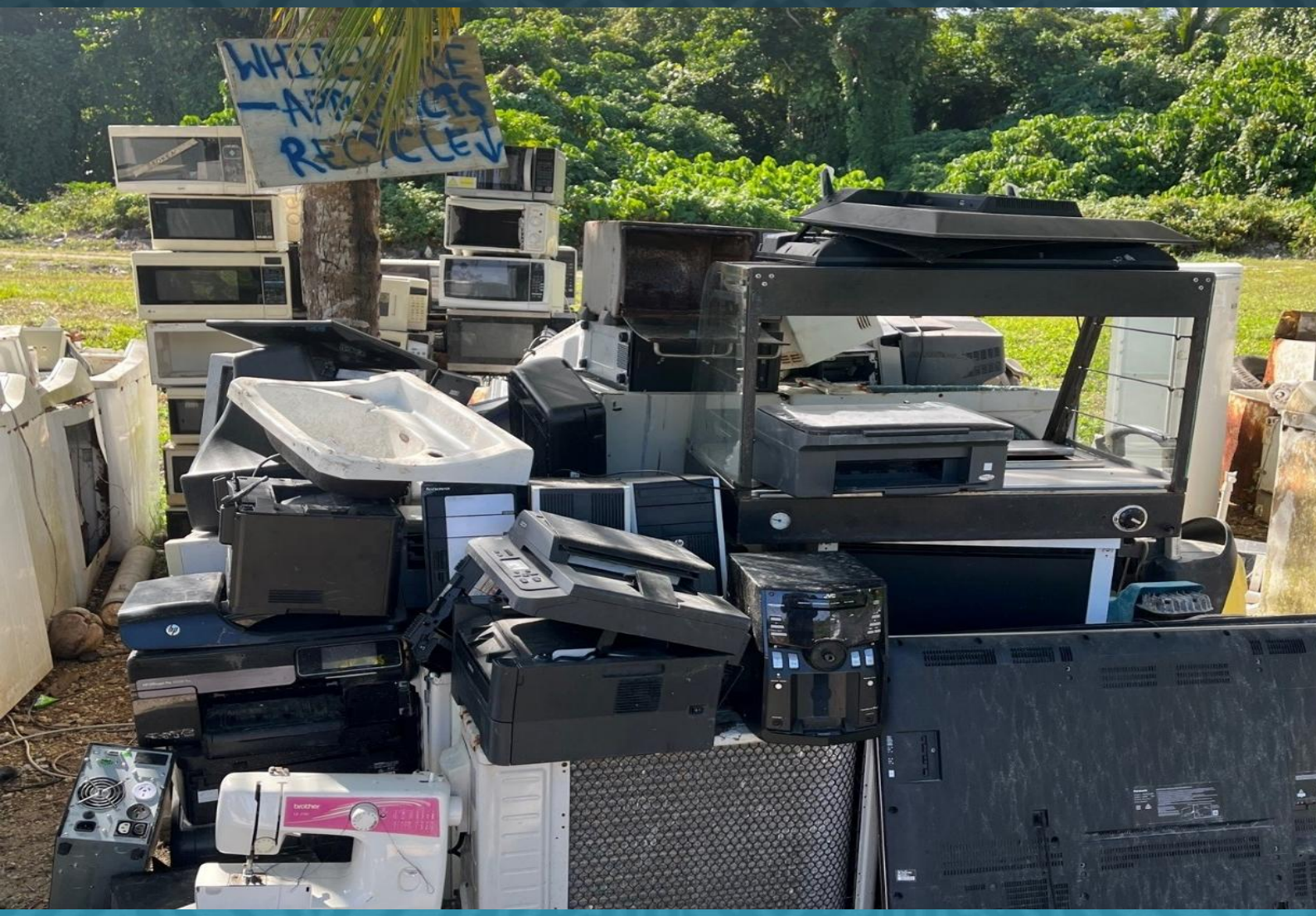
This initiative is supported by **PacWastePlus**-a 85 month project funded by the European Union (**EU**) and implemented by the Secretariat of the Pacific Regional Environment Programme (**SPREP**) **to sustainably and cost effectively improve regional management of waste and pollution.**

Niue
International E-Waste Export Case Study



June 2025

Issue to Be Addressed

Electrical and electronic waste (e-waste) contains a diverse range of complex components including valuable and potentially hazardous materials. There are limited options and service providers available for environmentally sound e-waste management in Niue (or other countries in the Pacific) at present, and stockpiles have built up over time.

