

**Status**

Poor

**Trend**

Deteriorating

**Data confidence**

Low



Nauru landfill car dump © Stuart Chape

**PRESENT STATUS**

Here, hazardous waste is defined according to the Basel and Waigani Conventions, with categories listed in Basel Convention Annex I, Annex II and characteristics in Annex III. These include wastes that are explosive, flammable or prone to spontaneous combustion, poisonous or toxic, and infectious, among other characteristics.

Among these, the *Cleaner Pacific 2025* strategy (SPREP 2016, hereafter *CP2025*) focuses on healthcare waste, electronic waste (e-waste), used oil, asbestos, used lead-acid batteries, persistent organic pollutants (POPs), mercury, and ozone-depleting substances as priority waste streams in the Pacific islands region (see Regional Indicator: Ozone-depleting substances).

The present report is the first use of this indicator for the Pacific islands region. Data used to assess this indicator could be the quantity of hazardous waste accepted at landfills/open dumps or at treatment facilities like incinerators. There are few if any dedicated hazardous waste treatment facilities other than incinerators in the region. In the case

of highly hazardous chemicals, these chemicals could be generated, stored, and exported, and quantifying each step will be important to assess progress towards this indicator.

At present, there is no regional collation of hazardous wastes or of hazardous waste data. National State of Environment reports indicate that the amount of hazardous material has increased in countries that have conducted assessments. Consumption of the goods that produce hazardous waste is increasing. Without waste segregation, many hazardous materials are entering the general waste stream and sent to landfills or entering the environment.

At present, the quantity of generated hazardous waste that is processed or treated is considered *poor* with a *deteriorating* trend due to increased consumption of goods that produce hazardous waste, lack of waste segregation, and lack of treatment or storage facilities. Data gaps persist. The status of relevant policies and strategies in Pacific island countries and territories as of 2016 is summarised in Table 4 of *CP2025*.

## CRITICAL CONNECTIONS

Hazardous waste is a threat to Pacific people, ecosystems, and species. Hazardous waste is most obviously linked to human health and the health of waterways but can also have far-reaching effects for species and ecosystem services in the Pacific islands and around the world.

Remediation of contaminated sites and management of hazardous waste has benefits for Pacific people, ecosystems, and species. Building national capacity for remediation requires support but has positive effects within and beyond the region, particularly for hazardous wastes with long dispersal, such as heavy metals. Such remediation can blend with the focus on priority sites for protection, including invasive species management.

The trend toward renewable energy and electrification reduces greenhouse gas emissions and improves air quality but also increases the potential management need for battery waste, including new battery types such as lithium.

Burning plastics at standard temperatures can prevent their release into the ocean but also releases POPs, invisible but cancer-causing. High-temperature incineration of any waste is a concern if incinerators are poorly maintained or operated. POPs, like many other hazardous wastes, have transboundary impacts, blunting the effectiveness of protected areas.

The COVID-19 pandemic has shed light on an existing problem: the urgent need for effective processing of healthcare waste. Natural disasters such as cyclones, floods, and tsunamis can also generate large quantities of solid and liquid wastes, which can pose risks to public health through direct or vector-induced exposure to uncollected hazardous waste. Waterways, agricultural areas, and communities are at risk of contamination. A strong disaster management plan accounts for ways to protect people from hazardous materials during and after the disaster event.

Partnerships among sectors using and receiving the impacts from hazardous materials, such as agriculture and watershed managers, can increase the effectiveness of monitoring and management of hazardous wastes. Everyone can be involved in reducing waste, from households to businesses all the way up to international policy.

Endogenous capacity for management, training, and research into the impacts of hazardous materials can help Pacific islands direct their own development pathways. Safe management of some hazardous wastes, such as the pesticides used for some invasive species management, is part of existing nature conservation efforts.

## HOW MUCH HAZARDOUS WASTE IS IN THE PACIFIC ISLANDS REGION?

Plastics are increasingly common throughout the region. With common backyard burning, landfill fires, or incineration at inadequate temperatures, burning plastics release persistent organic pollutants that affect air quality and health throughout the Pacific islands.

According to a regional baseline assessment of healthcare waste in 14 Pacific island countries completed during the PacWaste Project, the indicative average hazardous healthcare waste generation rate is approximately 0.8 kg per occupied bed (ENVIRON Australia 2014 in *CP2025*). Under the COVID-19 pandemic conditions, we can anticipate that the production of infectious hazardous waste has increased, although the waste has not yet been quantified for the region. With the COVID-19 pandemic, healthcare waste has another dimension as a component of household waste with the use of disposable gloves or masks in non-clinical settings, potentially carrying infectious residues for a restricted amount of time.

