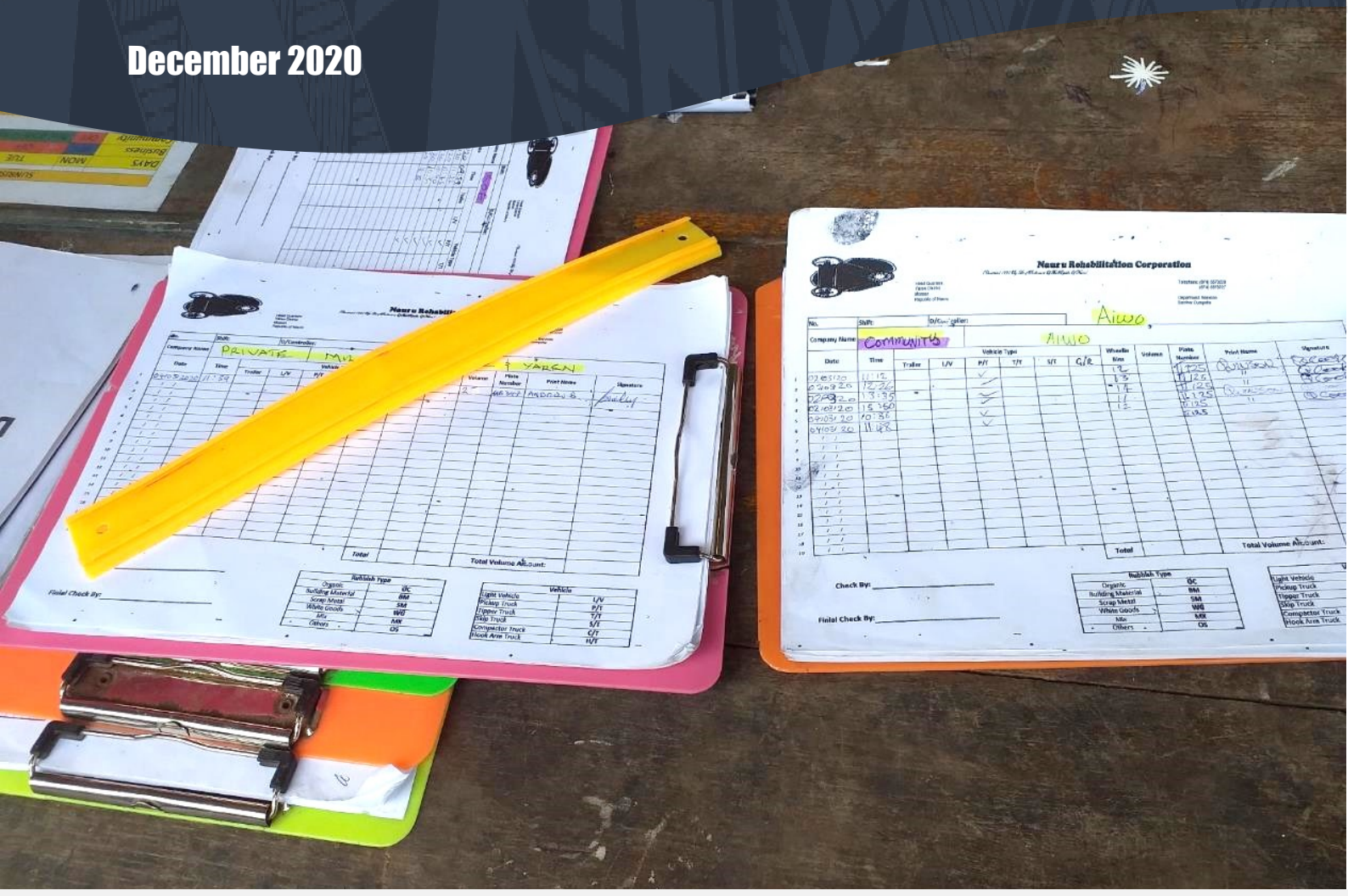
This initiative is supported by PacWastePlus-a 72-month project funded by the European Union (EU) and implemented by the Secretariat of the Pacific Regional Environment Programme (SPREP) to sustainably and cost effectively improve regional management of

Waste Audit Report

NAURU

December 2020



Supported by the Australian Government through the Pacific Ocean Litter Project

Australian Aid

The information and data gathered from these waste audits will be used by countries in the Pacific to support the development and monitoring of waste and resource recovery projects and recommend the infrastructure and policy interventions required. The regional dataset will also be used to identify and evaluate potential regional projects that would improve waste management in the region.

Acknowledgment: SPREP, through the PacWastePlus programme engaged Tonkin & Taylor International Limited (T+TI) to undertake a waste audit in five Pacific Island countries. This report presents the findings of the waste audit undertaken for Nauru. The methodology applied for this waste audit was as per the Waste Audit Methodology – a step-by-step manual to conduct comprehensive waste audits in SIDs, produced by the Pacific Regional Infrastructure Facility (PRIF). We acknowledge the services of Tonkin + Taylor for the compilation of this report.

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

As part of SPREP's commitment to the environment, this item is printed on paper made from 100% recycled postconsumer waste.

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All Reference to cost per GDP per capita is in Australian dollars.

PacWastePlus Programme

The Pacific – European Union (EU) Waste Management Programme, PacWastePlus, 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 PacWastePlus

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 PacWastePlus programme will generate 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 PacWastePlus 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 PacWastePlus programme by visiting

EUROPEAN UNION

SPREP
Secretariat of the Pacific Regional Environment Programme

PacWastePlus
PACIFIC WASTE MANAGEMENT

https://pacwasteplus.org/

Executive summary

Summary of Audit Activities	• Five surveys completed
	  • waste collection followed by a sort and weigh
	  • interviews
	  • landfill audits
	  • stockpile assessments
	• 88 household and commercial samples collected
	• 75 household samples
	• 13 commercial samples
	• 91 interviews
	• 43 stockpile assessments
	• 88 landfill loads audited

Waste Generation Rates	• Average household generation per day is 0.8kg (with a range of 0.1kg - 3.1kg per household per day).
Household Key Compostion Trends	• Nauru - single use items (19%), hygiene products (14%), paper and cardboard (13%), plastic (13%) and organic wastes (13%) were the largest components.
Commercial Composition Trends	• Commercial waste varied by sector • Across all commercial sectors the largest components included single use items, paper/cardboard, other and plastics.
Recovery of Recyclables	• There is some capture of recyclable materials at the waste facility - tyres, metals, organics (garden organics, branches), cardboard and food organics. • E-waste is stored in Government Warehouse and shipping containers outside.

Stockpiles in Nauru

- Most commonly stockpiled material - ferrous metal - cars, vans, 4x4s and buses (by weight).

Nauru Waste Facility Composition (landfilled waste only)

- 42.6% paper
- 9.3% plastics
- 5.4% metals
- 8.9% other
- 1.8% e-waste
- 0.0% fishing
- 13.1% organics
- 4.3% hygiene
- 8.8% single use items
- 3.0% glass
- 0.1% batteries

Interview Outcomes

- Households - 7.8/10 level of satisfaction with the collection service which is offered free of charge. With a preference for over 82% of householders interviewed for this to remain free of charge.
- Commercials - 9.6/10 level of satisfaction with the collection service, for those who receive a service. All commercials businesses are required to arrange their own collection service or drop their waste directly to the waste facility. A preference for over 72% of commercials interviewed for a collection service to be provided free of charge.

Introduction

The Secretariat of the Pacific Regional Environment Programme (SPREP) engaged Tonkin & Taylor International Limited (T+TI) to undertake a waste audit in Nauru. This report presents the findings of the waste audit undertaken for Nauru.

The methodology applied for this waste audit was as per the *Waste Audit Methodology – a step-by-step manual to conduct comprehensive waste audits in SIDs*, produced by PRIF[1].

The waste audit was undertaken by Nauru Rehabilitation Corporation and the Department of Commerce, Industry and Environment for Nauru in close collaboration with T+TI (remotely) supporting the delivery of the waste audit and other key stakeholders. The audit took place from 7 to 15 December 2020, excluding 13 December 2020[2].

The results from the Nauru waste audit are part of a Pacific-wide audit activity being implemented by a range of agencies. This audit is funded by SPREP (through the EU-funded PacWaste Plus programme) and with support from the Australian-funded Pacific Ocean Litter Project.

Other audits in the region are funded by the United Nations Environment Programme (UNEP), the World Bank and the Pacific Region Infrastructure Facility (PRIF).

The information and data gathered from the waste audits will be used by countries in the Pacific to support the development and monitoring of waste and resource recovery projects and recommend the infrastructure and policy interventions required.

The regional dataset will also be used to identify and evaluate potential regional projects that would improve waste management in the region.

This audit report details how the Nauru Audit was delivered. The report is structured as outlined below:

- Section 1 sets out the context for the audit including socio-economic background, the statutory framework for waste management in Nauru and existing waste services.
- Section 2 provides the audit methodology including the approach to managing the audit team remotely, training provided, sampling approach and validation procedures.
- Section 3 presents the audit findings.

[1] PRIF (2019) Waste Audit Methodology. A step -by-step to conduct comprehensive waste audits in SIDs.
[2] 7 December 2020 was the training day. December 8 was the first day of the waste audit for Nauru

COVID 19

The Australian Department for Foreign Affairs and Trade (DFaT) supported the Government of Nauru to develop the Nauru Covid-19 Development Response Plan[3].

This plan notes that:

> *Compared to some other Pacific countries, Nauru faces less severe economic impacts from Covid-19. The Asian Development Bank (ADB) forecasts Nauru's economy will contract by 1.7 per cent in 2020, rebounding to 0.8 per cent in 2021.*

The impact of the Covid-19 response in Nauru on waste generation and composition is difficult to accurately quantify without data on waste generation and composition before and after the start of the pandemic.

Waste generation typical correlates well with economic activity i.e., there are likely to be limited impacts related to Covid-19.

This suggests that the data collected for this audit is relevant to reflective of waste generation and composition for Nauru.

[3] Downloaded from https://www.dfat.gov.au/sites/default/files/covid-response-plan-nauru.pdf

Background

Socio-economic Background

Nauru is a small coral island located in the southeast Pacific Ocean with a population of approximately 12,700[4] people and around 1,647 households[5]. The languages spoken include Nauruan and English.

Gross domestic product (GDP) per capita is $11,666 (US) in 2020[4]. However, the economy faces challenges including:

- Environmental, social, and economic threats from poor waste management and pollution.
- Remoteness from trade centres.
- Small labour force.
- Limited natural resources due to previous mining of phosphate.
- Deteriorating housing, hospitals, and capital plant.
- Adaptation to climate change.

Historically the economy has been based on phosphate mining, however, the primary phosphate reserves were exhausted in 2010. Diversification of souring income has been a priority and in 2020 the sale of fishing rights in the territorial waters of Nauru was the highest income source. Due to its remote location, Nauru has no tourist attractions and minimal hospitality infrastructure, the number of visitors per year is low, but is offset by business travellers to the Australian Regional Processing Centre[6].

At the time of conducting the audit, Covid-19 had been declared a global pandemic by the World Health Organisation. Like many other Pacific Island nations, Nauru has avoided an outbreak by closing international borders.

Legislation

The summary of relevant legislation has been sourced from the Stocktake of existing and pipeline waste legislation: Nauru[7] and RONLAW (Republic of Nauru Law). These have been listed in **Table 1.**

Table 1: Nauru Legislation summary

Legislation	Description
Litter Prohibition Act 1983	General prohibition on littering and offence provisions. The legislation contains no power to make regulations under it.
National Solid Waste Management Strategy 2011-2020	Provides some analysis and context for waste management including noting a lack of recent data on waste flows as a barrier to understanding the national waste situation.
Environmental Management and Climate Change Act 2020	Part 7 - pollution control and waste management refer directly to the management of waste.

[4]SPC Statistics for Development Division (2021) https://sdd.spc.int/nr

[5] Nauru Bureau of Statistics, Ministry of Finance (2011) Distribution of households and dwellings by building type 2011. https://nauru.prism.spc.int/selected-survey-tables/census-2011-households/census-2011-dwelling-by-building-type

[6] Republic of Nauru, Second National Communication. 2014.

[7] Stocktake of existing and pipeline waste legislation: Nauru. Prepared by the Melbourne Law School at the University of Melbourne, Australia with technical assistance from Monash University. 16th March 2020.

Until recently there was no specific waste management and governance legislation in place for Nauru. Solid waste management primarily fell under the Litter Prohibition Act 1983. In October 2020, the Environmental Management and Climate Change Act 2020 came into force.

Waste Management Protocols

Part 7 of the recently enacted Environmental Management and Climate Change Act 2020 outlines the pollution control and waste management requirements for managing waste.