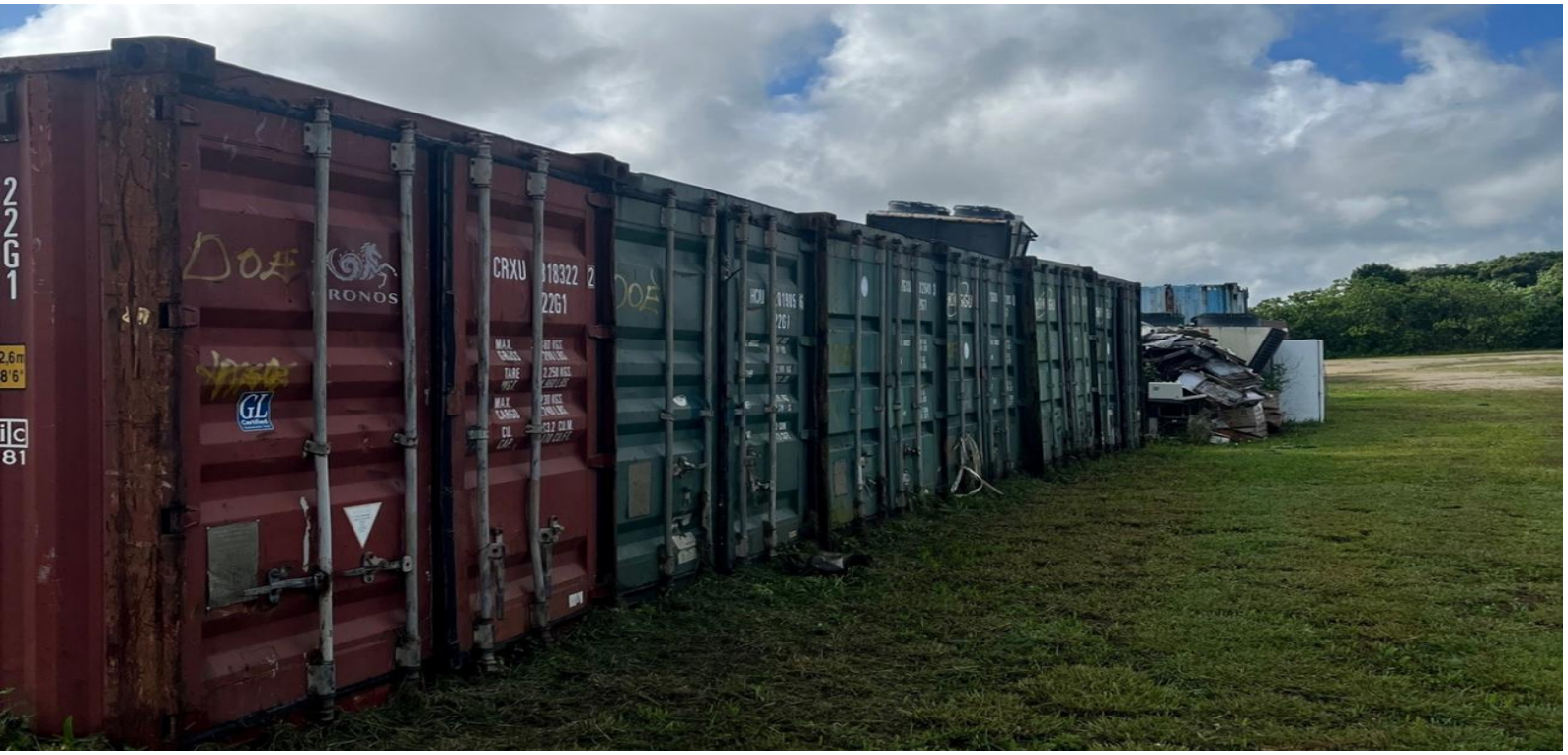
This document provides a roadmap of actionable steps Niue Department of Environment (Niue DOE) officers took to coordinate the export of shipments, as well as the roles and responsibilities of the export partners.

This case study outlines all relevant requirements and other considerations for arranging export shipments of mixed e-waste from Niue to New Zealand for environmentally sound management with e-waste recycling specialists in conformance with and adherence to relevant international treaties and commitments.

Project Design & Planning

The project involved the removal of asbestos containing materials from five shipping containers stored at the Nauru Landfill.

Key Information	
Location	Niue Recycling and Recovery Centre (NRRC), Niue
Project	Exporting shipments of mixed e-waste from Niue to New Zealand for environmentally sound management
Volume	Three (3) 20ft shipping containers, total of 8,648 kg of mixed e-waste
Transporter	Matson South Pacific
Cost of Transport	$6, 060.00 USD

