



apwC
ASIA PACIFIC
WASTE
CONSULTANTS

Samoa

PLASTIC WASTE PROFILE





Acknowledgements:

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This brochure is a technical summary of the report *Plastic Waste National Level Quantification and Sectoral*

Material Flow Analysis, Samoa National Report, that can be found here: <https://www.iucn.org/search?key=plastics>

Country overview

Key Facts	
Official Name	Independent State of Samoa
Land area	2,830 km ²
Capital	Apia
Climate	Tropical
Terrain	Narrow coastal plain, volcanic rugged interior
Population	195,979 (28,880 households ²) (in 2016)
Population distribution	Savai'I Island (22%); Upolu Island (78%). On Upolu, peri-urban north-west (35%) and Apia urban (19%)
Language(s)	Samoan (Polynesian) (official), Samoan English, English (official)
Ethnicity	Samoan, Samoan/New Zealander, other
Currency	Samoan tala (WST)
GDP per capita	USD 4,315 ¹
HDI	0.707 ³



4

**year
initiative**

2019-2022

6

islands

in the
Caribbean
and Oceania

3

sectors

tourism,
fisheries
and waste
management

Overarching goal:

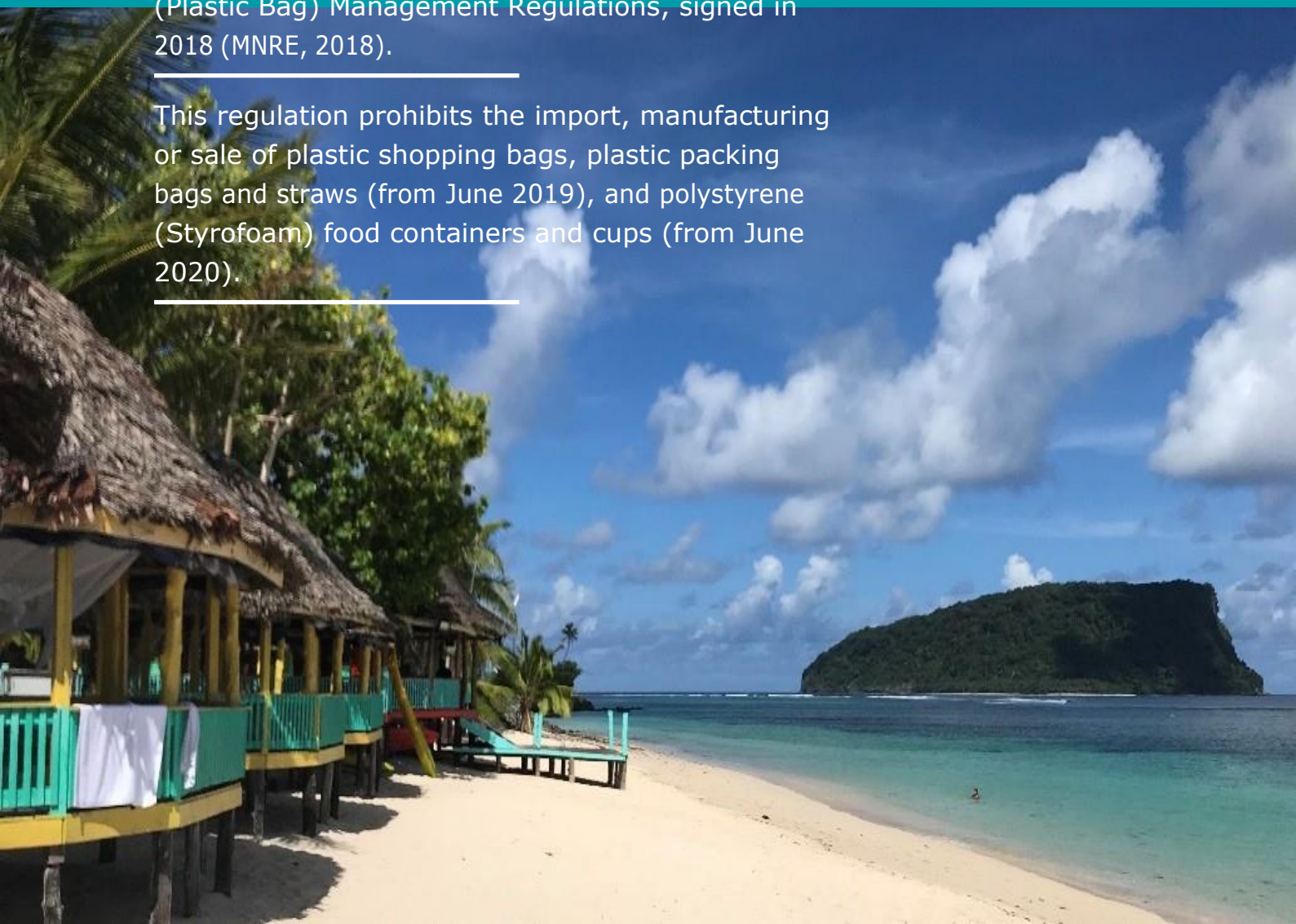
to demonstrate effective,
quantifiable solutions to addressing
plastic generation and leakage from
small island developing states (SIDS)