Specifically, this details how the following applicable items to this audit should be controlled (note wording below is a paraphrase or direct wording from the Act):

- Litter – all litter to be contained, separate from vegetation material, and put out for collection.
- Commercial premises are responsible for the litter they generate and must dispose of it to the landfill.
- Burning of waste - any substance containing plastic, or any hazardous material shall not be disposed of by burning, this comes with associated fines.
- Prohibition of discharge of hazardous wastes, chemicals, oil, into the environment – specifically noting:

  No person shall discharge any hazardous waste, chemical, oil or mixture containing oil onto any place - The Secretary, shall, in consultation with other relevant Government Departments and stakeholders, establish criteria for the classification of hazardous chemicals and products containing hazardous chemicals.
- Management of hazardous chemicals and products containing hazardous chemicals.

Pipeline legislative activities for waste management and governance in Nauru (in March 2021) include:

- ***Implementation of Environmental Management legislation –*** Previous bills from 2006 and 2011 exist, enacted in October 2020; and
- ***Strengthening institutional capacity for chemicals and waste management –*** Involving a legislative review and policy development to strengthen capacity for the implementation of the Stockholm and Basel Convention commitments. Also covered to some extent in the Environmental Management and Climate Change Act 2020.

Further information on waste legislation can be sourced from the included references.

Stakeholders – Roles and Responsibilities

Government departments with waste responsibilities in Nauru are presented in **Table 2**.

Table 2: Stakeholder roles and responsibilities

Stakeholder	Responsibility
National Government	
Department of Commerce, Industry and Environment	The role includes planning and coordinating the development of the National Waste Management Policy Framework – a regulatory role.
	The infrastructure department handles the management of hazardous waste.
Department of Health	Administers the Litter Prohibition Act – regulatory role.
Department of Finance and Economic Planning (DFEM)	Responsible for the Economic Infrastructure Strategy and Investment Plan 2011, this includes solid waste management infrastructure stocktake – regulatory role.
Subordinate Agencies	
Nauru Rehabilitation Corporation (NRC)	Management of 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.

Waste Services

Household Waste

Solid waste management disposal operations and waste collection are carried out by the waste facility site operations, Nauru Rehabilitation Corporation (NRC) or private businesses (household collections).

A free waste collection service is offered to all households across Nauru with collection weekly. To access this service households are required to purchase a bin (240-litre wheelie bin) from NRC for AUD 110[8].

Households who do not use the waste collection service can take their waste directly to the waste facility. Alternative waste disposal methods used include open backyard dumpsites (more frequently used in the past), disposal on unused land or burning.

In some communities, there is a fortnightly bidding system where waste collectors submit bids to the relevant member of parliament (MP). These MPs manage the bids submitted and decide on who will deliver the waste collection for the next fortnight. In some constituencies, MPs allow more than one community collector to collect waste in the area for two weeks. This approach has enabled job provisions for local community members. Some communities appoint a single contractor for longer periods, up to a full year.

Waste collectors are required to hire rental trucks for the collection of bins. Filled wheelie bins are collected from households and transported to the waste facility to be emptied. Once emptied the wheelie bins are returned to the households they were collected from. Around 27,535 bins per year have been collected through the community rubbish collection, equating to around 75 bins per day, over 365 days.

Waste collectors are charged a tipping fee of \$2.50/m^3 at the waste facility for all community waste collected [9]. There is no tipping fee charged for householders taking their waste directly to the waste facility.

[8] [8]ADB (2014) Solid Waste Management in the Pacific Nauru Country Snapshot

[9] All references to cost apart from GDP per capita are in Australian dollars

Commercial Waste

Private companies, state-owned enterprises, and businesses can pay to receive waste collection or opt to deliver waste to the waste facility. Waste Collection is provided either through a bin (240-litre Wheelie Bins) or skips based (3m³) system.

The 240-litre bins are sold by NRC at AUD $110, while mini skips (3m^3) are available to rent at different prices. A skip-bin waste collection service is provided to the hospital and government buildings at $200/month, while some schools are charged $100/month[10].

Commercial enterprises are charged a tipping fee of $20/m^3 at the waste facility for all commercial wastes and includes construction and demolition waste.

Recycling

There is currently no recyclables collection service in place, but there are plans in place to design and commence a system. There are no official recycling companies in Nauru. There are small community non-profit groups of recyclers, who operate during events and special occasions. Previously there has been recycling of copper radiators and aluminium cans by one individual who purchased these cans from the public at $0.40 per kg, however, this is no longer occurring.

Hazardous Waste

E-waste

All e-waste produced from Government departments is managed by the Information Communications Technology department of the Ministry of Commerce, Industry and Environment. E-waste has been temporarily stored for the last four years inside a shipping container (with a concrete surface) at the Government Warehouse in the Meneng area of Nauru. E-waste is stored and stacked separately by type: printers, computers, screens, and laptops. Further details on the quantities are provided in Section 0. The volume of e-waste produced from households and private companies has not been quantified by the Department of Commerce, Industry and Environment.

Healthcare Waste

The Republic of Nauru (RON) Hospital fills on average, 57 bins (240 litres) of waste per month, which is collected daily. This suggests that around 50kg of health care waste is generated per day.

An incinerator located at the hospital for medical waste disposal is not operational. This means that all health care waste is currently collected and placed in a pit located at the waste facility where it is burnt (once placed in the pit). The burning of healthcare waste at the waste facility is overseen by NRC staff and the health officer. Clinical body parts are being disposed of at the cremation facility located at the hospital. Public Health operates various clinics producing both general waste and medical waste, which is stored and disposed of daily, averaging 13.5 bins (240 litres) per month[11].

Asbestos

Asbestos is no longer accepted at the waste facility. Before 2016, five shipping containers (with an approximate volume of 166m^3) were filled with asbestos and stored within the boundaries of the waste facility[12].

[10] Sprep (2010) Republic of Nauru, National Solid Waste Management Strategy 2011-2020

[11] Data provided by the Nauru Health Officer, 5 March 2021. Average data for January and February 2021.

[12] Information provided by the Waste Management Officer for the Department of Commerce, Industry and Environment

Additional quantities of asbestos are stored at land associated with the regional processing centre, known as fly-camp. The fly-camp is located on the top side of the Meneng area and currently stores an estimated 550m³ of asbestos in 16 shipping containers (20 feet). In the last year, the Infrastructure Department removed an estimated 365m³ of asbestos (11 containers) from households for storage at the fly camp. Households and commercial facilities can take their asbestos directly to the fly-camp. This has resulted in asbestos being left uncovered or uncontained on the ground.

Used Oil

The Nauru Phosphate Corporation (RONPHOS) accept waste oil from the Nauru Utilities Corporation. Nauru Utilities Corporation pays RONPHOS (Phosphate Corporation) to take their waste oil. The quantity of waste oil which RONPHOS accept has not been provided. This data is considered commercially sensitive and therefore has been not provided to the audit team. Waste oil is being temporarily stored at each working site and by private companies. Eigigu Transport Corporation store several 42-gallon containers of waste oil stored at their working sites[13]. The exact number of these containers has not been provided, given the commercial sensitivity of this information.

Quarantine Waste

Quarantine waste (predominately organic, from ships and aircraft) is burned in a designated hole alongside medical waste at the waste facility as it is received. The burning of this waste is overseen by NRC staff. The quantity of quarantine waste sent to the waste facility for burning in 2019 was 36 m^3.

General waste from Airport and Port operations is managed alongside other mixed waste received at the waste facility. Data provided by NRC for 2019 was used to derive the annual volume of airport waste sent to the Nauru waste facility. For 2019, this is reported as 58m^3 and is captured under State-Owned Enterprises and Republic of Nauru delivered collection service.

Waste Facility

Landfill Infrastructure and Operations

Nauru waste facility is unlined with no leachate collection or separation of stormwater. The disposal of waste is partially controlled through the limiting of access with lockable access gates and security personnel. It is not uncommon to find waste pickers on the site.

Black soil (overburden from historic mining across the Island) and road base have been used as cover material. The cover is applied intermittently when material and suitable equipment is available. As part of an emergency response to periodic fires, waste has been excavated into piles on parts of the site. Waste facility fires have previously been common, with the last fire reported in early 2020. These occur due to uncontrolled waste disposal and can lead to easy ignition of waste. There is minimal management of the waste once placed. The waste is levelled using an excavator bucket or waste compactor (towed behind other plants (bulldozer or digger). This is providing little to no compaction. This occurs nominally twice a week, but often much less frequently.

A building located near the entrance of the site is used to house the chipper and cardboard shredder (when onsite). The building is shown in **Figure 1.**

[13] Information provided by NRC.

Figure 1: Waste segregation building at the waste facility

There is a small office at the entrance to the waste facility providing space for the management team of the waste facility. This office is formed of a shipping container, simple roofing materials and a subbase. There is power available to this area. The NRC Annual report for 2017-2020 provides a breakdown of the current vehicles and equipment onsite and for waste operations.

Table 3: Equipment used by NRC for operations of the waste facility[14]

Equipment	Number of Units
Toyota Hilux	Four
Excavator	One (Hitachi 330, approximate weight 30-34 tonnes).
Hook arm truck	One
Skip bin truck	One
Woodchipper	One
Water trailer	One
Trucks and tractor	Five trucks, one tractor – not operational – used for spare parts.
Cardboard shredder	One (not owned by NRC, but available on the island for use).

The excavator located onsite is determined as operational in the Annual Report, however current operations at the site, do not suggest that it is used. According to the NRC Annual Report for 2017-2020, there are two double compactors (Ace) and one single compactor (Hino) onsite. This equipment is towed behind other plants (bulldozer, digger), refer to **Figure 2**.

[14] NRC Annual Report for 2017-2020

Figure 2: Waste compactor (Waste Scoping Study, 2017)

Figure 3 presents a view of the waste facility and composting area taken in December 2020.

Figure 3: Waste facility and the chipper used by NRC for trees and branches[15]

Charging at the Waste Facility

In the absence of a weighbridge, charging at the waste facility is based on the volume of incoming loads and the source of the waste. The charges are provided in **Table 4** below.

Table 4: Waste facility charging for incoming waste

Description	Further Detail	Charges per Cubic Metre
Private companies	Construction State-Owned Businesses Other commercial businesses (small- and large-scale retail shops)	$20/m^3$
Community waste collectors	18 communities have a separate waste collection	$2.50/m^3$
Others	Local people from any household in Nauru	$0/m^3$

[15] Original photos taken by Grace Garbaran during the waste audit in Nauru

Inputs to the Waste Facility

The Nauru waste facility is located southwest of the island. It is owned by the Government and leased to NRC who operate the site. NRC took over the operations of the waste facility in 2016 and have since been stockpiling some potentially recoverable materials.

The facility receives all municipal and commercial solid waste (including construction and demolition waste) collected from or dropped off by communities and commercial facilities.

In 2018, the waste facility reached its full capacity, and a decision was made to divert materials away from landfill, where possible, to preserve the remaining air space. Targeted materials for diversion included:

- Organic wastes from land clearing.
- Construction and demolition waste (timber, concrete).
- Tyres.
- Other separated waste streams (scrap metals and cardboard).

Wastes that are potentially recoverable (defined in **Table 5**) but arrive at the waste facility as part of the mixed waste stream, are not segregated.

In early 2020, there was a fire outbreak at the site. The fire burnt for between two to three days before being extinguished. The amount of waste that burnt during the fire was not quantified by NRC. NRC estimates the waste facility will be at capacity by the end of 2023.

Wastes segregated before arriving at the waste facility is kept separated from the mixed waste.