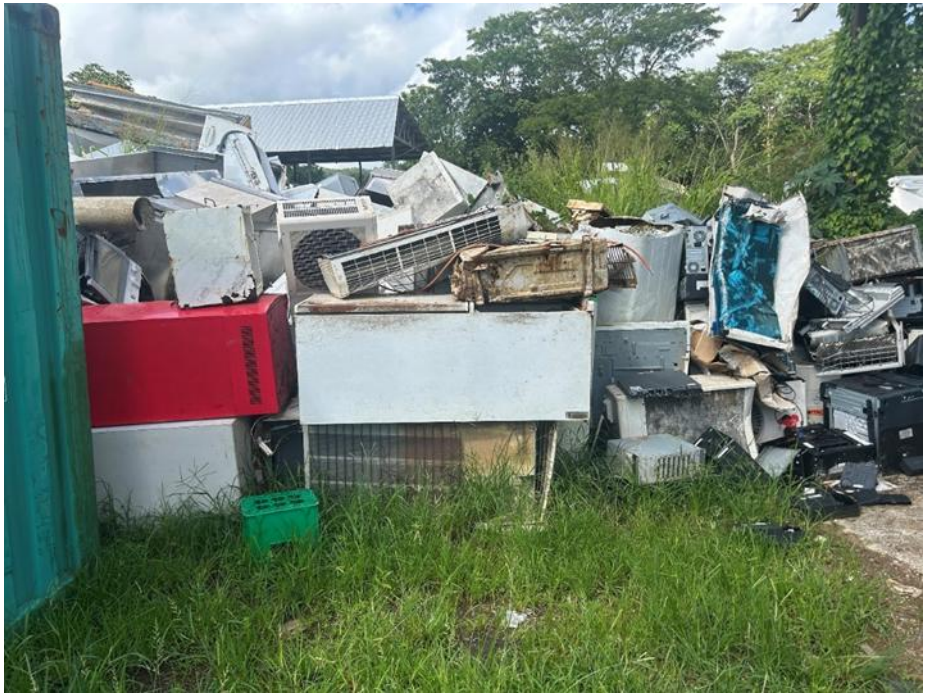


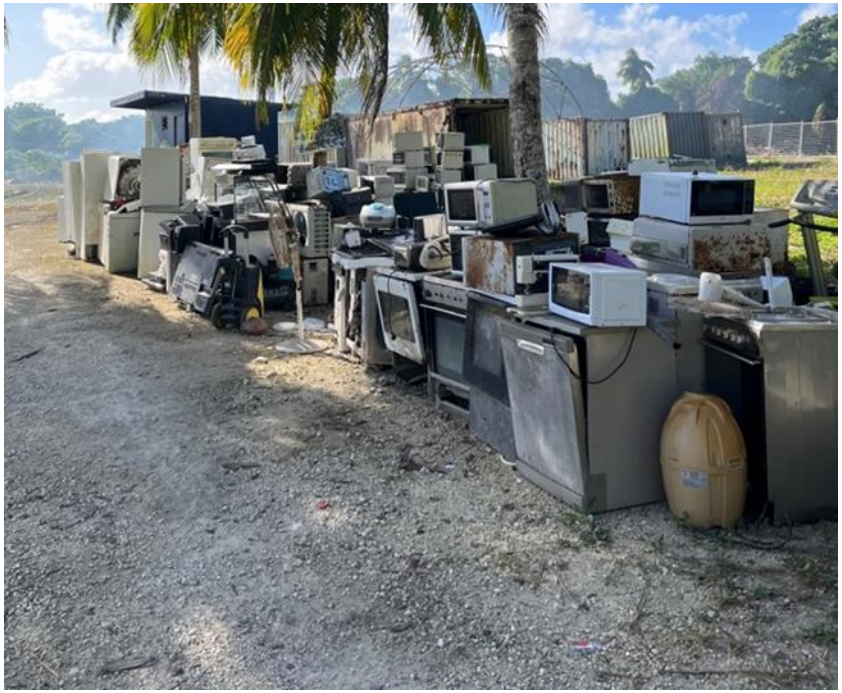
Export Partner Roles & Responsibilities

Exporting shipments of mixed e-waste from Niue to New Zealand for environmentally sound management requires the involvement of different partners who have specific roles and responsibilities throughout the process.

Export partner	Role(s)	Responsibilities
Niue DOE	• Exporter / shipper • E-waste owner • Competent authority (origin)	• E-waste consolidation and preparation for export • Export bookings and dangerous goods declarations • Local container cartage (origin) • Export / Import Multi-Party Agreement drafting lead • Export permit applications prior informed consents with transit-nations • Commercial invoice • Container cleaning and quarantine certificates • Alternate treatment and/or return to Niue (if applicable)
Matson South Pacific	• Shipping line	• Shipment bookings • Dangerous goods declaration assessment • Container hire release • Shipping documentation
E-waste Recycling Specialist	• E-waste recycler	• Support hazardous waste import permit application • Transitional Facility Accreditation with NEW ZEALAND's MPI • Environmentally sound e-waste recycling • E-waste recycling reporting and documentation
Freight Forwarder / Customs Broker	• International export logistics • Customs clearance	• Export / import documentation • Customs clearance • Destination cartage • Biosecurity Authority / Clearance Certificate with MPI
Environmental Protection Authority (EPA) NEW ZEALAND	• Border controls	• Assess hazardous waste import permit applications • Issue permit and provide documentation

Export partner	Role(s)	Responsibilities
Transit-nation Competent Authorities	• Prior informed consent procedures (PICs)	• Prior informed consent (PIC) request review and approval
Insurance Broker / Provider	• Insurance policy cover	• Provide quotes and policy wording documents for required insurance cover • Issue Service Industries Environmental Liability and Marine Cargo insurance policy cover • Produce a letter of support on company letterhead confirming cover is appropriate for nature of shipment
Import Party	• Importer of record / consignee • Hazardous waste import permit party • Apply for a NEW ZEALAND customs client code via Customs broker (if relevant)	• Take out insurance policy cover • Hazardous waste import permit applications • Local container cartage (including de-hire) at destination • Coordinate customs clearance with Freight Forwarder and Customs Broker





E-Waste Preparation for Export

Niue DOE, as the exporting party / shipper of record, and owns the e-waste to be sent for environmentally sound management in New Zealand, is responsible to ensure the materials to be shipped are appropriately processed, contained, and loaded into containers as the first stage of waste shipment that is compliant with both the Basel and Waigani Conventions.