Executive Summary

Asia Pacific Waste Consultants (APWC) was engaged by IUCN in 2020 to undertake a National Level Quantification of Plastic Waste and Sectoral Material Flow Analysis in three key sectors: household and commercial, tourism and fisheries as stage one of the Plastic Waste Free Islands Project. The plastic waste data mapping has tracked seven plastic materials in an island-wide plastic influx and outflux format (including imports and exports at a national level) to identify sources, quantities and pathways of plastic waste generated and leaked per sector in Samoa. Data has also been collected to provide an overall picture of the waste management landscape for Samoa and identifies leakage of plastic material to provide a robust and comprehensive overview of the plastic flows.

Samoa introduced a plastic ban through the Waste (Plastic Bag) Management Regulations, signed in 2018 (MNRE, 2018).

This regulation prohibits the import, manufacturing or sale of plastic shopping bags, plastic packing bags and straws (from June 2019), and polystyrene (Styrofoam) food containers and cups (from June 2020).



WASTE MANAGEMENT SITUATIONAL ANALYSIS

1. Infrastructure

- Samoa has one engineered, semi-aerobic waste landfill located at Tafaigata on the more populated Upolu Island and another semi-aerobic waste disposal facility located at Vaia'ata on Savai'i Island.
- Recyclable materials are mixed in and disposed of in general waste (commingled), with no specific collection of plastics for recycling at Tafaigata Landfill. There is no recycling component at Vaia'ata Landfill but an area to stockpile reusable and recyclable waste.

Resource recovery and recycling

There are no local plastic recyclers in Samoa. One plastic material aggregator – Waste Management Co. Ltd – consistently collects and stockpiles plastics for overseas recycling. The company collects 11.2 tonnes of PET bottles annually through collection cages at supermarkets and schools. As witnessed in other Pacific Island Countries (PICs), significant progress toward plastic recycling in Samoa is constrained, mainly by low trade volumes and diminished international market values.



2. Budget and levies

The cost of waste management in Samoa represents 12% of MNRE's annual budget and 0.47% of the government's national budget in 2019.

