \$63.15 to dispose of one tonne of waste at landfill in RMI.</li> <li>Data for each disposal site are taken from different years. Future data collection should endeavour to collect this data in the same year and time frame for each facility.</li> </ul>



### Supplementary KPI 2: Total weight of waste disposed

<b>Results</b>	<p><b>Total weight of waste disposed (tonnes per annum): 17,900</b></p>
<b>Assumptions</b>	<ul style="list-style-type: none"> <li>None</li> </ul>
<b>Data gaps</b>	<ul style="list-style-type: none"> <li>None</li> </ul>
<b>Key considerations</b>	<ul style="list-style-type: none"> <li>It is recommended that future audits follow the suggested methodologies presented in the DCMR framework to collate data for calculation of this performance indicator.</li> <li>This performance indicator provides an indication of the effectiveness of a country's waste management system in diverting waste from the environment via landfill. This result can be used to evaluate the need for additional investment into waste disposal infrastructure and identify opportunities for improved recycling.</li> </ul>



### Supplementary KPI 3: Total weight of waste recovered

<b>Results</b>	<b>Total weight of waste recovered (tonnes per annum): No data</b>
<b>Assumptions</b>	<ul style="list-style-type: none"> <li>• None</li> </ul>
<b>Data gaps</b>	<ul style="list-style-type: none"> <li>• No dedicated recovery facilities mentioned in audit reports.</li> <li>• No information on the total mass of material diverted from landfill (tpa).</li> <li>• No information on the estimated mass of material recovered per annum (tpa) at any facility.</li> </ul>
<b>Key considerations</b>	<ul style="list-style-type: none"> <li>• Calculation requires the completion of the waste facility register with the inclusion of data for any recovery facilities operating in RMI. Reporting on this performance indicator will provide an indication of the effectiveness of a country's waste management systems, and a comparative data point for other countries and time periods.</li> </ul>



### Supplementary KPI 4: Volume and type of stockpiled hazardous waste

<b>Results</b>	<b>Volume and type of stockpiled hazardous wastes (m<sup>3</sup>):</b> <ul style="list-style-type: none"> <li>– Asbestos: Insufficient data</li> <li>– E-waste: 415 m<sup>3</sup></li> <li>– Healthcare and pharmaceutical waste: No data</li> <li>– Used oil: 125 m<sup>3</sup></li> <li>– Used tyres: Insufficient data</li> <li>– Obsolete chemicals: No data</li> </ul>
<b>Assumptions</b>	<ul style="list-style-type: none"> <li>• None</li> </ul>
<b>Data gaps</b>	<ul style="list-style-type: none"> <li>• Additional stockpiles of hazardous wastes are assumed to exist.</li> <li>• No information on healthcare and pharmaceutical waste and obsolete chemical waste was given in the audit report.</li> <li>• Roofing irons (assumed to contain asbestos) were stockpiled in the RMI. A total stockpile of 660 m<sup>2</sup> was reported by the audit but this was not converted to a volume.</li> <li>• Used tyres are stockpiled but measurements were recorded in tonnes and not as a volume (i.e., cubic metres). Abandoned vehicle stockpiles were located in RMI with some vehicles still having their tyres attached.</li> </ul>
<b>Key considerations</b>	<ul style="list-style-type: none"> <li>• The volume of other hazardous waste stockpiles in RMI remains unknown.</li> <li>• Landfill audits, stockpile assessments, and the completion of the waste facility register proposed by the DCMR Framework will provide the necessary information to make calculate this performance indicator.</li> </ul>



### Supplementary KPI 5: Marine plastic pollution potential

Results	
<b>Results</b>	<b>Marine plastic pollution potential (tonnes per annum): 176</b>
<b>Assumptions</b>	<ul style="list-style-type: none"> <li>Assumes a national weight of mismanaged waste, based on household audit samples.               <ul style="list-style-type: none"> <li>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.</li> <li>Mismanaged waste is defined as all waste which is not captured in collection services, and ends up buried / burned / littered etc.</li> </ul> </li> <li>Uses proportion of plastics captured in MSW composition.</li> </ul>
<b>Data gaps</b>	<ul style="list-style-type: none"> <li>Requires a more reliable metric for mismanaged waste.</li> </ul>
<b>Key considerations</b>	<ul style="list-style-type: none"> <li>Waste plastics made up the second highest proportion of the MSW in RMI, at about 20% percent of the total waste generated.</li> <li>Waste plastics which are not managed in an environmentally sound manner are assumed to pose a significant risk of polluting oceans and estuarine waterways.</li> </ul>