Mixed e-waste was prepared for shipment following the following best practices:

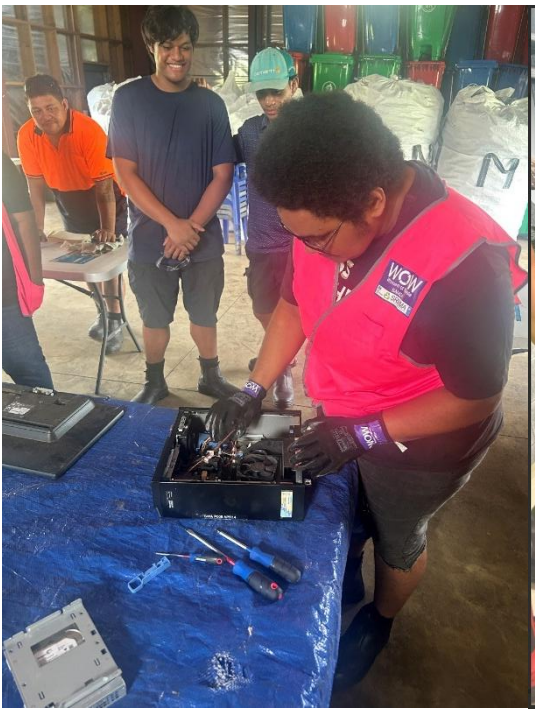
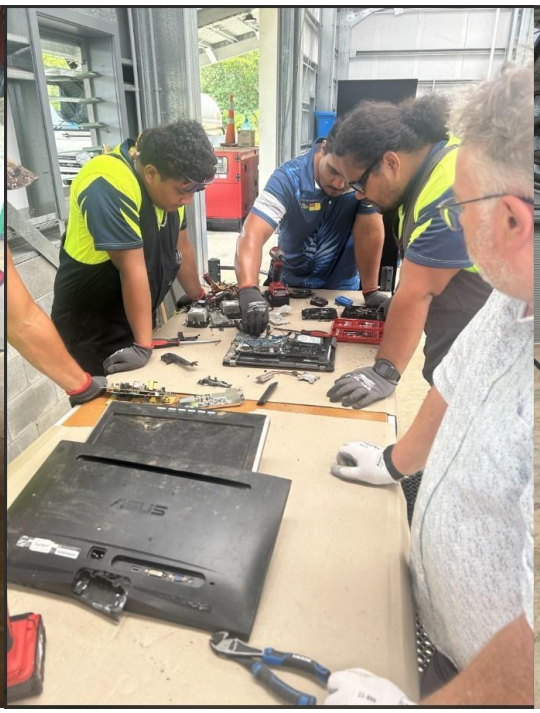
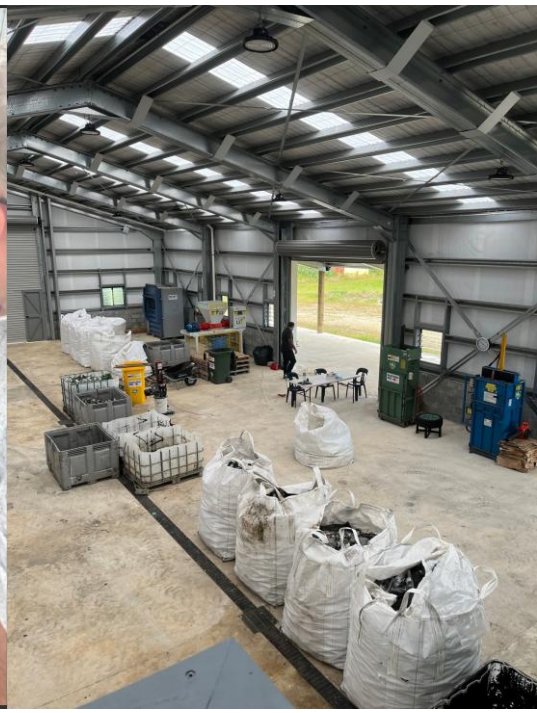
Category 1: **Temperature Exchange Equipment** Fridges, Freezers, air conditioning units	**Special management requirements & considerations** The majority of temperature exchange equipment contain a temperature exchange fluid / gas (i.e., refrigerant) such as hydrochlorofluorocarbons (HCFCs). The compression / decompression cycle between liquid and gas is used to exchange energy to create heating or cooling via this material. These are harmful gases that deplete the planet's ozone layer and are a potent greenhouse gas if released. The common refrigerant used in temperature exchange equipment is R410A and has a global warming potential of 2088 – this means 1kg of R410A has the equivalent global warming impact as 2088kg of CO2. ***Refrigerants need to be extracted by a suitably trained and certified degassing technician using specialist equipment before these items can be broken down for recycling.*** ***Oils and coolants are also toxic to us and the environment and need to be extracted before physical e-waste dismantling.***
Category 2: **Screens and Monitors** Screens and Monitors with a surface area greater than 100cm^2	**Special management requirements & considerations** Screens and monitors typically make up a large proportion of e-waste by weight. On average, televisions get replaced every 5-7 years, often due to an upgrade rather than failure. Cathode-ray tube (CRT) screens are becoming less common for e-waste recyclers as their manufacture ceased around 2010 and most CRT screens have already been phased out. ***Pre-processing activities for screens and monitors ahead of specialist treatment are primarily focused on removing cords and cables with wire cutters to avoid and reduce the chance of trips or falls. Screens and monitors are then consolidated with other e-waste items to be wrapped and strapped on a pallet and loaded into a shipping container for export procedures.*** ***Care must be taken when handling these items as back strains from lifting heavy items and cuts from broken glass are among the most common injuries for e-waste recyclers***