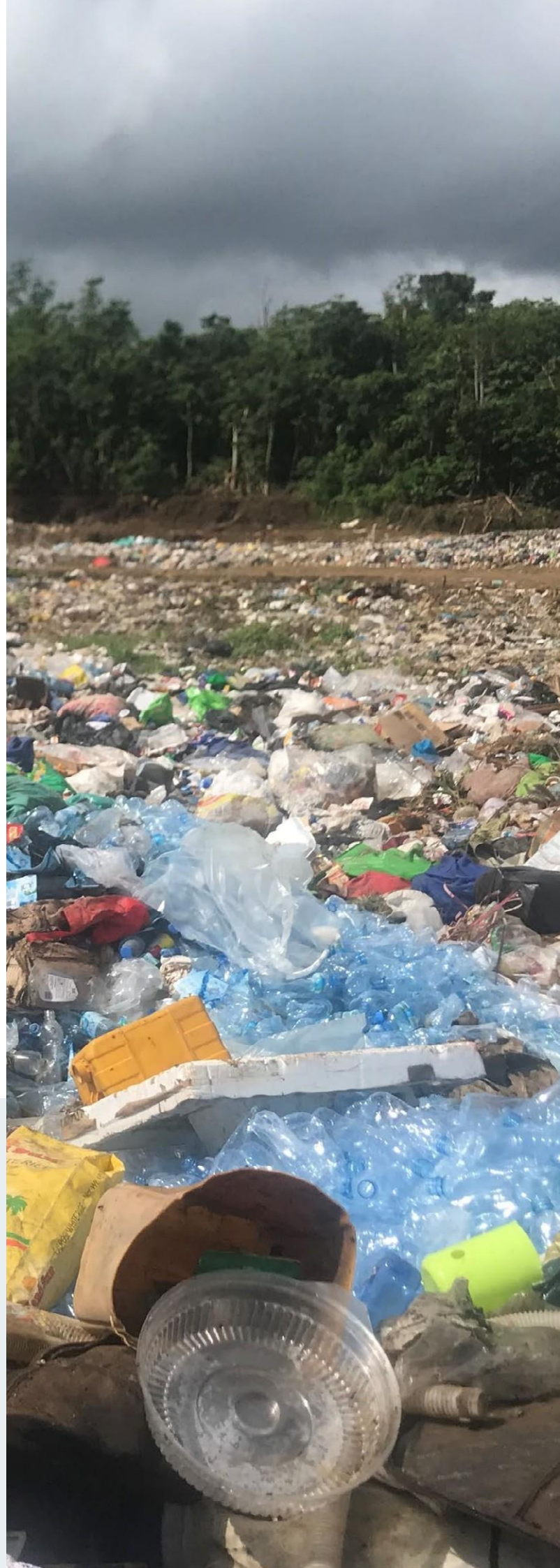
- The only source of revenue for the government from solid waste management (SWM) is through tipping fees collected at the Tafaigata waste disposal site. These fees fall far below expenditure levels and only cover 3% of the waste management budget. The remainder of the waste budget is covered by tax, grants and other sources from the Samoan Government.

3. Legislation

Samoa has taken steps towards reducing the negative impacts of single-use plastic items in the environment. Waste audits during March 2020 confirmed that banned material such as plastic bags and plastic straws remain in community circulation, and therefore it is recommended that subsequent characterisation studies be conducted to understand the effectiveness of the ban in the long term.

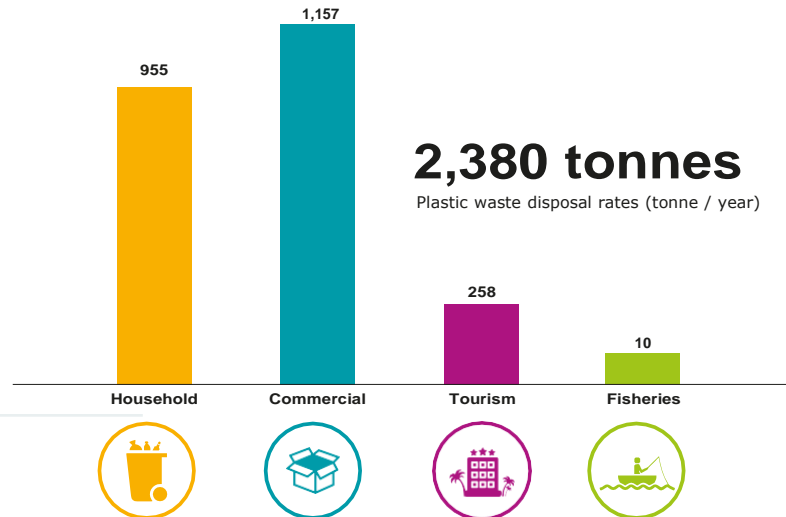
The Styrofoam and Plastics Food Service Containers (Prohibition) Act 2019 completely bans polystyrene food containers and other single-use plastic food-service containers.

The number of polystyrene food containers in Saint Lucia's waste was much smaller than in previously audited countries without bans, and smaller than previously audited countries with bans.