Table 5: Management details for wastes that NRC is segregating at the waste facility

Material	Further Details/Management	Storage
Tyres	Tyres are stockpiled along with the site entry. Reuse includes landscaping by householders or in districts.	Stored in a concrete bay at the waste facility
Scrap metal (cars, 4x4 vehicles and disused metal equipment)	No further management defined at present.	Stored along the perimeter fence of the waste facility
Cardboard/ paper	Segregated cardboard is shredded and stored at the waste facility for reuse by locals. Shredded cardboard is currently reused in plantation areas by locals. Cardboard is also present in the mixed waste stream and disposed of to the waste facility.	Stored under the cover at the waste facility
Trees and branches	Shredding of tree trunks and large branches is undertaken daily using a Vermeer woodchipper. Land clearing activities associated with the Nauru Community Housing Scheme currently underway in Nauru is producing increasing volumes of trees and branches. Trees and branches are also present in the mixed waste stream disposed of to the waste facility.	Stored in a concrete bay at the waste facility
Food organics	Separated food organics are received daily from the regional processing centre (Immigration Detention Centre) and is dumped at a designated area within the waste facility grounds for collection by local farmers to be used as animal feed Non segregated wastes are placed with mixed waste.	Designated separate area

Material	Further Details/Management	Storage
	Where food organics is not segregated at source, it remains in the mixed waste stream. Commercials are expected to separate food organics before disposal.	
Garden organics	Segregated garden organics delivered to the waste facility is mulched on-site daily. NRC allow locals to collect the garden organics once mulched, with the remaining material being stored onsite. Garden organics is also present in the mixed waste stream disposed of to the waste facility.	Designated separate area where garden organics are stored alongside tyres and shipping containers containing asbestos

Waste Acceptance

Used Lead Acid Batteries are accepted at the landfill and are buried under the mixed waste. The following hazardous waste are not accepted at the waste facility:

- Chemicals
- Vehicle oil
- Asbestos
- Sludge
- E-waste

Amendments in the Pipeline to the Current Acceptance Criteria

Waste acceptance criteria proposed by NRC for the waste facility are changing with a focus on preserving the waste facility capacity as much as possible. The criteria require the separation of specific waste streams as outlined in Table . Commercial businesses will be required to separate their waste before disposing of it at the waste facility. Separation of household organic waste, recyclables and other waste will also be encouraged.

Table 6: Separation requirements as per proposed 2021 waste facility services

Organic waste	Recyclables[16]	Other
Garden organics – Trees and Plants only **Cardboard – Should be folded and bound** **Papers – Books, News Papers, Magazines books etc. Packed in boxes** **Building – Timbers (only)** **Wood – Pallets etc** **Food organics – Frozen and Dry Food**	Plastics – all types of Plastics should be packed in bags. Plastic Bottles – All Plastic bottles should be packed in Garbage bags Glass – All types of glass, glass bottles, building glass, etc. should be packed in boxes Aluminium Cans- Should be packed in bags	White Goods – House Furniture Car parts – Tyres, Battery. Cars and any other scrap Metals go to the scrap area

Future Changes Proposed for Waste Management in Nauru

NRC is planning to pilot a waste segregation programme for the community and school which will be located at the waste facility.

[16] Materials which have the potential to be recycled

Plastic Bottles, Aluminium Cans, Glass, and Cardboard

NRC is proposing the following to manage recyclable materials:

- A glass crusher is to be used to process the glass bottles. There is currently no crushing of glass at the waste facility as there is no glass crusher available.
- Compactors for aluminium cans and plastic bottles. There are currently no compactors available for use with aluminium cans or plastic bottles.
- A shredder for cardboard - NRC will continue to use a cardboard shredder to size reduce cardboard.

Asbestos

A new project, planned for 2022, is proposed for the removal and handling of asbestos. The infrastructure department has trained contractors in the handling and disposal of asbestos. This service will be free of charge for the community as it forms part of the Infrastructure Department's remedial work.

Methodology

Audit Team

Roles and Responsibilities

The audit was undertaken by a T+TI project team working closely with local agencies. The T+TI team comprised Team Leader (Chris Purchas), Country Coordinator (Tekao Herrmann) and Waste Auditor (Anna Ainsworth). The T+TI project team worked with an in-country focal point and a team of 11 staff from the Department of Commerce, Industry and Environment and NRC.

It was intended that the T+TI project team be present in Nauru for some or all the audit periods. Travel restrictions due to the Covid-19 meant that the T+TI team participated remotely. The T+TI Country Coordinator was present remotely for the entire waste audit period. While the in-country focal point was available for the duration of the waste audit managing the waste audit activities on the ground.

A description of the responsibilities for each role has been provided in **Table 7.**

Table 7: Responsibilities of the project team

Role	Responsibilities
Team Leader	Provide effective communication of progress for the waste audit. Provide regular reporting and updates to the SPREP Project Manager and Nauru Focal Point.
Country Coordinator	Provide remote support for the duration of the waste audit. Provide daily feedback to the in-country focal point and audit team.
Waste Auditor	Reporting of the waste audit for Nauru.
In-country Focal Point	Delivering the physical audits in the Country with remote support from the Country Coordinator and Waste Auditor.

Audit Planning

Communications with the in-country focal point – Grace Garabwan the waste management officer for the Department of Commerce, Industry and Environment began in October 2020. Grace coordinated the creation of an audit team in Nauru which consisted of people from both the Department of Commerce, Industry and Environment and NRC.

A total of 11 people attended the training day. The identification of individuals to take part in the audit included consideration of the experience in previous waste audits, some understanding of the waste operations in Nauru and being able to operate a smartphone to input the raw data.

Personal protective equipment required for the audit was provided by T+TI and was shipped from New Zealand to Nauru, including the following:

- Coveralls.
- Disposable gloves.
- Protective gloves – to go over the top of the disposable gloves.
- Face masks.
- First aid kit.
- Wheelie bin liners – 240 litres and 120 litres.
- Tongs – long and short-handled.
- Dustpan and brush.
- Masking tape.

- Hand sanitiser.
- Safety glasses.

Equipment unable to be shipped, but sourced in Nauru included:

- Scales for the sort and weighing of waste samples.
- Vehicles required to collect waste samples and undertake stockpile assessments were hired in-country.
- Petrol for use in the hire vehicles.
- Sim cards providing data for phones to upload audit data from survey forms.

Health and Safety

The importance of ensuring that health and safety are considered integral to the delivery of the waste audit was communicated continually from the first remote meeting with the in-country focal point.

Due to the nature of the physical sorting and weighing of waste, a requirement for those team members involved in this part of the audit to receive vaccinations of Tetanus, Hepatitis A and B (where available). Due to the Hepatitis A vaccine not being available in Nauru, only Hepatitis B and Tetanus were given. Proof of vaccinations for the in-country audit team is provided to T+TI. T+TI produced a Job Safety Analysis (JSA) for the waste audit in Nauru. This provides details on the audit methodology and describes all the hazards associated with the tasks undertaken as part of the audit. Each hazard is considered individually, and mitigation measures outlined. The JSA is reviewed and discussed alongside a health and safety presentation which forms part of the training. Everyone taking part in the waste audit is required to sign the JSA, which confirms that they have understood and agree to the information. A copy of the JSA is included in the Nauru training report.

Audit Training

The training and audit delivery process was designed to allow the project team to provide support and supervision remotely. Remote training was achieved through:

- Training material based on a mix of videos, written material and presentations.
- Online quizzes to test understanding of key audit and safety concepts.
- Provision for telephone or video conference delivery from a remote team.

The audit process and data collection approaches were also designed to allow for remote supervision as much as possible if required. Key aspects included:

- Daily start-up meetings with the various audit teams (by telephone or video if required).
- Form-based data collection on mobile phones or tablets to ensure data is collected consistently[17].
- Live or end of day data submission to allow review of data collected[18].
- Periodic check-in by telephone or video each day to track sample collection, data quality and challenges as they arise.

The remotely located T+TI Country Coordinator was available throughout the audit period to answer any questions from the audit team, provide feedback on the data and ensure that the team are comfortable with the health and safety requirements for the audit.

[17] Data collected through Survey 123 and received by T+TI on ArcGIS Enterprise
[18] Data is stored on the T+TI secure system in project folders

Training of the waste audit team was undertaken on the 7th of December 2021 and involved a range of guides and training materials. The training for the Nauru audit team was managed by the T+TI (Country Coordinator and Team Leader) remotely providing introductions with the in-country project team. On the recommendation of the country focal point, the training was delivered in the local Nauruan language.

The T+TI Country Coordinator was on hand to answer any questions through the day by video conference. The training day included:

- Working through "how-to guides" for each survey component.
- An explanation of how to use the data collection software (on mobile phones), followed by an afternoon of training on the survey data input.
- "Dummy run" for each of the surveys collecting data and familiarisation with roles.

The focus on training was supported throughout the audit activity through daily (or more frequent) contact and review of data being submitted through the data collection apps each day.

Stakeholders

Key delivery partners working alongside T+TI to deliver the waste audits:

- Department of Commerce, Industry and Environment; and
- NRC.

Several key stakeholder groups supported the delivery of the audits with details of the consultation and engagement activities included in **Table 8**.

Table 8: Stakeholder engagement undertaken[19]

Stakeholder	Description of Audit Interface	Stakeholder Engagement
Householders	• Bag collection • Interviews	• Letter delivery providing details of audit to participating households[20] • Media release through Facebook • The description on local radio in the week before the audit • Face to face interviews
Commercial owners	• Bag collection • Interviews	• Letter delivery-providing details of audit to participating commercials[21] • Media release through Facebook. • The description on local radio in the week before the audit • Project brief release on social media platforms • Face to face interviews
Commercial operators (collectors and disposers)	• Landfill (waste facility) disposal (visual audits) • Stockpile audits	• Face to face discussions • Interviews where possible

[19] Engagement undertaken aligns with the methodology defined within the Waste Audit Methodology – A step-by-step manual to conduct comprehensive waste audits in SIDs, PRIF, 2019

[20] Delivered to households explaining audit and instructions to leave bags at entry to driveway prior to audit.

[21] Delivered to households explaining audit and instructions to leave bags at entry to driveway prior to audit.

Sampling Methodology

Samples were collected in accordance with the sampling procedures summarised in the sampling guides. A summary of audit components and methodology is provided in **Table 9**.

The audit methodology is detailed in the Nauru Audit Plan (**Appendix A**). The methodology applied has been derived from the Waste Audit Methodology – A step-by-step manual to conduct comprehensive waste audits in SIDs[22], this is attached as an Appendix to the audit plan.

The audit plan was developed based on the most recent household and commercial statistics from the Nauru Bureau of Statistics. The target sample numbers also reflect experience on similar audits and are intended to ensure that there is adequate data to provide a statistically valid estimate of waste characteristics and quantity. A target sample size of 100 households across Nauru was determined to provide a balance between the level of precision achieved and the time required to sample, sort, and weigh the samples obtained. A target sample size of 20 commercials across Nauru was randomly selected. A range of sectors was selected to provide a wide cross-section of data.

The target numbers allow for some reduction in sample numbers in the event of operational issues during sample collection. They also account for the potential for some sample results to be excluded from analysis during quality assurance.

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.

Table 9: Audit methodology[1]

Audit Component	Description
1. Sample collection from households and commercials	Rubbish bags/waste were collected from bins collected from commercials/ households identified on audit maps. Samples taken were photographed and bags labelled with unique ID numbers, with a corresponding tag placed on a nearby tree/fence. The location was also photographed to assist in identifying the location for Component 3. Sample locations are presented in Figure *1* and the areas targeted for sample collection are listed in Section 0. Bags of two sizes (120 litres and 240 litres) were provided to householders for the audit, these were then put out for collection by these households and commercials on collection day. The entire contents of the bin for the one household were emptied into the bag/s depending on the quantity of waste. One waste sample is the entire contents of the bin put out for collection.
2. Sort and weigh household/commercial bags	Samples were transported to the waste facility for waste sorting. Waste was sorted into primary categories and defined secondary categories. A list of these categories and their included materials is included as Appendix A. Waste in each category was weighed with data and photographs recorded in the sample collection application. 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.
3. Household and commercial interviews	For each household or commercial where a waste sample has been collected, a second team returned to complete an interview. The interview was recorded on a standard form.

[22] Published by PRIF

Audit Component	Description
4. Landfill audit	Audits were completed at the waste facility. Waste composition and quantity were estimated, and loads recorded during the audit period. Each load was recorded including photographs and estimated composition and quantity.
5. Stockpile assessment	Stockpiles were identified by the Nauru focal point. Materials characteristics and quantity were estimated. Each stockpile was recorded including photographs and estimated composition and quantity. The scope included: • Waste awaiting processing, recycling, or reuse. • Potentially hazardous materials. • Organic (garden organics specifically identified).

Identification of Households and Commercial Premises

Maps showing sample locations by household and commercials were provided to the audit team. Where locations were unsuitable for sampling, the team would move onto the next household or commercial premise of the same category.

The locations of those households and commercial premises sampled are shown in **Figure 1**. The audit programme comprised seven days[23] of sample collection in Nauru.

Knowledge of collection arrangements was considered when identifying a random and representative sample. The audit team collected rubbish from across Nauru.

Figure 1 shows the household and commercial sample locations**. Figure 2** presents the location for landfill visual audits and sort and weigh surveys (completed at the waste facility).

[23] Day 1 was not included in the 7 days, was for training and dummy runs.

Figure 1: Sample locations and legend for households and **commercials** *in Nauru*[24]

[24]Locations were identified prior to the waste audit. The map shows a good spread of data samples across Nauru. Individual data for households and commercials is not provided in this report.