### Supplementary KPI 6: Awareness of waste management services

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



### Supplementary KPI 7: Proportion of strategic waste management initiatives implemented

<b>Results</b>	<p><b>Proportion of waste management initiatives implemented (%): 84.21%</b></p> <ul style="list-style-type: none"> <li>– Number of successfully implemented initiatives = 16 out of 19</li> <li>– Number of planned/pipeline initiatives = 3</li> </ul> <ul style="list-style-type: none"> <li>• Implemented initiatives include:           <ul style="list-style-type: none"> <li>– National Water and Sanitation Policy &amp; Action Plan 2014</li> <li>– National Waste Management Strategy 2012-2016 and Action Plan</li> <li>– National Environment Management Strategy 2017–2022</li> </ul> </li> <li>• Pipeline initiatives include:           <ul style="list-style-type: none"> <li>– Development of a national waste policy, but with no publicly available delivery date.</li> <li>– Ongoing implementation of a Container Deposit Scheme proposed in 2016 in Ebeye.</li> <li>– Investigation into an energy-from-waste regulatory framework, which will require ongoing monitoring and support.</li> </ul> </li> </ul>
<b>Assumptions</b>	<ul style="list-style-type: none"> <li>• None</li> </ul>
<b>Data gaps</b>	<ul style="list-style-type: none"> <li>• None</li> </ul>
<b>Key considerations</b>	<ul style="list-style-type: none"> <li>• RMI does not have specific waste management legislation. However, there are national and state regulations that are relevant to waste management.</li> <li>• Ebeye and Majuro states have a Solid Waste Management Plan in place.</li> </ul>



### Supplementary KPI 8: Commercial waste capture rate

<b>Results</b>	<p><b>Commercial waste capture rate (%): Insufficient data</b></p> <ul style="list-style-type: none"> <li>• Measured as the fraction of the total waste captured through formal waste management services over the total waste generated by businesses.</li> <li>• Without estimates of commercial waste generation rates and the number of businesses, this indicator cannot be calculated.</li> </ul>
<b>Assumptions</b>	<ul style="list-style-type: none"> <li>• None</li> </ul>
<b>Data gaps</b>	<ul style="list-style-type: none"> <li>• No estimate for the total amount of commercial waste successfully captured by management services identified.</li> <li>• No information on the number of businesses in RMI provided in the audit report.</li> <li>• No information on waste generation rates or the total amount of waste generated by businesses in RMI.</li> </ul>
<b>Key considerations</b>	<ul style="list-style-type: none"> <li>• 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.</li> <li>• 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.</li> </ul>



### Supplementary KPI 9: Commercial collection service coverage

<b>Results</b>	<p><b>Commercial collection service coverage (%): 51.07</b></p> <ul style="list-style-type: none"> <li>33 businesses in Majuro and 22 in Ebeye were interviewed during the audit. <ul style="list-style-type: none"> <li>Majuro coverage: 64%</li> <li>Ebeye coverage: 82%</li> </ul> </li> </ul>
<b>Assumptions</b>	<ul style="list-style-type: none"> <li>Sample coverages assumed to be representative of the RMI. No information on service coverages or number of participating businesses beyond the conducted surveys were identified.</li> </ul>
<b>Data gaps</b>	<ul style="list-style-type: none"> <li>The audit report did not quantify access to alternative collection services used by businesses (e.g., waste disposal-points or self-haul), however the different disposal methods indicated by respondents was listed.</li> </ul>
<b>Key considerations</b>	<ul style="list-style-type: none"> <li>Based on the interviews conducted in Majuro and Ebeye, around 51% of businesses in the RMI have access to some form of collection service. This result is restricted by currently available data.</li> <li>Accurate calculation relies on understanding the total number of businesses participating nationally, and specific collection service coverages for businesses.</li> <li>Completion of business surveys suggested in the DCMR Framework, would provide an indication of how regular, accessible, and affordable collection services are for businesses.</li> </ul>



### Supplementary KPI 10: Weight of disaster waste disposed

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



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