Category 3: **Lamps and Lighting Equipment.** Light bulbs and tubes: straight fluorescent lamps, Compact fluorescent lamps, fluorescent lamps, High intensity discharge lamps - including pressure sodium lamps and metal halide lamps, Low pressure sodium lamps, LEDs	**Special management requirements & considerations** Fluorescent lighting equipment contains mercury – a toxic heavy metal that can cause severe damage to a human's nervous system and vital organs. LED light bulbs contain lead and arsenic, and other lighting equipment physical hazards e.g., broken glass, vapour dust etc. Specialist e-waste recyclers can safely handle and manage lamps and lighting equipment, and the potentially harmful substances they contain. These recyclers have specialised equipment designed to safely treat hazardous substances like mercury. ***Pre-treatment steps centre around safe consolidation for intermodal transport; ensuring that any hazardous substances can be contained throughout these management stages.***
Category 4: **Large Equipment** White goods, cookers, electric stoves, electric hot plates, luminaires, equipment reproducing sound or images, musical equipment, appliances for knitting and weaving, large computer mainframes, large printing machines, copying equipment, large coin slot machines, large medical devices, large monitoring and control instruments, large appliances which automatically deliver products and money, and solar panels.	**Special management requirements & considerations** Category 4 e-products like dryers and washing machines typically contain high amounts of ferrous metals (i.e., metals that contain iron) and are mostly recycled by metals recyclers who use large industrial shredders to physically destroy, breakdown, recover, and recirculate these valuable resources. While metals are recovered, such processes generate around 30% waste 'flock' which can contain dangerous substances. Manual removal of hazardous materials or shredding and then sorting of the outputs can achieve much higher recycling rates. White goods can also have chrome-plated surfaces, printed circuit boards with heavy metals, and brominated flame-retardant plastics that can cause serious harm to humans if ingested. ***Pre-processing activities for large equipment ahead of metal recycling activities focus on removing cords and cables to avoid trips or falls and this level of pre-processing reduces the risk of exposure to the potentially harmful substances contained within different types of large equipment.*** ***Due to the size and weight of these items, appropriate manual handling procedures must be followed.***

Category 5: **Small Equipment** examples include (but are not limited to) vacuum cleaners, carpet sweepers, appliances for sewing, luminaires, microwaves, ventilation equipment, irons, toasters, electric knives, electric kettles, clocks and watches, electric shavers, scales, appliances for hair and body care, calculators, radio sets, video cameras, video recorders, hifi equipment, musical instruments, equipment reproducing sound or images, electrical and electronic toys, sports equipment, computers for biking, diving, running, rowing, etc., smoke detectors, heating regulators, thermostats, small Electrical and electronic tools, small medical devices, small Monitoring and control instruments, small Appliances which automatically deliver products, and small equipment with integrated photovoltaic panels	**Special management requirements & considerations** Management activities and pre-processing steps for small equipment will vary depending on the e-product type and its condition, including checking for physical or biological hazards. Many small devices have embedded batteries which need to be removed and insulated if extractable and can have a high proportion of plastic and other materials such as textiles. Some small equipment can also contain radioactive substances such as ionisation smoke alarms or detectors. While the amount of radioactive material in a single ionisation smoke detector is very small – Americium-241 (Am-241) – recovering and consolidating ionisation smoke detectors in large quantities increases the risk of negative human health impacts. From environmental and public health perspectives, the risk from disposing ionisation smoke detectors to landfill with general household waste is negligible. ***Common preprocessing activities for small equipment include removing cords or cables and extracting batteries for safe storage, consolidation, and transport.***
Category 6: **Information and Communication Technology (ICT) Equipment** Computers, printers, and mobile phones, GPS devices, routers, personal computers, and computer peripheral products	**Special management requirements & considerations** ICT equipment can contain valuable resources, like gold and silver found in printed circuit boards. Repair and reuse (and then resale) is often viable due to the value of the item and can be a core revenue stream for an e-waste recycling facility. ICT equipment may contain hazardous materials (heavy metals and cadmium). ***Pre-processing requires the use of tools to breakdown and dismantle ICT equipment ahead of international shipment – to either reduce downstream recycling expenses, or present clean material streams that have value and can supplement overall recycling costs.*** ***Batteries are to be removed, noting some printed circuit boards may also have button cell lithium batteries that need to be removed.***
Category 7: **Batteries**	*Noted Batteries were unable to be shipped from Niue and not managed in this project.*