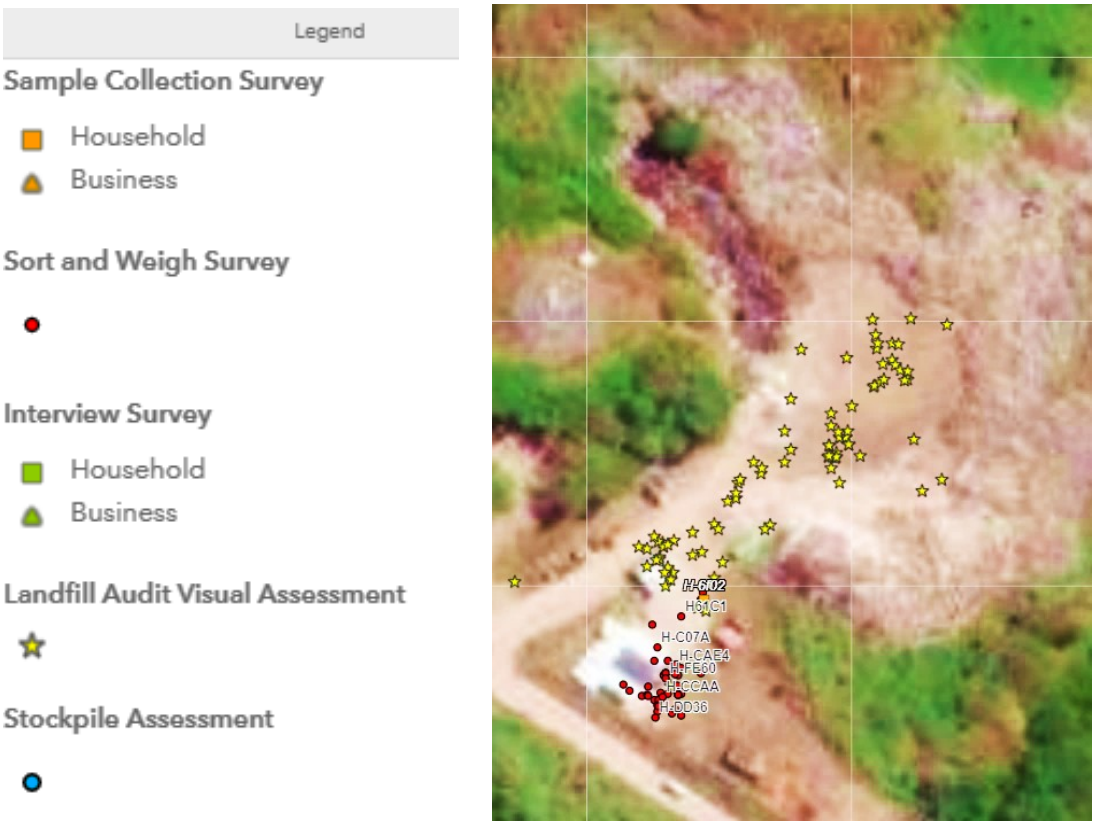


Figure 2: Sample locations and legend for landfill visual assessments and sort and weigh survey in Nauru[25]

Summary of Data Collected

The total number of household and commercial samples, stockpile assessments completed, and the landfill (waste facility) loads audited in Nauru are summarised in **Table 10.**

Table 10: Summary of sample numbers collected in Nauru[26]

Sample type	Nauru Actual Sampled	Sample Plan
Household		
Samples taken	88[27]	100
Interviews	74	100
Commercial		
Samples	13[28]	20
Interviews	17[29]	20
Stockpile assessments	43	N/A
Landfill (waste facility) load audits	88	N/A

[25]Locations were identified prior to the waste audit. The map shows a good spread of data samples across Nauru. Individual data for households and commercials is not provided in this report.
[26] Data derived from the waste audits undertaken in Nauru
[27] Sort and weigh number of samples, 91 samples collected, 3 samples rejected due to insufficient data quality
[28] Four commercials did not have their waste sorted, but had a follow up interview.
[29] 17 interviews, four of which do not have sort and weigh data

Several factors resulted in the difference between the sample plan and the actual audit numbers for this audit. These were:

- Productivity of the team sorting the waste into categories, weighing, and recording this data.
  - In the first few days of the audit, it typically takes time for the team to familiarise themselves with the process of physically sorting the waste, ensuring the right waste is captured in the right category and the subsequent input of data into the phone. This reduces the productivity of the team during the first few days. This was the case in Nauru limiting the total number of samples collected.
- The potential for individual samples to be unsuitable for inclusion in some of the data analysis (specifically the composition of the waste stream). This is due to data discrepancies, for example, a decimal point is inserted in the wrong place.
- Outliers in the composition is also an important consideration when presenting the data.
  - When producing waste composition data, for this project we complete a robust quality assurance and data review process, which accounts for the difference in total start weight (total sample weight) and the total weight of the individual waste categories combined. The difference between these two numbers is calculated as a % difference. If the confidence interval or difference is more than +15% or -15% different, then we do not use this data for determining the composition of waste presented in this report. A margin of difference outside of this range (15% to -15%), reduces our confidence in the data submitted.

Where data was excluded from calculations when the confidence interval is applied, this has been noted throughout the report.

Validation Procedure

The audit process and data collection approaches were designed to allow for remote supervision, data checking and ongoing feedback to the audit team throughout the audit process. The data validation approach is illustrated in **Figure.3.**

Each audit component had a standard digital form. All information was recorded on smartphones and submitted to the ArcGIS platform as it was collected.

This allowed for near real-time quality checking of data by the consultant team remotely. The Waste audit specialist would then feedback findings to the country coordinator daily or more frequently as required, creating a continuous feedback loop (**Figure.3**).

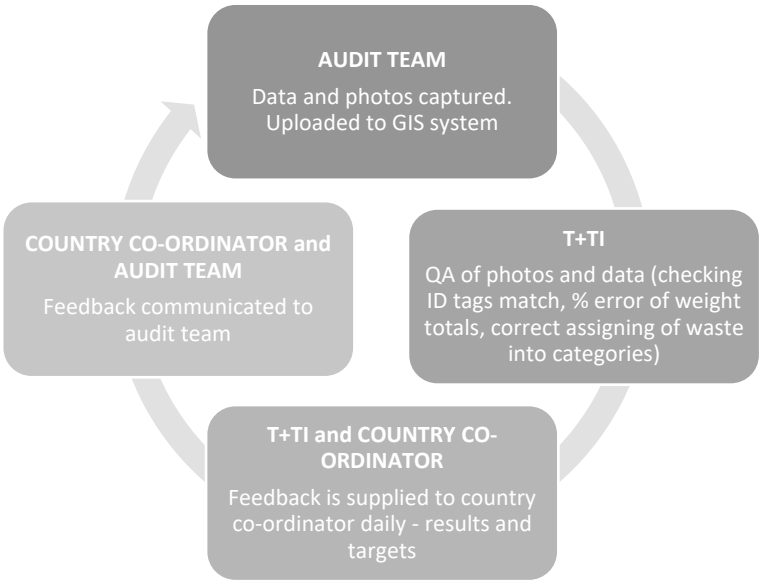


Figure.3: Continuous feedback loop in place to ensure the quality of audit outputs

Audit Findings

Introduction

The audit was undertaken between 7th to 15th December 2020 inclusive, excluding Sunday 13th December 2020.

Household Audit Findings

The household sample collection identified that a significant proportion of household waste, both general and bulky waste items, is stored on individual properties.

Access to Waste Collection Services

Access for households to a waste collection service has been provided in **Table 11**, this summarises feedback on the collection service for households including a waste collection rating, recorded for Nauru (**Figure 4**).

Table 11: Summary of access to collection services[30]

Summary	
Total Interviewed	74
% with access to collection service	86%[31]
Average collection service rating	7.8
Comments	• Reliable service - timing and collection day. • Need bigger sized wheelie bins. • A suggestion of a $100 fine for public littering. • Comments around rubbish collection not being free of charge. • Collectors never collect bins or miss properties. • Want to recycle, but there is a lack of resources and capacity for the people of Nauru. • Several responses mentioned the need for the management of bulky items – with a number of responses suggesting that they would be happy to pay for this. • Waste did not collect each week, so use other collectors as well or transport waste to the waste facility themselves

Alternative approaches to managing waste were highlighted through the interviews. It is common practice for several options to be selected by householders and commercials for the same waste stream.

For example, in some households, food scraps were recorded as part of the waste stream, fed to animals, or sent to the piggeries **Figure 5.**

[30] Data collected and recorded from interviews held with householders.

[31] Information provided suggests that all households can receive a waste collection free of charge, but householders are required to buy a 240 litre bin from NRC at a cost of AUD $110. The response no suggests that these households do not use the waste collection service, rather than do not have access to it. These households are likely to take their waste directly to the waste facility, free of charge. Note: 10 out of 74 households responded no.

Table 12: Waste management activities adopted by households that was determined from the interview

Material	Disposal Options
Waste	• Transported to waste facility • Collected
Garden organics	• Burn • Collected • Stored • Transported to waste facility
Sanitary	• Collected as part of waste collection • Transported to waste facility
Bulky items	• Transported to waste facility • Stored • Collected • Reused as other items
Food scraps	• Collected for piggeries • Collected as part of waste collection • Stored • Transported to waste facility • Feed to animals (dogs)
Hazardous waste	• Asbestos roofing – stored in a garden • Asbestos pieces – collected as part of the general waste stream

The identified management activities adopted by householders is due to the following reasons:

- Reliability of the collection service (timing of collections and staff behaviours on bin handling).
- Weekly collections are appropriate for a number of householders.
- The lack of a fixed collection schedule was noted in some interviews.
- Having to hire alternative transport to take the material to the waste facility as the collection was not available.
- A change in the collection schedule led one user to transport their waste to the waste facility.

Participants were surveyed on their willingness to pay for collection services. Outcomes from this question are presented in **Figure 4.** Many households in Nauru would prefer a free collection service.

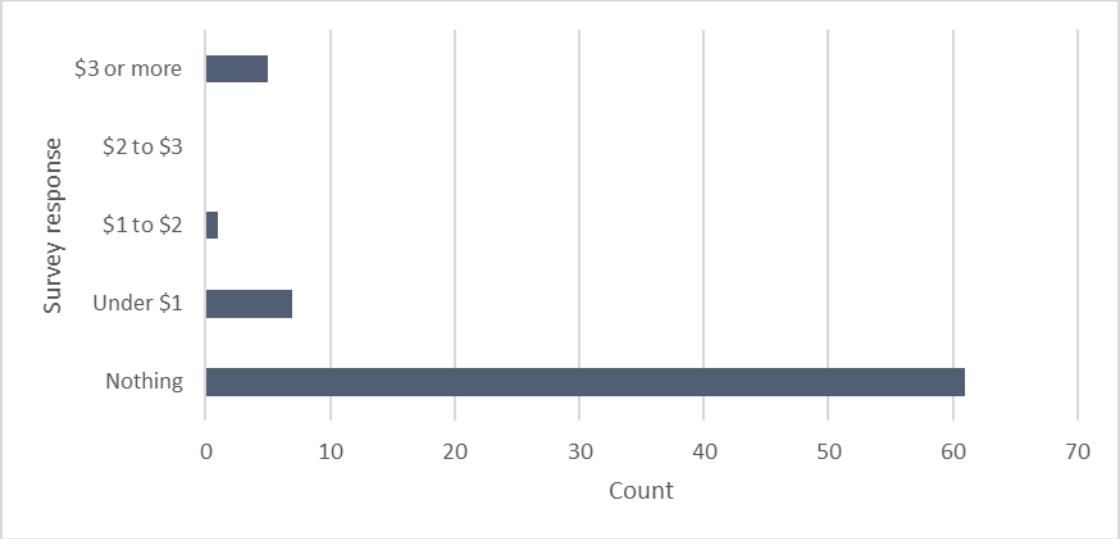


Figure 4: Willingness to pay for household collection of rubbish – survey outcomes in Nauru

Household willingness to pay for their waste collection service and the maximum fee they would be willing to pay for this service is summarised in **Table 13**.

Table 13: Willingness to pay

Willingness to pay	Percentage composition
Nothing	82%
Under $1	10%
$1 to $2	1%
$2 to $3	0%
$3 or more	7%

Household Waste Composition

During the audit, there was no evidence of households separating recyclables. The audit identified that waste was also put out for collection in other containment, such as bags and cardboard boxes. It is understood that these are also collected.

Typical roadside volumes of waste put out for collection in Nauru can be seen in **Figure 5** (note these bags were provided for the audit).

Figure 5: Typical waste collection from households in Nauru

The average composition of waste by weight from households in Nauru is shown in **Figure 6**. The graph presents the proportion of waste by category for waste from households placed for collection.