WASTE MANAGEMENT FINDINGS

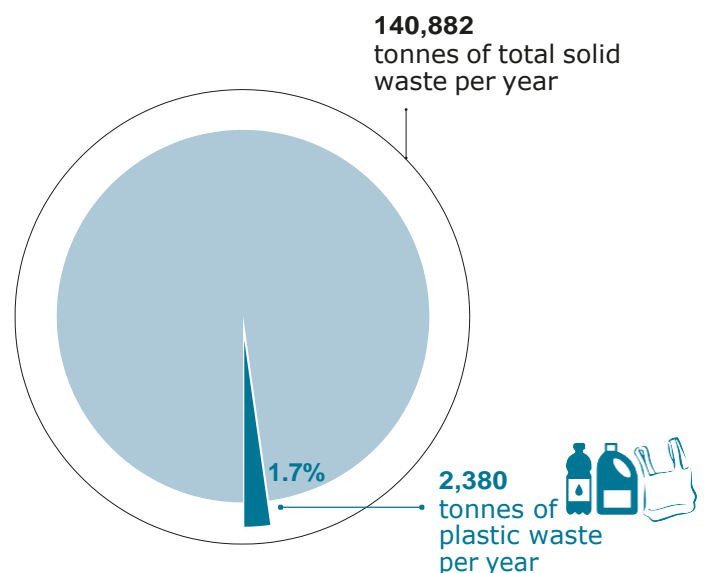
Plastic waste disposal rates in the four sectors of interest in Samoa in tonnes/year



1. Audit findings

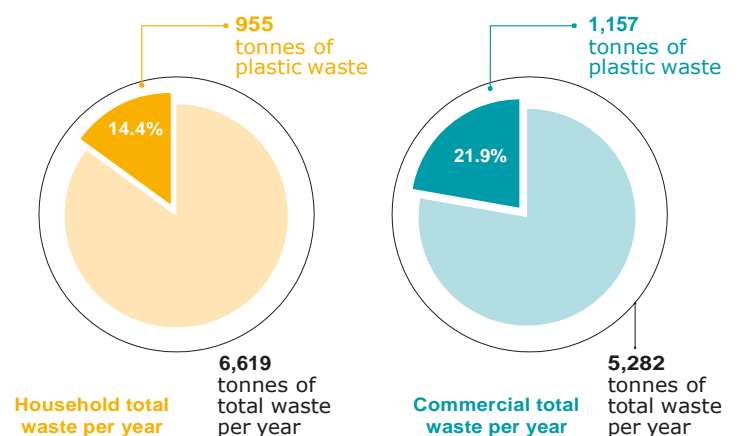
Overall, tourist arrivals (cruise ships, yachts and airlines) and tourism accommodation contribute larger amounts of waste per day per tourist compared to the household and commercial (per person) and fisheries (per vessel) sectors.

Overall, 140,882 tonnes of solid waste are disposed of in Samoa annually, of which around 2,380 tonnes are plastics. The tourism sector, particularly air-based tourism, is a significant contributor to plastic waste. On daily basis, air tourist contribute 27 grams of plastic waste per tourist per day, whereas households contribute 1 gram per person per day.



2. Household and commercial

- Households dispose of 0.091 kilograms of waste per resident per day or 6,619 tonnes of waste per year of which 955 tonnes is plastics; commercial businesses dispose of 5,282 tonnes of waste per year of which 1,157 tonnes is plastics.
- 55% of households expressed their willingness to segregate their waste even if there was no economic incentive; 96% expressed willingness to segregate when financially compensated.



14.4% of residential waste is plastic, of which 23.7% is PET and 22.6% is LDPE.

21.9 % of commercial waste is plastic, of which 37.1% is PP and 16.6% is PS.

Collection services are available on some islands; the quality of service varies and there is a high chance that plastic leakage occurs at the collection stage.

3. Tourism

- Overall, the tourism sector contributes **19.5% of all plastic waste** generated in Samoa.
- In 2019 Samoa received **173,398 air tourists** who stayed an average of 8.5 nights and **13,212 cruise-ship** tourists who stayed for the day.
- All analysis undertaken for this report assumes 'business as usual' for tourism and uses the pre-COVID numbers from 2019–2020.
- Overall, tourists generate **40 times more plastic waste** per person per day than a Samoan resident does.
- Airline tourism accounts for **75% of plastic** waste disposal by the tourism sector.
- **PET was 83%** of all tourism waste.