All dismantling and pre-processing activities were undertaken utilising appropriate PPE, and simple tools and equipment such as power drills, screwdrivers, pliers, and cutters.

Once the shipment requirements and estimated volume of e-waste to be exported was confirmed, the detailed planning and approval process could begin.

E-Waste Shipment Processes

Export Bookings and Dangerous Goods Declaration

To place an export booking with the shipping line (i.e., Matson), Niue DOE referred to the '*Latest New Zealand to Pacific Islands schedule*' published on Matson's website and contacted the operations team to seek a quote and place a booking via email.

In Niue only 20' containers can be used for e-waste export shipments due to local cartage limitations. For shipping e-waste, 20' General Purpose containers are preferred over High Cube containers as consolidated pallet loads of e-waste are only double stacked and High Cube containers can attract more expensive hire rates than General Purpose containers.

At the time of placing the export booking with Maston, Niue DOE specified the estimated volume and contents of mixed e-waste and confirmed that no used batteries (i.e., single use or rechargeable), medical devices, monitoring and control instruments, or radioactive substances (i.e., such as those present in ionisation smoke detectors), were included.

Once the booking was provisionally accepted by Matson, Niue DOE made a Dangerous Goods declaration to confirm the shipment contents.

Niue DOE sought a quote* from Matson** at the time of requesting a booking to confirm related services and expenses. Based off recent shipments of e-waste from Niue to NZ (i.e., shipped in June 2025), the total expense per 20' container is approximately NZD $3,750 ex GST, as per the following breakdown:

- Ocean-freight = NZD $2,614 ex GST
- Bunker Adjustment Factor (BAF) = 6.06% of Ocean-freight
- Documents = NZD $60 ex GST
- Security = NZD $18 ex GST
- NZ Port State Control (NZ PSC) = NZD $139.50 ex GST
- Emergency Bunker Adjustment Factor = NZD $300 ex GST
- Hazardous surcharge = NZD $480 ex GST

**Matson quotes do not include:*
Local charges at origin
NZ Customs and NZMPI clearances
Transport in Auckland.

***Matson quotes are valid for 30 days and bookings are subject to space, equipment, and Matson's standard terms and conditions.*

Prior Informed Consent

As Niue DOE was both the shipper and the Niue Competent Authority under the Basel and Waigani Conventions, they were responsible for formally seeking approval from their counterparts in Countries where the shipment was to transit, and finally received. Convention paperwork was drafted and provided to the Competent Authorities in both Tonga and New Zealand seeking their consent for the shipment movement.

Local Container Cartage (Origin)

As part of the shipment booking, Matson released containers to Niue DOE who then organised the container uplift and delivery to the site where e-waste consolidation was occurring (i.e. Niue Resource Recovery Centre).

Container cleaning and quarantine certificates

Once each container was securely loaded, the shipping booking confirmed, prior informed consent approvals were obtained, and the hazardous waste importation permit was issued by EPA NZ; Niue DOE coordinated uplift of the loaded containers and delivery to the Niue Quarantine Service for container cleaning and fumigation, and to obtain a Certificate of Treatment for Used Vehicles, Agricultural Equipment and Similar Goods.

Multi-Party E-waste Export/Import Agreement

The Environmental Protection Authority of New Zealand (EPA NZ) provides guidance to importers of hazardous waste, which outlines the requirements for the permit application and the supply of required evidence, of which is a multi-party e-waste export/import agreement – essentially a contract between the exporter and the disposal/recovery facility receiving the waste.

The multi-party e-waste export/import agreement must:

- be signed by the permit applicant or an authorised representative and the disposal/recovery facility.
- specify the role of each party in the contract.
- specify the quantity or estimated quantity of the waste.
- specify who owns and takes responsibility for the waste, and when/to whom ownership and responsibility is transferred.
- describe the waste, and the method of its disposal or recovery.
- specify that the waste will be disposed of, or managed by, the disposal/recovery facility in an environmentally sound manner, and in accordance with all relevant rules and legislation.
- specify that the exporter will take responsibility for the alternative treatment or return of the waste if it cannot
- be disposed of, or managed, in accordance with the terms of the contract.
- clearly set out the rights and obligations of each party.