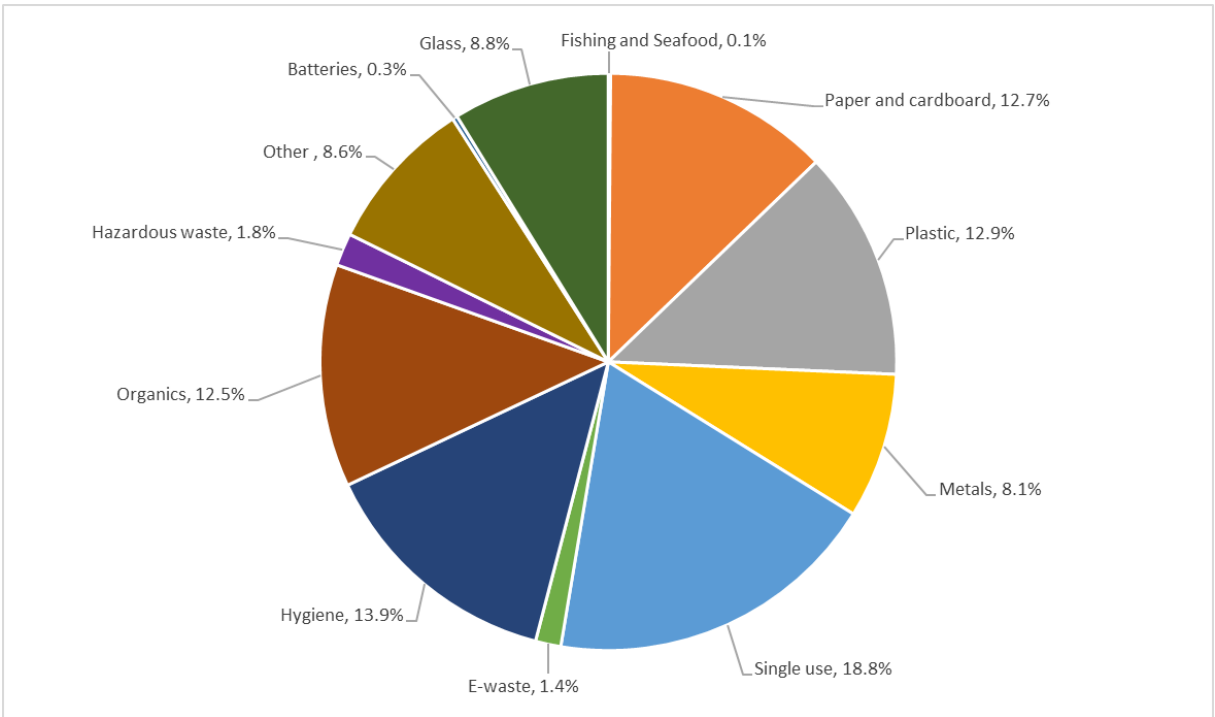


Figure 6: Nauru average household composition summary

Key audit findings by category and photos have been identified in

*Table***14**. Single-use items (19%) and hygiene products (14%) were the largest components of the waste stream, closely followed by paper and cardboard (13%) plastics (13%) and organics (garden and food organics) (12%).

Table 14: Waste material findings

Waste Material	Description	Picture
Single-use items	The category was dominated by plastic bags. And included the following items: supermarket plastic bags, plastic takeaway plates, plastic takeaway containers, straws, plastic beverage containers.	
Hygiene products	Dominated by nappies and sanitary products.	
Plastics	Dominated by drinks containers of varying sizes and food containers. • Plastic drinks containers – small (0.6 litres) and larger (1.5 litres) water bottles (PET), 0.6 litre Coca Cola bottles (PET). • Plastic containers – food (condiments), butter (PP), salt, non-food – body wash, washing liquid, laundry liquid (PET and HDPE).	

Waste Material	Description	Picture
Paper and cardboard	Dominated by boxes.	
Organic waste	Dominated by garden organics.	

Metals, glass, and other waste (dominated by textiles – mainly clothing) were recorded in similar composition by weight. With regards to glass and cans:

- Glass bottles – green, brown, and clear glass bottles: Steinlager, Bundaberg, condiments (small and large) and spirit bottles.
- Cans (both human and animal contexts) – drinks (aluminium) - Coca Cola, Sprite, Pepsi, Yeo`s, other cans), Food – small tins (coated steel) - tomatoes, corned beef – Ox and Palm, Heinz, Spam), tinned animal food (coated steel).

E-waste (laptop parts) and the hazardous waste category (cooking gas canisters) were reported in lower quantities. With batteries and fishing related items observed once or twice in the household waste stream samples.

The overall waste composition for households has been calculated by combining the data from the sort and weigh survey for Nauru. The lower and upper range have been calculated at a 95% confidence interval and is presented in **Table 15** and **Figure 7**; providing a measure of the range of estimated proportion for each material that might be expected for repeated composition surveys for households in Nauru.

Interviews with householders provided additional data used to estimate the average quantity of waste from sampled households for Nauru[32]. The estimated generation of household waste per household per day is 0.9 kg (within a range of 0.1 kg – 3.7 kg **per household per day**). Due to the low number of times fishing/seafood and batteries were identified during the survey, the margin of error in the range has not been provided. These items were recorded once or twice for all the household samples physically sorted and weighed.

[32] The data used to calculate the composition of waste collected from households in Nauru has been derived from samples collected from all household properties during the audit only. The total weight of samples collected was averaged using the count (total number of samples. This is the methodology as presented in the Waste Audit Methodology – A step-by-step manual to conduct comprehensive waste audits in SIDs produced by PRIF.

Table 15: Waste composition for households identified as part of the sort and weigh of samples collected for Nauru[33]

	Fishing/ Seafood	Paper & Cardboard	Plastics	Metal	Single Use Items	Batteries	E-waste	Glass	Hygiene	Organics	Hazardous	Other Waste
Composition	0.1%	12.7%	12.9%	8.1%	18.8%	0.3%	1.4%	8.8%	13.9%	12.5%	1.8%	8.6%
Lower range	-	9.7%	11.2%	7.1%	17.6%	-	0.0%	5.4%	5.9%	4.1%	1.2%	4.7%
Upper range	-	20.4%	18.7%	12.2%	27.0%	-	2.2%	11.3%	14.3%	13.2%	3.9%	10.1%

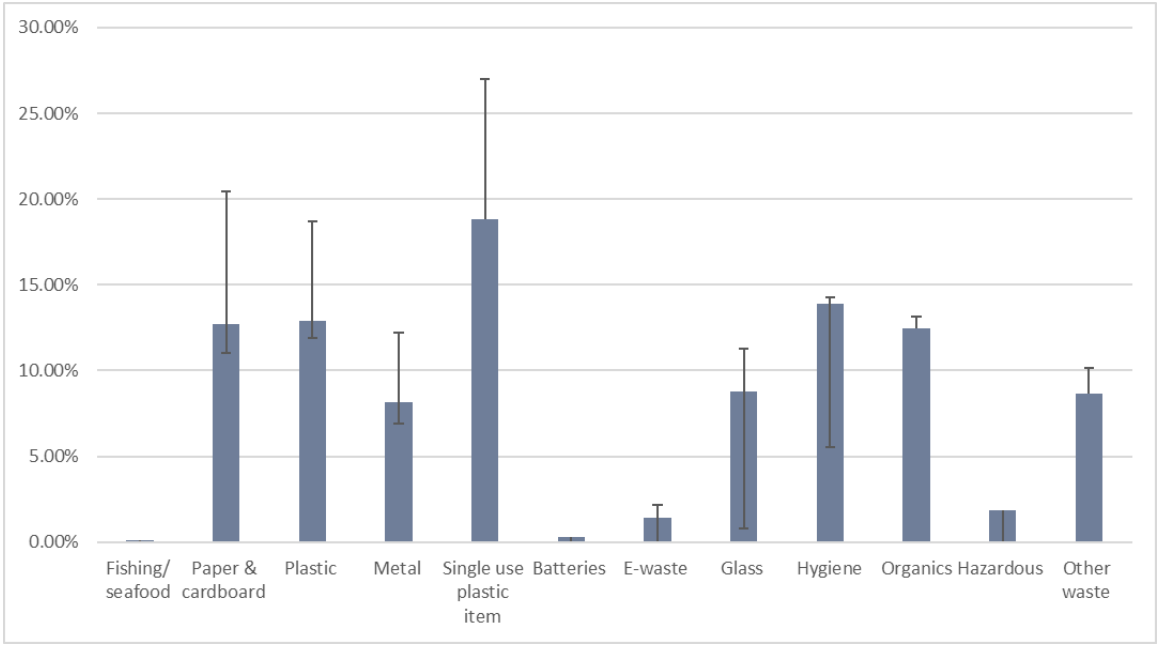


Figure 7: Waste composition for households identified as part of the sort and weigh of samples collected for Nauru

[33] Confidence interval of +15% and -15% applied during data analysis. 67/75 were within this range and have been used to derive the composition.

Potentially Recyclable Materials

A range of potentially recyclable materials was identified through the waste survey. This section provides commentary on those materials identified.

Glass, plastic, and aluminium cans were recorded as the most dominant categories of potentially recoverable materials. Cardboard boxes were also identified but were less significant. Examples of these waste stream in the following separation as part of the sort and weigh survey is seen in **Figure 8.**

Key points to note:

- Plastics are present with a high proportion of single-use items suitable for recycling if markets can be secured.
- Metals and glass are present at a relatively high proportion of the total household waste stream (both easily recycled where markets are accessible).
- A significant proportion of the items identified have the potential to be involved in a deposit or levy scheme e.g., drinks containers, other single-use items.

The interview data suggested a wide range of household usage/generation. Average figures provide a useful indication of likely quantities of materials but should be validated for example using a large sample size for household surveys and/or considering sales data.

Figure 8: Typical recyclable items identified through the sort and weigh of samples collected in Nauru (plastics, glass and cans

Detailed observations for potentially recyclable materials identified in the waste samples has been provided in Table 16.

Table 16: Observations by material

Material	Key Materials	Detail on Observations Made During the Audit
Glass	• Green, brown and white glass.	• Dominated by white glass. • White glass – beer bottles (Corona), spirit bottles (1-litre bottles). • Green - beer bottles (Heineken). • Brown glass – Bundaberg.
Metals	• Aluminium drink cans • Food tin cans (some are coated with steel) • Foil trays	• The data provided is a sample of households from across Nauru. • Household interviews reported an average of 5 drinks can per person, per household, per week. • The range varied between 0 to 40 cans per week between samples collected. Using the average from the household interview data collected, across Nauru, this equates to 59,101 cans per week for the population. • Over one year this is estimated to be around 3,073,256 drinks cans[34] which are being disposed of per year. This is considered at the upper end of the number of drinks cans likely to be produced per week[35].
Plastics	• Mainly comprised of clear plastic water bottles (PET). Small (0.6 litre) and larger (1.5 litre) water bottles (PET), 0.6 litre Coca Cola bottles (PET). • Plastic containers – food (condiments), butter (PP), salt, non-food – body wash, washing liquid, laundry liquid (PET and HDPE).	• Household interviews reported an average of 8 plastic water bottles per person per household per week with a range of 0 to 50 bottles per person, per week. • Using the average from the household interview data collected, across Nauru this equates to 100,698 per week for the whole population. • Over one year this is estimated to be around 5,236,280 plastic bottles disposed of per year. This is likely to be at the upper end of the number of water bottles produced per week.
Paper/cardboard	• Cardboard boxes	• Cardboard boxes • Egg cartons, cereal boxes, milk cartons, tissue boxes and food packaging boxes.
Hazardous waste	• Gas canisters	• Gas canisters used for cooking.

[34] Note the number of drinks cans and plastic bottles are based on the data collected from the audit data only and is based on a population of 12,700.

[35] If this data is to be used to inform potential recyclables for capture, it will be important to validate these numbers with further survey work specifically capturing a larger sample of households.

Commercial Audit Findings

The total number of commercials audited by type is shown in **Table 17**, this provides the count of the number of commercials that were audited during the waste audit. Where there is a difference between the number of sort and weigh surveys completed and the interviews completed this indicates that the sort and weigh data has been excluded from the analysis through the quality assurance process.

Table 17: Commercial waste sample numbers

Commercial Type	Sorted and Weighed	Interviewed
Education/training	1	1
General convenience store	10	11
Retail/clothing	0	1
Retail/unspecified	0	2
Post Office	1	1
Supermarket	1	1
Total	**13**	**17**

Access to waste collection services

All commercials are required to arrange a private collection service or transport the waste they produce to the waste facility themselves. **Table 18** summarises feedback on the collection service including a waste collection rating.