Household residues of pharmaceutical products are not yet measured in the Pacific islands region nor are they fully considered in this management area. Like some other hazardous wastes, pharmaceutical residues can enter water systems through household drains, with potential downstream impacts; please see Regional Indicators: [Freshwater quality](#) and [Lagoon water quality](#).

Asbestos waste is a hazardous waste stream with no economic value. Minimising public exposure to asbestos fibres will entail urgent and environmentally appropriate disposal of stockpiles and stabilisation of asbestos in occupied buildings, where appropriate, prior to its eventual removal and disposal (*CP2025*).

Based on a regional assessment of 13 Pacific island countries completed as part of the PacWaste Project, more than 285,784 square metres and 267 cubic metres of asbestos-containing materials (ACM) were estimated to be distributed across the Pacific in stockpiles, abandoned infrastructure, and occupied buildings as of 2016. Of the total amount, 87 per cent were considered high risk with significant potential for release of asbestos fibres if disturbed and posing a significant health risk to occupants of affected buildings. The high-risk ACM in Nauru accounted for 74 per cent of the total regional ACM.

Other hazardous wastes, from chemicals to used oil and batteries, and more, are not fully quantified across the Pacific islands region. In the first phases of implementation of the *Cleaner Pacific 2025* strategy, ten of the 21 Pacific island countries and territories completed assessments of varying geographic scope and data coverage targeting solid waste, but not hazardous wastes (SPREP, forthcoming).

## PRESSURES AND OPPORTUNITIES

At present, there are no commercial hazardous waste collection services in the Pacific islands region. There is a lack of hazardous waste treatment facilities and a lack of retail take-back systems or periodic drop-off services provided by local authorities. These limitations increase the burden of hazardous waste collection and treatment and increase the likelihood of uncontrolled disposal of hazardous materials that can harm Pacific people and environments.

There is enacted legislation throughout the region for hazardous waste management. However, the implementation of policies, strategies, and plans is often a weak point with progress limited or unreported. Hazardous waste should be included in national disaster waste management plans, many of which need to be strengthened across the Pacific islands region.

As of 2020, no progress had been made towards *CP2025* activity 5.14: 'Implement measures to restrict and regulate importation, handling, storage, and sales of chemicals and hazardous substances' (SPREP, forthcoming). Activity gaps include the construction of national secure storage facilities for chemicals and hazardous waste management. The management of hazardous waste, including development of inventories, requires further effort across the region. Tonga has shown political initiative and set a target of having a national hazardous waste management plan by 2019 but such a plan has not yet been finalised.

Many wastes require treatment or disposal outside of the country or region. The Moana Taka Partnership is exploring options for a regional insurance arrangement for the transboundary movement of hazardous waste, under the Waigani and Basel Conventions (SPREP, forthcoming).

Maintenance of incinerators has been a technical challenge to the safe treatment of hazardous waste, particularly healthcare waste. Improperly functioning incinerators can actually increase the unintentional release of persistent organic pollutants and other hazardous materials if the wastes are burned incompletely or at an insufficient temperature.

Globally, e-waste is the fastest-growing waste stream. E-waste may contain a range of hazardous substances including heavy metals (such as mercury, cadmium, and lead), flame retardants, and other substances, which may pose significant environmental and human health risks if released to soil, water, and air through inappropriate practices such as burning and dumping. Baseline e-waste assessments in nine Pacific island countries were completed in 2013 and 2014 (Leney 2013, 2014 in *CP2025*) and support was provided to nine countries under the PacWaste Project between 2013 and 2017.

Mercury can travel long distances, making international cooperation essential to reduce the global and local impacts of mercury pollution. The Minamata Convention on Mercury entered into force in 2017 to protect human health and the environment from the adverse effects of mercury. To date, six Pacific island countries are Party to the Minamata Convention. Samoa and Papua New Guinea have completed their Minamata initial assessments, and another eight Pacific island countries are undertaking initial assessments to be completed by 2021 supported by SPREP and UNEP. For more about Pacific reporting to multilateral environment agreements, see Regional Indicator: [MEA reporting requirements](#). There is a lack of data on mercury emissions in Pacific island countries and territories. However, in 2010, the average emission of mercury to air from all of Oceania (including Australia, New Zealand) was estimated at 22.3 tonnes or 1.1 per cent of the global emissions (UNEP 2013 in *CP2025*). Pacific islanders already have relatively high body loads of mercury, potentially linked with tuna consumption (Bell 2017).