Import Permit Application

Niue DOE supported the shipping agent (e-waste company) to complete the necessary Import Permit Application for EPA NZ's assessment. Elements of the application included a copy of the multi-party e-waste export/import agreement, and confirmation of the Prior Informed Consent from all transit countries (In this case Tonga) and receival country (Ministry for the Environment New Zealand).

Customs Brokerage and Commercial Invoice

A commercial invoice is required for importing goods into New Zealand as it serves as a customs declaration, providing essential details for assessing import duties, taxes, and other charges. Although e-waste being sent from Niue for environmentally sound recycling does not have a positive value, a commercial invoice is required for the contents of the shipment and must be provided to the nominated customs broker for customs purposes, as above.

In the unlikely event that the e-waste shipments cannot be disposed of, or managed in NZ, Niue DOE as the exporter is required to take responsibility for the alternate treatment and/or return of the e-waste to Niue. These arrangements must be clearly specified in the E-waste Export/Import Agreement template.

International Obligations

Basel Convention

The Basel Convention focusses on the Control of Transboundary Movements of Hazardous Wastes and their Disposal. This convention works to ensure that hazardous, and other wastes are managed and disposed of in an environmentally sound manner. Note that although Niue is not a signatory nation to the Basel Convention, New Zealand is, and all e-waste being exported from Niue to New Zealand are subject to corresponding requirements.

Relevance to international shipments of e-waste from Niue to New Zealand

- The Basel Convention requires prior approval of hazardous waste imports and exports to and from NEW ZEALAND and requires exporting countries to ensure that hazardous waste will be managed 'in an environmentally sound manner'.
- The Basel Convention emphasises the principle of 'generator responsibility' for disposal of wastes and requires parties to minimise the environmental effects of the movement and disposal of hazardous waste.
- The Imports and Exports (Restrictions) Prohibition Order (No 2) 2004, requires permits from EPA NEW ZEALAND to import or export waste in line with these agreements.
- From 1 January 2025, all e-waste, its components, and wastes from the processing of e-waste (e.g., fractions from shredding) will be assumed as hazardous and subject to PIC procedures.

Waigani Convention

The Waigani Convention focuses on controlling the transboundary movement of hazardous and radioactive waste in the South-Pacific region.

Relevance to international shipments of e-waste from Niue to New Zealand

- E-waste is considered hazardous waste due to its toxic components, such as heavy metals and persistent organic pollutants (POPs).
- The Waigani Convention specifically prevents the dumping of hazardous waste, including e-waste, from developed countries into Pacific Island nations.
- The Waigani Convention promotes the development of local e-waste recycling and disposal capacities, reducing the environmental and health risks associated with improper e-waste management in vulnerable regions.

Insurance Policy Cover & Protection

The Import Party must work with an insurance broker to provide coverage appropriate for the type and amount of hazardous waste being shipped. For international shipments of mixed e-waste from Niue to New Zealand, minimum insurance required is Marine Cargo Insurance and Service Industries Environmental Liability insurance.

Marine Cargo Insurance

Marine cargo insurance covers loss or damage to goods while they are being transported, protecting the cargo owner against:

- financial losses due to various risks during transit; and
- potential costs for the export of e-waste from New Zealand to Niue in the unlikely event that the cargo is rejected in New Zealand.

In the unlikely event that a fire is caused by an e-waste shipment which damages other cargo onboard, the insurance policy would cover and protect against loss or damage to all cargo.

The minimum Marine Cargo insurance policy cover amount for international shipments of mixed e-waste from Niue to New Zealand is NZ$250,000. In the event of a claim, standard excess rates should apply; however, this needs to be confirmed with the nominated insurance broker by the party taking out the insurance policy.

A Marine Cargo Insurance policy was taken out with Rothbury Insurance Brokers for the shipment of e-waste from Niue to New Zealand (i.e., shipped in June 2025) at a cost of NZ$836.33 including GST. The policy excess amount (i.e., for making any claims against the policy) was NZ$250.

Service Industries Environmental Liability Insurance

Service Industries Environmental Liability insurance is a specialised type of insurance which protects businesses from the financial consequences of environmental damage caused by business operations and includes cover for remediation costs, bodily injury, property damage, transportation pollution liability, and legal defence expenses.

The minimum Service Industries Environmental Liability insurance policy coverage for international shipments of mixed e-waste from Niue to New Zealand is NZ$1,000,000. In the event of a claim, standard excess rates should apply; however, this needs to be confirmed with the nominated insurance broker by the party taking out the insurance policy.

A Service Industries Environmental Liability Insurance policy was taken out with Rothbury Insurance Brokers for the shipment of e-waste from Niue to New Zealand (i.e., shipped in June 2025) at a cost of NZ$6,670 including GST. The policy excess amount (i.e., for making any claims against the policy) was NZ$5,000.