Table 18: Summary of access to collection services[36]

Summary	
Total interviewed	17
% of commercials who access a collection service	29%
% of commercials who do not access the collection service	71%
Average collection service rating	9.6 (out of 10)
Commentary to the collection service rating	• Waste collection is not available for all commercials. • Collections are not always reliable. Seeking a free waste collection to be provided. • The majority of waste is boxes, cardboard and plastic food wrapping. • Transporting of waste from smaller retail facilities to the main stores for disposal from there. • Use skips due to the volume of waste produced.

[36] Data collected and recorded in survey 123 app, from interviews held with commercials

It is common practice for more than one management option to be selected by commercials for the same waste stream. Options undertaken by commercials identified through the audit are identified in **Table 19**.

Table 19: Options for waste management adopted by commercials

Material	Disposal Options
Waste	• Transport to waste facility • Collected
Garden organics	• Transport to waste facility • Collected • N/A suggesting that garden organics form part of the waste stream or is not produced.
Sanitary	• Transport to waste facility
Bulky items	• Transported to waste facility • Store • Collected
Food scraps	• Collected • Transported to waste facility • Stored • Used as animal feed for piggeries, this is sometimes collected by farmers from commercials directly. • Food organics received from the regional processing centre, community collections and private commercials are taken to a designated area at the waste facility. From here it can be collected free of charge. • Some commercials have reported that they take waste to other locations e.g., from smaller food stores to the larger supermarket before the waste is taken to the waste facility.

Participants were surveyed on their willingness to pay for collection services. Outcomes of the survey are presented in **Figure 9.**

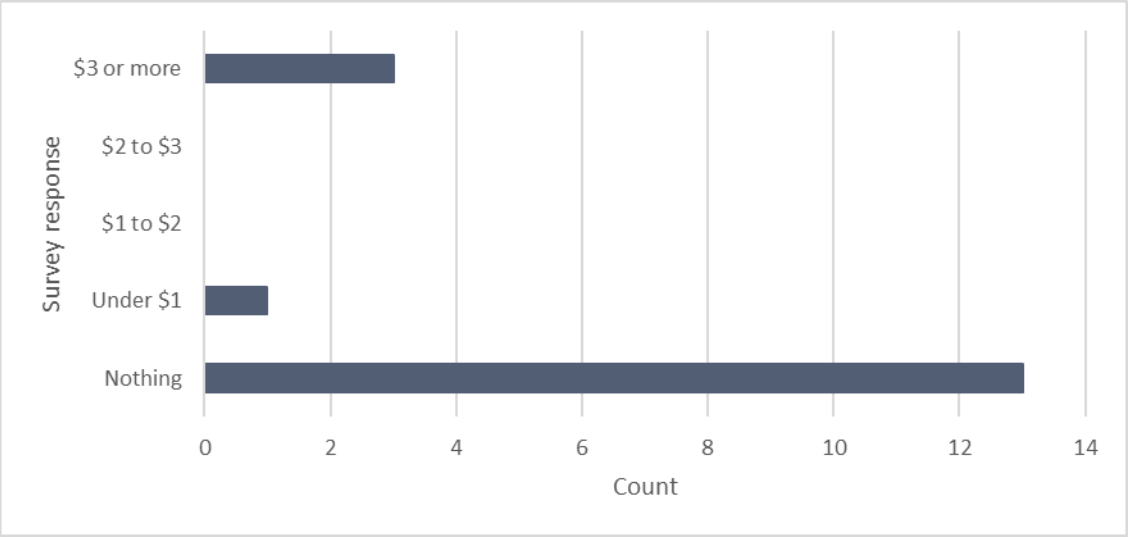


Figure 9: Willingness to pay for commercial collection of waste – survey outcomes in Nauru

In terms of potential for charging, a breakdown of responses has been provided in **Table 20**.

Table 20: Willingness to pay - commercials

Willingness to pay	Percentage of Respondents
Nothing	76%
Under $1	6%
$1 to $2	0%
$2 to $3	0%
$3 or more	18%

Commentary and observations made through these interviews included:

- We don`t use bags, but boxes instead. We pay a fee to dispose of rubbish. We don`t dispose of a lot of metals cans, plastic bottles, and glass bottles. Most of our wastes are cardboard and plastic wrappings from food items.
- No longer receive a waste collection. Sometimes people dispose of cans and bottles around the area (Aiwo town).
- Waste is collected and transported to the main supermarket; they dispose of all the waste from retails shops. We produce lots of coffee containers and straws. Sometimes people take these for recycling. We produce a lot of cardboard each week, which often neighbours take for reuse.
- Produce one bag of waste per month. No waste currently. Cardboard disposed of occasionally.
- The rubbish collection should be free.
- We use a skip bin which is collected once per week.
- I must use my car to drop off waste at the waste facility as my waste is not collected.

Commercial Waste Composition

The composition of waste collected, sorted, and weighed from each of the commercial types for Nauru is shown in **Figure 10** and **Figure** Error! No text of specified style in document.**1111.**

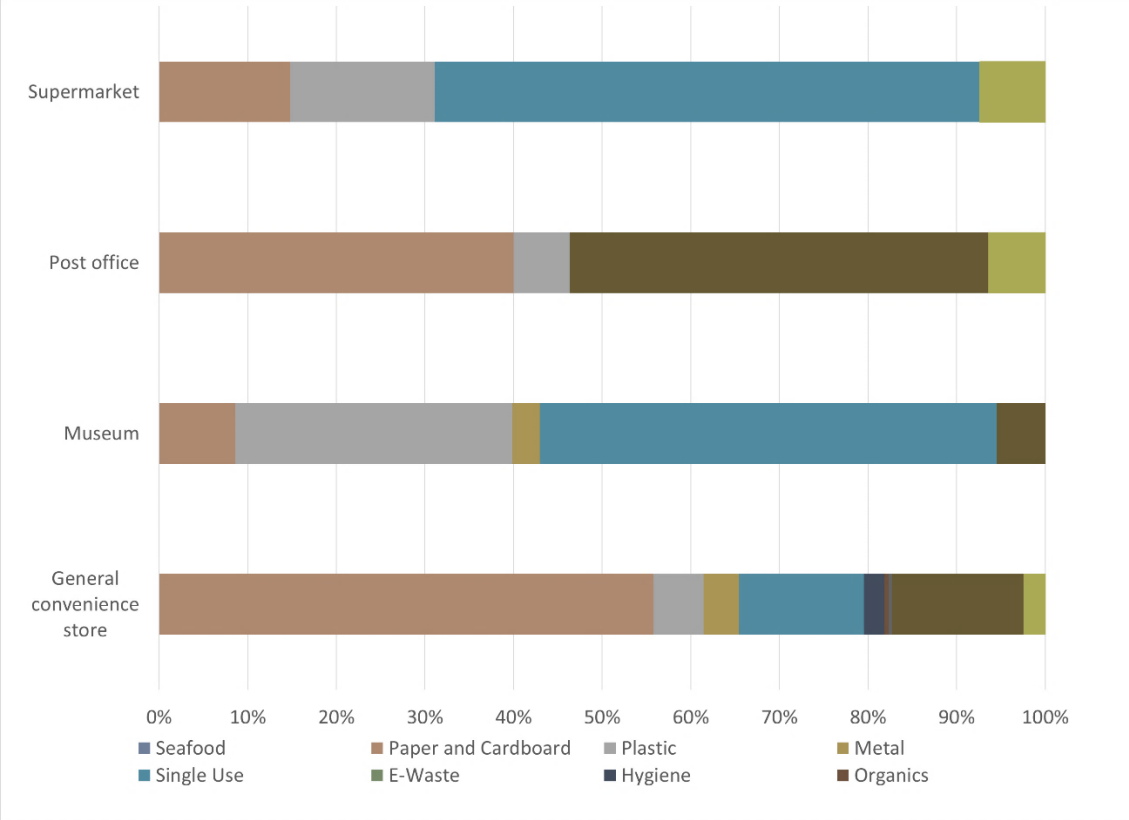


Figure 10: Composition of waste from commercials in Nauru

The combined data (for 13 commercial premises) provides an indicator of commercial waste composition overall. The data collected during the audit suggests that the dominant waste categories across the commercial types surveyed were single-use items, paper and cardboard and others. Single-use items which included plastic takeaway plates, straws, plastic drinks containers, supermarket bags, polystyrene plates, takeaway cardboard containers, dominated the supermarket (61%) and museum (52%) samples surveyed.

Other dominant waste streams include paper and cardboard (cardboard boxes) for the general convenience stores (60%) and the Post office (40%). Another waste was the largest proportion of the sample taken from the Post Office (47%). Plastics which included drinks bottles were recorded in significant quantities in the Museum (31%) and Supermarket (16%) samples.

The supermarket fills $3m^3$ skips, these can be seen in **Figure 11** (top left-hand photo). The sample data provided for the supermarket was a sub-sample of the skip contents put out for collection (one bag).

A visual assessment of the skip contents identified high volumes of cardboard packaging in the form of boxes. plastic packaging (mixed plastics - LDPE), plastic bottles (PET) of varying sizes, polystyrene in the form of single-use plates and cooling containers (likely to have kept food cold for transportation) were also recorded during the visual assessment.

The skip also contains waste bags likely to contain mixed waste. Pictures taken during the collection of the waste samples from commercials has been provided in **Figure 11**. It was not always appropriate for the team to remove bulky items from commercials. These included cardboard boxes left outside convenience stores, empty used oil containers (unknown if full) outside the restaurant surveyed.

Figure** Error! No text of specified style in document.**11: Examples of the supermarket waste put out for collection (from left to right top then bottom photos (Supermarket, Post Office, clothes store, general convenience store and waste left behind from restaurant)

The overall waste composition for commercials is presented in **Table 21** and **Figure 12**. The lower and upper range have been calculated at a 95% confidence interval. This provides a measure of the range of estimated proportion for each material that might be expected for repeated composition surveys for commercial premises in Nauru.

As part of the commercial waste stream, containers recorded from the audit were typically:

- Plastic drinks containers – small (water bottles) (PET) and juice containers (HDPE).
- Plastic containers – mainly single-use items for example plastic and polystyrene plates (PS), plastic takeaway food containers (PET, PP) and plastic takeaway cups (PET or PP).
- Glass bottles – clear glass bottles.
- Metals (coated steel - human mainly) – drinks (aluminium - Pepsi, Coco-Cola and other cans).

Samples taken from commercials were sorted and weighed into categories which have provided the data to estimate the composition of waste from sampled commercials in Nauru.

Due to the low number of times fishing/seafood, batteries and e-waste were identified during the survey, the margin of error in the range has not been provided. These items were recorded once or twice for all the household samples physically sorted and weighed.

Table 21: Waste composition for commercials identified as part of the sort and weigh of samples collected for Nauru[37]

	Fishing/Seafood	Paper & Cardboard	Plastic	Metal	Single Use Items	Batteries	E-waste	Glass	Hygiene	Organics	Hazardous	Other Waste
Composition	0.0%	48.5%	8.3%	3.4%	19.4%	0.0%	0.0%	2.9%	1.8%	0.4%	0.3%	15.0%
Lower	-	27.5%	4.2%	0.4%	10.3%	-	-	0.2%	0.0%	0.0%	0.0%	0.0%
Upper range	-	65.5%	13.6%	4.2%	36.3%	-	-	7.4%	8.67%	3.5%	2.4%	22.1%

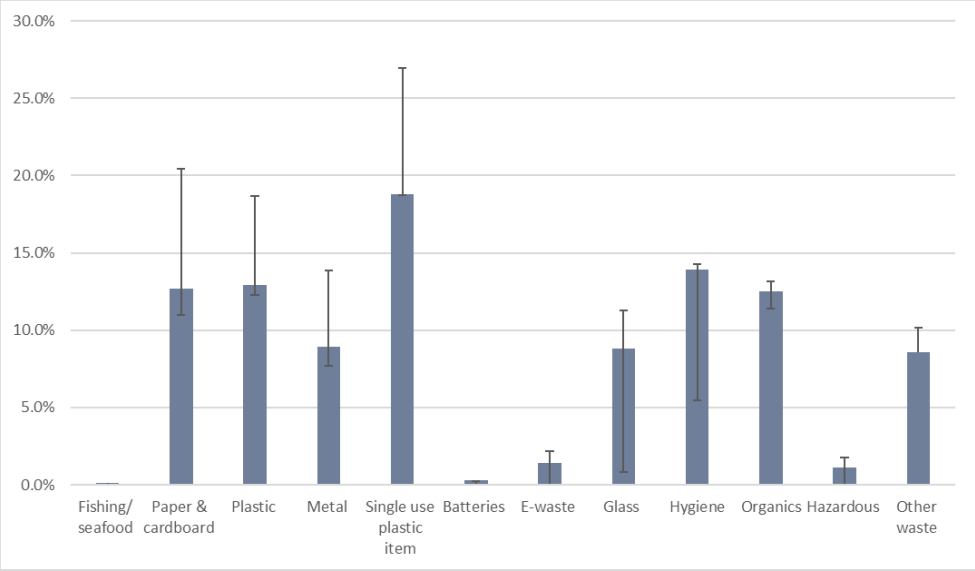


Figure 12: Waste composition for commercials identified as part of the sort and weigh of samples collected for Nauru

[37] Confidence interval of +15% and -15% applied during data analysis.