Potential sources of mercury include artisanal and small-scale gold mining, batteries, paints, electrical and electronic equipment, thermometers, blood-pressure gauges, fluorescent and energy-saving lamps, pesticides, fungicides, medicines, and cosmetics. The mercury contained in these products is mobilised if the waste is burnt without proper controls (thus releasing mercury into the air) or sent to dumps and improperly managed landfills where the mercury can leach into soil and water (UNEP 2013 in *CP2025*). It is not clear if all the Pacific islands currently segregate discarded medical devices containing mercury.

In 2016, training, technical advice, and support were delivered to Fiji, Kiribati, PNG, RMI, Solomon Islands, and Tuvalu as well as to New Caledonia and Wallis et Futuna, to support collaboration under the Waigani and Basel Conventions and achieve smooth and efficient transboundary movement of hazardous waste. Training in solid and hazardous waste management including landfill management and waste management techniques was delivered by Griffith University and Fiji National University in 2016 through the GEFPAS UPOPs project (SPREP, forthcoming).

The PacWaste Plus project is designing hazardous waste management activities for implementation in 2021. The GEF ISLANDS project, beginning in 2021, is also targeting hazardous wastes. SPREP is actively working with five countries to update their national implementation plans for the Stockholm Convention on POPs.





Ship wrecks, Honiara, Solomon Islands © Stuart Chape

## REGIONAL RESPONSE RECOMMENDATIONS

The regionally adopted *Cleaner Pacific 2025: Pacific Regional Waste and Pollution Management Strategy 2016–2025* and its 2020 mid-term review (SPREP, forthcoming) set out national and regional recommendations, including for countries to:

- Separate hazardous wastes from the general waste stream and recyclable materials;
- Develop regular, consistent monitoring and reporting at regional and national levels for hazardous waste management activities, waste generation, and the receiving environment;
- Develop and update national and regional inventories of hazardous substances and hazardous waste;
- Implement national measures to restrict and regulate importation, handling, storage, and sales of chemicals and hazardous substances;
- Construct national secure storage facilities for chemicals and hazardous waste management, with environmentally sound operation;
- Support regional and national training and capacity development for management of priority hazardous wastes (e.g. ozone-depleting substances, mercury, used oil, biosecurity waste, and disaster waste management, including compliance monitoring, enforcement, and prosecution);
- Develop waste management equipment and maintenance capacity within Pacific island countries and territories;
- Improve national waste management infrastructure and services, incorporating sustainable financing measures; and
- Partner for informed and effective hazardous waste management, including partnerships with customs officials and local industry.

### INDICATOR IN ACTION

SDGs 3.9, 6.3, 12.4 • BRS Conventions • Minamata Convention • Waigani Convention • SAMOA Pathway • Regional Environment Objectives 3.1, 3.2, 3.3, 3.4 • Pacific Islands Framework for Nature Conservation Objective 5

### FOR MORE INFORMATION

This indicator was developed with the assistance of Joshua Sam, Hazardous Waste Management Advisor at the Secretariat of the Pacific Regional Environment Programme. Contact [sprep@sprep.org](mailto:sprep@sprep.org) for assistance with hazardous waste management.

Bell L (2017) Mercury monitoring in women of child-bearing age in Asia and the Pacific Region. UN Environment, Biodiversity Research Institute (BRI), and IPEN

SPREP (forthcoming) Mid-term review report: *Cleaner Pacific 2025 Pacific Regional Waste and Pollution Management Strategy 2016–*

*2025*. Bradley M (author). Apia, Samoa: Secretariat of the Pacific Regional Environment Programme.

SPREP (2016) *Cleaner Pacific 2025: Pacific Regional Waste and Pollution Management Strategy 2016–2025*. Apia, Samoa: Secretariat of the Pacific Regional Environment Programme.

Indicator 30 of 31 in *State of Environment and Conservation in the Pacific Islands: 2020 Regional Report*



The Secretariat of the Pacific Regional Environment Programme (SPREP) supports 14 countries and 7 territories in the Pacific to better manage the environment. SPREP member countries and members of the Pacific Roundtable on Nature Conservation (PIRT) have contributed valuable input to the production of this indicator.  
[www.sprep.org](http://www.sprep.org)

National and regional environment datasets supporting the analysis above can be accessed through the Pacific Environment Portal.  
[pacific-data.sprep.org](http://pacific-data.sprep.org)

For protected areas information, please see the Pacific Islands Protected Area Portal.  
[pipap.sprep.org](http://pipap.sprep.org)