Challenges, Lessons Learned and Delay's

Key challenges encountered and lessons learned

Challenges	Description	Mitigation & Lessons learned
Lack of shipping container availability in Niue	A lack of shipping container availability caused delays in shipment. Without containers to be loaded, materials could not be prepared for shipment.	To avoid potential shipping container unavailability, contact the shipping line and let them know of your shipment requirements as early as possible.
Import Party's hazardous waste import permit validity	Ensure the Import Party's hazardous waste import permit is valid for at least three months post the intended shipping	Ensure the Import Party's hazardous waste import permit valid for months beyond the intended shipment date avoids delayed shipments being rejected and turned away for alternate treatment and/or return of the e-waste.
Significant delays for obtaining essential permits –EPA NEW ZEALAND & MPI (if required / applicable)	It took several months for New Zealand government agencies, i.e., EPA New Zealand and MPI, to assess and issue hazardous waste import permits and Transitional Facility accreditation.	If a hazardous waste import permit or Transitional Facility accreditation to manage e-waste in New Zealand is not already in place, coordination of permit applications with the importing party and relevant New Zealand government agencies should commence approximately six months ahead of the intended shipment timeframe. If not already in place, allow plenty of time for the importing party to obtain a hazardous waste import permit from EPA New Zealand and place bookings with the shipping line around the timeframe that the permit is expected to be granted. In the event Transitional Facility accreditation is not obtained by the E-waste Recycling Specialist in time for the shipment arrival, work with specialist providers quickly to meet relevant biosecurity requirements as soon as possible.
Shipment delays due to congestion and/or lack of space availability	There is a heavy reliance on Matson as the only shipping line able to service Port Alofi (Niue) and this led to delays placing e-waste export shipment bookings.	It will be important to keep in close contact with Matson and regularly check the published sailing schedules, which are subject to change. Place shipment bookings with the shipping line as far in advance as possible.
Pallet availability and fumigation	Pallets are required for e-waste consolidation activities ahead of container loading. A lack of pallet availability led to concerns about delayed e-waste consolidation and preparation activities.	A steady supply of pallets come into Niue from imported goods which are suitable for e-waste consolidation activities and are likely to be fumigated already having been sent to Niue from another international jurisdiction. If pallets are made from timber, they must also be fumigated to meet international standards for wood

Challenges	Description	Mitigation & Lessons learned
		packaging. Fumigation must be verified by Niue DOE ahead of e-waste consolidation activities.
Shipment product scope	Only mixed e-waste can be included in e-waste shipments from Niue to New Zealand. Unfortunately, other e-waste types, i.e., batteries, were initially included with the other e-waste in the shipping containers. Fortunately, before the containers were closed, the batteries were pulled from the containers, and the materials were then aligned with the hazardous waste import permit terms.	Ensure mixed e-waste included in the shipment is aligned with the hazardous waste import permit terms and conditions and only e-waste types specified on relevant insurance policies are included in the shipment. If this has not been done, there is a significant risk that the shipment could be rejected and turned away for alternate treatment and/or returned to Niue for non-conformance with the hazardous waste import permit terms and conditions. In extreme cases, if e-waste types that are not accepted are included and if an event or accident occurs, insurance policies may be void and not protect against loss or damage.
Complications in cross-party communications	The number of critical export partners had overlapping roles and responsibilities which led to complications and confusion in cross-party communications.	To avoid cross-party communication complications and breakdowns in lines of communication, appoint a project lead from either the Import Party and/or E-waste Recycling Specialist (i.e., as the case may be) and formally appoint key contacts from all parties in formal documentation (e.g., multi-party agreements). Also appoint a project liaison from Niue DOE as the exporter as the project coordinator between various partners.

Specific Issues in Niue that Hampered Project Completion

The transport of the three containers of e-waste were delayed five months from the planned movement date due to:

a. **Access to containers of legacy e-waste at the NRRC**. There were four 20ft shipping containers full of e-waste located at the NRCC which were blocked from access.
b. **Volume of E-waste & whiteware for shipment**. In addition to the containers at the NRRC, there remains e-waste volumes at the Makato Landfill that could be transported to the NRCC for processing and packaging to be shipped off island.
c. **Sufficient availability of pallets for additional loading of containers**: Delays with packaging e-waste for shipment occurred in part due to a lack of pallets.
d. **De-gassing of temperature exchange equipment**. To enable the shipment of temperature exchange equipment (fridges, freezers, air conditioners, etc.) they are required to have the coolant gas removed from the material to be able to be legally shipped. De-gassing further delayed these materials being loaded into the containers allocated to this project activity.

Innovation and Excellence

The project was successful; however, the allocated timeframes were not met. Additionally, significantly less materials were exported than initially planned. E-waste materials remained in Niue that should have been addressed under this activity

Numerous difficulties were experienced during this work, tied to inexperience, this was the first significant e-waste refurbishment and removal job being undertaken in Niue, as well as issues tied to the accessing and packaging of the e-waste. However, significant learnings did occur and future movement of e-waste for disposal should be much more efficient and timelier.