Landfill Audit

Data provided by NRC[38] for the waste facility has been combined with the data from the sort and weigh of waste samples (likely composition) and landfill audit data (visual assessments) captured during the audit. See **Figure 13**) (**Table 22** and **Figure 14**).

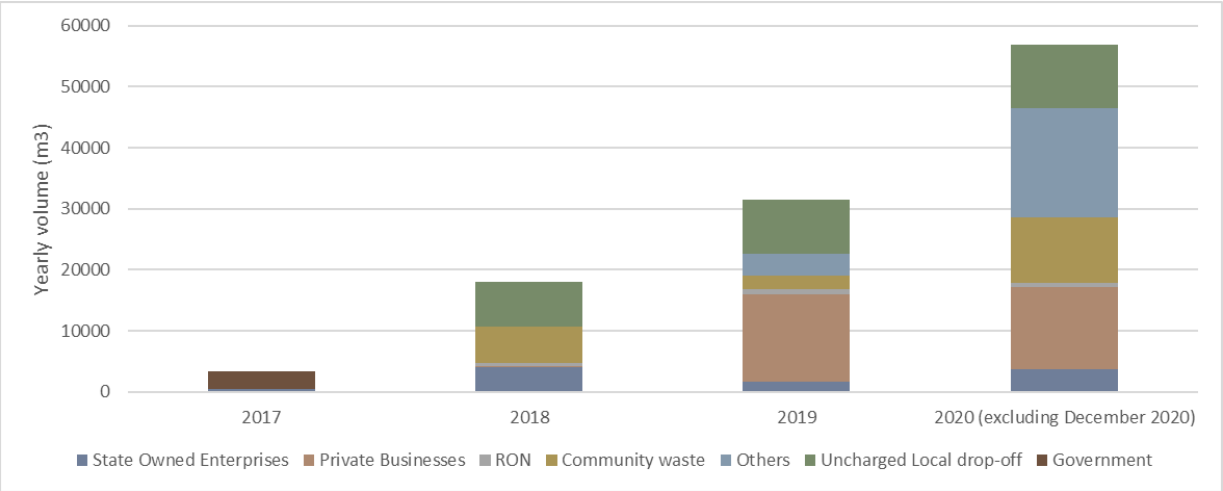


Figure 13: Yearly volume of waste accepted into the waste facility over the past 4 years[39] by waste source

Comparison from the Annual report for the waste facility highlighted an increase in the waste volume disposed of, at the facility from 2017 onwards. **Figure 13** shows an increase in the volume of waste each year from 2017 to 2020. While the portion of waste from private commercials was similar in 2019 and 2020, general waste collected through the community collection service and Others (undefined sources) increased by over 3,000m^3 between 2018 and 2020. The volume of waste from uncharged local drop-offs (brought in by individuals) introduced in 2018 recorded an increase of over 3,100m^3.

The increase in the volume of waste to the waste facility has been attributed to the following activities[12]:

- Demolition at the port and old houses located nearby began in 2017.
- Land clearance associated with the Nauru Community Housing Scheme, particularly over the last year.
- Waste produced by the regional processing centre.

The composition of waste at the waste facility was determined by undertaking the following:

- Community collections and uncharged local drop off – composition for Nauru household data collected during the audit.

  State-owned enterprises, private commercials, RON, and Other – composition for Nauru commercials based on visual assessments identified through the landfill audits[40]. Density composition is provided in **Appendix C**.

[38] Nauru Rehabilitation Corporation (2020) Services Department Annual Report from 2017 - 2020

[39] There was no data for uncharged local drop off in 2019, it is likely that this was not recorded as the is a record for 2018. We have included average volume of waste received through uncharged local drop off from the 2018 and 2020 data. This can be shown in green in the 2019 column.

[40] Conversion of visual estimates to a weight based composition was undertaken using waste density conversion.

Table 22: Estimated composition of waste by weight of solid waste into the waste facility for 2020

Materials	Composition	Tonnage for 2020[41]
Fishing and seafood	0.04%	6
Paper and cardboard	30.29%	4,756
Plastic	4.53%	711
Metals	4.40%	692
Single use items	5.76%	905
E-waste	4.41%	693
Hygiene	5.59%	878
Organics	17.30%	2,716
Hazardous waste	3.45%	542
Other	20.09%	3,155
Batteries	0.07%	12
Glass	4.06%	637
Total	**100.0%**	**15,702**

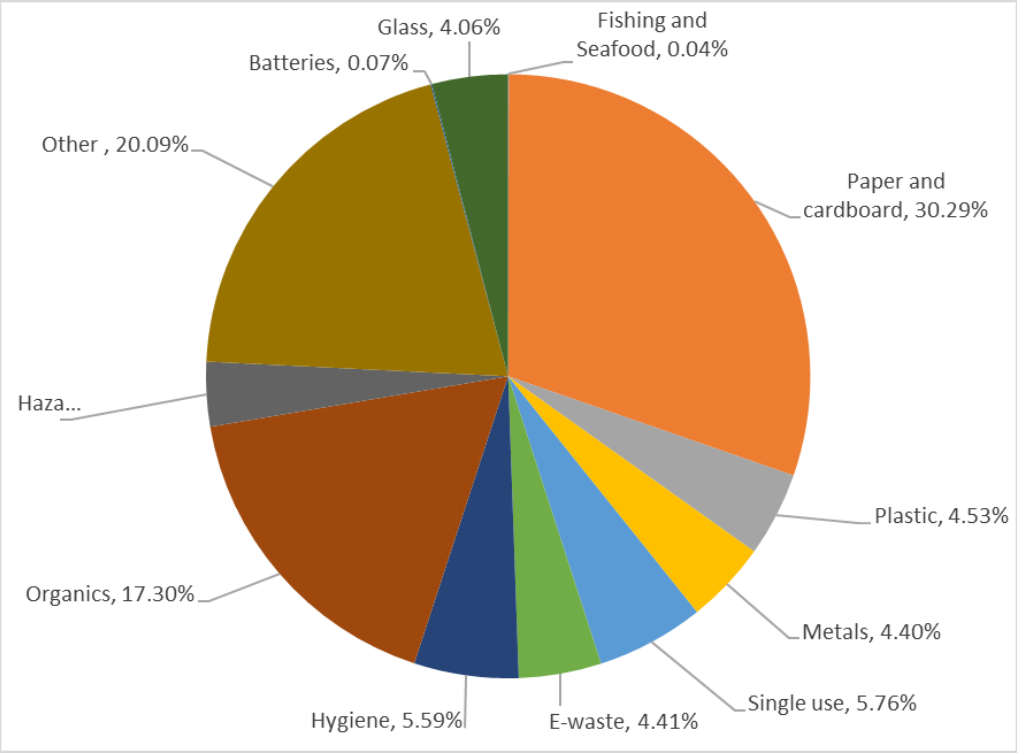


Figure 14: Percentage waste composition for the waste facility

The composition derived from the data collected during the audit and provided by NRC provides an indicative estimation of the likely composition of waste accepted at the waste facility, classified as the general waste stream. This excludes the volumes of materials that have been identified in the stockpiles.

[41] Total volume conversion into tonnage using uncompacted general waste – 200kg/m^3

Pictures from the audit indicate that a large volume of plastics, paper and cardboard are generated by households and sent to the waste facility. This is representative of the samples collected which include a large volume of plastics and paper and cardboard categories.

Due to their nature, plastics, paper, and cardboard (when dry) are lighter for a given volume than hygiene and organic waste (garden and food organics). Other materials that are relatively dense (higher weight for a given volume) include metals, batteries, and glass.

Assessment of Operational Costs

The current costs for operation and contracts associated with the waste facility have not been made available for this audit.

Total revenue can be estimated based on the 2017 - 2020 Annual Report provided by NRC which included the total volume of waste received by the waste facility in 2020[42] and the charging scheme noted in Section 2.4.5.

Approximately 57,283m^3 of waste was deposited into the waste facility in 2020. The total charges received (based on the standard charges) for this waste is AUS $748,194. The average cost per cubic metre is AUS $13.1 per cubic metre.

Stockpiles

The audit team consulted with NRC and used local knowledge to identify known stockpile locations. Stockpiles in Nauru are generally located.

- Within the boundaries (along the perimeter fence) or proximity of the waste facility.
- Government Warehouse.
- Within the grounds of the regional processing centre.
- Private commercial sites.

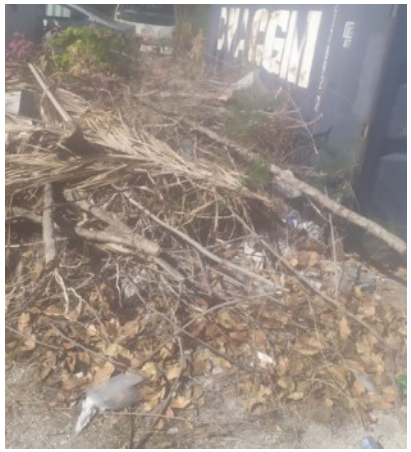
A summary of the types and estimated quantities of materials found in stockpiles across Nauru has been provided in **Table 23**. Assumptions associated with identifying the weight in tonnes of the stockpiles identified have been provided in **Appendix B**.

[42] Note: the report includes data for 2020 to the end of November. We have extrapolated the data for December, dividing the total volume for the year by the 11 months we do have data for. This average has been used to estimate the volume of waste received at the waste facility in December 2020.

Table 23: Type and estimated quantity of materials found in stockpiles in Nauru

	Weight (Tonne)	Count (Units)	Location	Further Details	Photos Captured During the Audit
Buses	38.3	8	Waste Facility	Cars, 4x4 vehicles, structural metals, disused equipment are being stockpiled along the waste facility's perimeter fence and within the regional processing centre-ground, however, there is no plan in place to recycle this waste. Abandoned bulky wastes and other forms of litter can also be observed in numerous locations throughout the island.	
Cars[43]	108.0	72	Waste Facility, Government Warehouse and within the regional processing centre grounds		
Vans	6.0	3	Waste Facility and Government Warehouse		
Other metals	3.3	40	Waste Facility		
Shipping containers	6.9	3	Waste Facility		

[43] Stockpiled cars have also been identified within the regional processing centre grounds, however this area was no accessible during the audit and the quantity of this stockpile are not included in the table.

	Weight (Tonne)	Count (Units)	Location	Further Details	Photos Captured During the Audit
E-waste	1.7	171	Government Warehouse		
Cardboard (m^3)	0.7	1	Government Warehouse		None available
	n/a	n/a	Waste Facility	Unknown quantities of incoming waste as these are not recorded separately.	
Garden organics [44]	0.2	n/a	Waste Facility and on the ground outside Government Warehouse	NRC does not quantify the volume of garden organics that are brought into the waste facility as a separated stream and then mulched onsite.	

[44] Excludes garden organics located in the designated area of the waste facility

	Weight (Tonne)	Count (Units)	Location	Further Details	Photos Captured During the Audit
Food organics	Not recorded		Waste Facility	NRC does not quantify the volume of food organics delivered to the waste facility as a separate stream or collected.	None available
Whiteware	Not recorded		Stockpiled alongside the site entry of the waste facility.	Often picked over by appliance repairers (sourced from previous reports and unable to substantiate during the audit).	None available
Tyres	1.6	200	Waste Facility	Tyres are both dropped off and collected by people who take them to reuse. Very few tyres are disposed of daily. Otherwise, no current market identified.	

	Weight (Tonne)	Count (Units)	Location	Further Details	Photos Captured During the Audit
Hazardous (asbestos sheets and full 20-foot containers)	0.2[45]	1 (container – not full)	Government Warehouse	Storage here ceased in 2016.	None available
	67.5[46]	5 (shipping containers)	Waste Facility	Storage here ceased in 2016.	None available
	225.0[46]	15 (shipping containers)	Regional processing centre grounds (volumes provided by NRC).	There are 15 containers full of asbestos at the regional processing centre) with an unknown quantity stored on the ground.	 

[45] Asbestos sheeting – 20 foot shipping container at 33m^3 per container, 9.2kg/m^3.

[46] 15 tonne per full container located at waste facility and regional processing centre. Weights based on the Survey of the Regional Distribution and Status of Asbestos Contaminated Construction Material and Best Practice Options for its Management in Pacific Island Countries (2015), section 10.4.2.

	Weight (Tonne)	Count (Units)	Location	Further Details	Photos Captured During the Audit
Waste oils	62,596 litres stored in a B4 tank.		RONPHOS property	An ongoing project plans to use the waste oil for the operations of two kilns that have the previous run-on waste oil.	None available
	Unknown – commercially sensitive information		RONPHOS (Phosphate Corporation) site	Nauru Utilities Corporation pays RONPHOS (Phosphate Corporation) to take their waste oil. The quantity of waste oil is unknown47	None available
	44-gallon drums (approximately 160 litres)		Eigigu Transport Corporation`s working sites[48].	No further details provided.	None available
Laboratory chemical waste	250 litres stored in 20-litre plastic containers[49]		RONPHOS (Phosphate Corporation) site	No further details provided.	None available

[47] Information provided by NRC
[48] Information provided by the Manager of Operations for Waste facility
[49] Information provided by RONPHOS

Customs Data

An assessment of the customs data for imported and exported goods has been undertaken for 2019 data and presented in **Table 24** and **Table 25**. The HS codes identified as high and medium importance have been defined in **Appendix E**.

The data provided was in the form of unit quantities (kg, number of units, area by square metre and litres). This data has been converted into tonnages for this report. Whiteware was the only imported item that was also exported from Nauru.

There was no export of any single-use items reported for 2019. The audit data provided some information around the potential quantities of plastic bottles generated.

Table 24: Breakdown of customs data for key import data for 2019[50]

Item	HS code	Item Description	Tonnage (Import Total Weight Including Contents)	Quantity[51]	Unit
End of life vehicles[52]	8429	Bulldozer, graders	300	30	Number
	8702	Vehicles public transport	26	4	Number
	8703	Cars	3,831	2,554	Number
	8704	Vehicles for transport of goods	4	2	Number
	8705	Special purpose	8	4	Number
	8712	Bicycles	0.1	10	Number
	8716	Trailers and semi-trailers	17	22	Number
	8903	Boats	1	1	Number
Glass[53]	2204, 2206, 2007, 2103, 2005, 2001, 2002, 2008	Glass bottles and jars	134	n/a	n/a
Paper/ cardboard	4803, 4820, 4821	Paper	14[51]		
Plastics[51]	3920, 1905	Flexibles/Film packaging	47		
	1517	HDPE containers	7		
	3920	LDPE containers	0		
	3917, 3918, 3920,	PVC containers	7		
	3923	plastic bags	5		
E-waste	8507, 8517	Batteries, phones,	9[54]		
	8516, 8422, 8421, 8450, 8418, 7321, 8415	White goods[52] (washing machines, fridges, stoves, AC units)	70	804	Number
Rubber[55]	4011, 4012, 4013	Tyres	8	n/a	n/a
Paint[53]	3208, 3209	Paint	3		

Export data for Nauru has been provided in **Table 25**.

[50] Customs data received from Nauru Statistics based on mirror data for customs import and export data from Australia. Data presented for those materials identified as high and medium priority – see Appendix E for further details
[51] Quantity provided by Statistics Nauru.
[52] Assumptions as per Appendix C
[53] Provided in litres
[54] Provided in number of items. Mobile phones – 200g/unit. Computer equipment - photocopier weight (19kg/unit)
[55] Weight and number provided. Assumptions for tyre weight – 8kg/tyre also defined in Appendix C.

Table 25: Breakdown of customs data for key export data for 2019

Export Item	HS code	Item Description	Quantity (Tonnes)	Unit	Tonnage (Import Total Weight Including Contents)
White goods	8418	White goods[52] Refrigerators, freezers and other refrigerating or freezing equipment, electric or other; heat pumps other than air conditioning machines of heading	66	Number	70

Appendix A Waste Sort Categories

Table B1: Primary categories

Category 1	Examples
Metal	Aluminium cans, Aluminium recyclable, Steel containers, White goods, End of life vehicles, Metal other
Paper and cardboard	Cardboard, liner paperboard (LPB - cardboard container lined with plastic or aluminium), composite, paper
Plastic	PET containers, HDPE containers, LDPE containers, PVC containers, PP, EPS, PS, Flexibles/film, Other plastic
Batteries	Non-rechargeable, Rechargeable, Lead-acid batteries, Mobile phone, Power tool batteries, Lithium Batteries, Lithium-ion batteries, Other batteries
E-waste	TVs, Mobile phones, Electrical Items & Toner Cartridges
Glass	Glass bottles, Glass jars, Glass fines, Glass other
Hygiene	Feminine Hygiene, Pharmaceutical, Medical waste, Nappies, Other sanitary waste
Organics	Food organics, Wood/timber, Garden organics, Other organics
Hazardous	Paint, Fluorescent tubes, Household chemicals, Asbestos, Clinical (medical), Gas bottles, Mercury, Containerised used oil, Hazardous (other)
Other	Textiles, EOL renewable energy equipment, Tyres, Rubble/concrete incl Ceramics

Table B2: Specific materials type categories

Category 1	Examples
Fishing/Seafood	Metal, Plastic, wood
Single-use items	Beverage containers, Cigarette butts, Cigarette packets, Straws, Coffee cups, Bags - heavy glossy typically branded carry bags, - supermarket type lightweight carry bags, Takeaway containers - plastic, other EPS/Styrofoam, paper Bottle lids

Appendix B: Assumptions for Stockpile Assessment Quantities

Item	Quantity	Unit
Bus	6500	kg
Boat	500	kg
Cars	1500	kg
Van	2000	kg
Asbestos roofing	9.2	kg
Other metal	63	kg/m3
E-waste	38	kg/m3
Garden organics	150	kg/m3
Batteries	5	kg
Tyres	8	kg
Printer	27.4	kg
Computer	6	kg
Laptop	1.2	kg
Screen	3.4	kg
ups	1	kg
Camera switch	1	kg
Minibus	4100	kg
Cabinets	40	kg
Ladders	13.6	kg
Cardboard	670	kg/m3
Shipping container - 20kg foot assumed	2300	
Large metal drums	200	kg
Small metal drums	75	kg
Gas cylinder	1000	kg
Camera switch	1	kg

Appendix C: Density Assumptions

Density assumptions applied to visual assessment compositions		
Category	**Conversion (kg/m3)**	**Source**
Metal	63	https://www.branz.co.nz/sustainable-building/reducing-building-waste/assessing-waste/volume-weight/
Fishing and Seafood	63	https://www.branz.co.nz/sustainable-building/reducing-building-waste/assessing-waste/volume-weight/
Paper and Cardboard	38	https://www.branz.co.nz/sustainable-building/reducing-building-waste/assessing-waste/volume-weight/
Plastic	13	www.resourcesmart.vic.gov.au/documents/Volume_to_Weight_Calculator.xls
Single-Use Items	13	www.resourcesmart.vic.gov.au/documents/Volume_to_Weight_Calculator.xls
E-waste	240	www.resourcesmart.vic.gov.au/documents/Volume_to_Weight_Calculator.xls
Glass	174	www.resourcesmart.vic.gov.au/documents/Volume_to_Weight_Calculator.xls
Hygiene	225	https://www.branz.co.nz/sustainable-building/reducing-building-waste/assessing-waste/volume-weight/
Organics	225	https://www.branz.co.nz/sustainable-building/reducing-building-waste/assessing-waste/volume-weight/
Hazardous	225	https://www.branz.co.nz/sustainable-building/reducing-building-waste/assessing-waste/volume-weight/
Other	225	https://www.branz.co.nz/sustainable-building/reducing-building-waste/assessing-waste/volume-weight/

Appendix D: HS Codes

Category	Priority	HS Codes
Aluminium packaging	M	7611,7612,7613
Asbestos	M	2524,6811.40,6812
Bottle lids	M	3923.50
Ceramics	H	6901,6902,6903,6904,6905,6906,6907,6908,6909,6910,6911,6912,6913
Cigarette Packets	H	2402,4813
Composite	H	4807
Computer equipment	M	8471,8443,8528.42,8528.52,8528.62,
Construction	M	9406,2523,6810
Containerised Used Oil	H	2709,2710.91,2710.99,3811
cosmetics	M	3304,3305,3401
Drink Containers Alcoholic	H	2203,2204,2205,2206,2207,2208
Drink Containers Milk and Vinegar	H	0401,2209
Drink Containers Soft Drink	H	2202
Drink Containers Water	H	2201
Electrical items and peripherals	M	8525,8526,8527,8528,8508,8509,8510,8513,9504,8523,4417,8471,8518, 8543,8544,9001,9405
End of Life Vehicles	H	8427,8428,8429,8430,8701,8702,8703,8704,8705,8706,8707,8708,8709, 8710,8711,8712,8714,8715,8716
End of life vehicles air	H	88
EOL Vehicles Ocean	H	8407.21,8409,8901,8902,8903,8904,8905,8906,8907,8908,9506
EPS containers	H	0402,0404,3903.11
Feminine hygiene	M	9619.00.10,9619.00.20
Flexibles/Film	H	3919,3920
Flexibles/Film packaging	H	1905
Fluorescent tubes	M	8539.31
Footwear	M	64
Fuel	M	2710.12,2710.19,2710.20,2711.12,2711.13
Gas bottles	M	7311,7613
Glass fines	M	7002,7018
Glass jars	M	7010,2007,2103,2005,7013,2001,2001.10,2001.90,2002,2003,2008

Category	Priority	HS Codes
Glass other	M	7001,7003,7004,7005,7006,7007,7008,7009,7011,712,7013,7014,7015,7016,7017,7019,7020,9001,9002,9617
HDPE containers	H	0403.90,0404,1517,3901.20,3915.10,3901.20,3923.21.25
Household chemicals	M	3402,3404,3405
LDPE containers	H	3901.10,3904.10,3904.21,3904.22,3916.10,3920.10
Lead-acid batteries	H	8507.10
Lithium-ion batteries	H	8507.60
LPB	H	4804.42,4804.52,4811,3912.12
Medical waste	M	3002,3003,3004,3005,3006.70,8419.20,3822,9021
Metal not Al, Fe	H	74,75,78,79,80,81
Metal other	M	8309,2710.12.6,2710.19.6
Misc. machinery	M	8474
Mobile phones	M	8517.12
Mobile phones	H	8517
Nappies	H	9619.00.30,9619.00.40
Non-rechargeable batteries	M	8506
Other plastic	M	3915.90,3926,3307,9404.21,9404.29,9612,3905,3906,3907,3908,3909,0910,3918.90,3917.31,3917.32,3917.33,3917.39,3917.40,3916.90,3921.13,3921.14,3921.19,3921.90,3922,3923.29,3923.30,3923.40,3923.50,3923.90,3925.20,3925.30,3925.90,3926
Other sanitary waste	M	4818
Paint	M	3207,3208,3209,3210,3212,3213
Paper	M	4707,4801,4802,4803,4804,4805,4806,4808,4809,4810,4812,4814,4815,4816,4817,4820,4821,4822,4823,49
PET containers	H	3917.21,3907.60,3920.62
Pharmaceutical	M	3006
Plastic Kitchenware	H	3924
Plastic Water Tanks	H	3925.10.90
PP containers	H	3902.10,3917.22,3920.20
PS containers	H	3903.19,3903.20,3903.30,3903.90,3915.20,3920.30,3921.11
Pumps and filters	M	8413,8421.21
PVC containers	H	3917.23,3904,3918.10,3915.30,3920.43,3920.49,3916.20,3920.43,3920.49
Rechargeable Batteries NiMH NiCD	M	8507.30,8507.40,8507.50
Plastic Bags	H	3923.21, 6305

Category	Priority	HS Codes
Rubber (not tyres)	M	4001,4002,4003,4004,4005,4006,4007,4008,4009,4010,4014,4015,4016, 4017
Scrap aluminium	H	76
Scrap iron	H	72,73
Steel containers	M	7310,7311,1602.10.50,2008.99.18,1902.30,3208,3209,3210,3211
Textiles	M	50,51,52,53,54,55,56,57,58,59,60,61,62,63
Toner cartridges	M	8443.99
Toys	M	9503,9504
TVs	M	8528.7
Tyres	H	4011,4012,4013
White goods	H	8516,8422.11,8421.12,8450,8418,7321,8415
Wood/timber	M	44,9401.50,9401.60,9403.30,9403.40,9403.50


EUROPEAN UNION


SPREP
Secretariat of the Pacific Regional
Environment Programme


PacWastePlus
PACIFIC WASTE MANAGEMENT