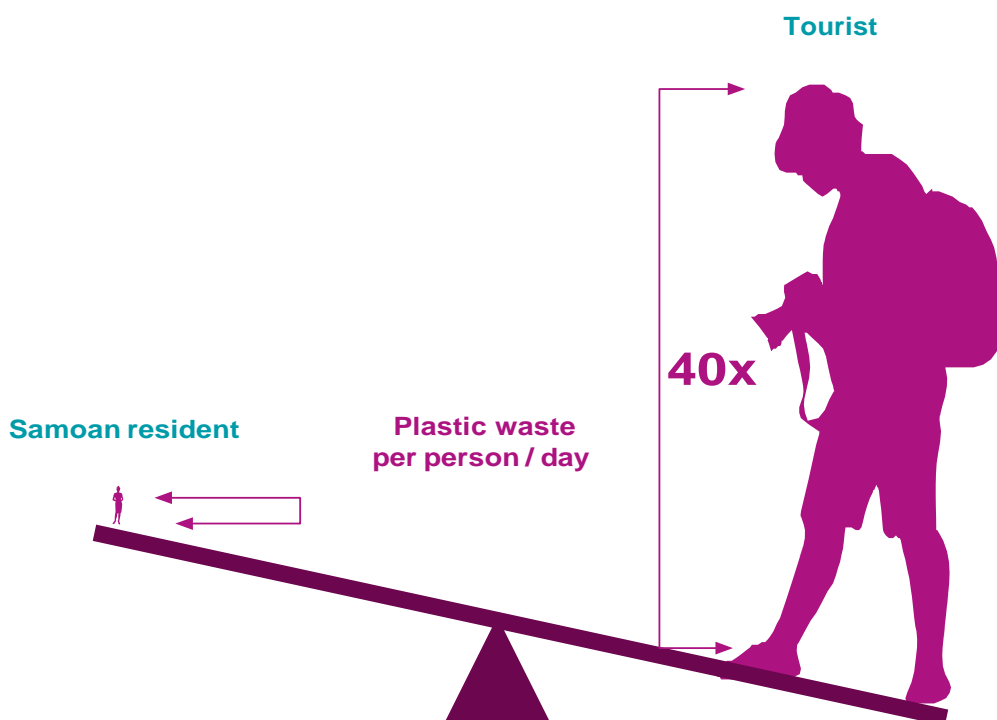
Due to the COVID-19 pandemic, waste from yachts and other pleasure-craft vessels was considered hazardous waste at the time of auditing, therefore was excluded and data not collected. Estimates for yachts and pleasure crafts are based on pre-COVID numbers.

For land tourism, annual plastic disposal is 163 tonnes and leakage is 121 tonnes.

For airlines, annual plastic disposal is 88 tonnes and leakage was 106.5 tonnes.

For cruise ships, annual plastic disposal is 5.9 tonnes and leakage was 6.2 tonnes; incineration of plastics is 51%.

For yachts, annual plastic disposal is 0.02 tonnes and leakage is 0.04 tonnes.



4. Fisheries

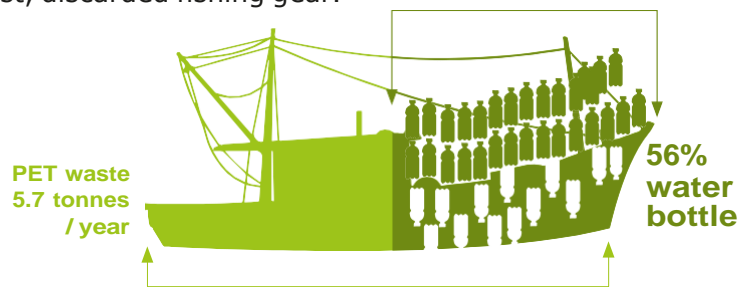
- Agriculture, forestry and fisheries contribute approximately 3% to Samoa's GDP, and fish products account for approximately 50% of the value of total exports.
- The Samoan fisheries sector is comprised of commercial offshore fisheries, artisanal coastal fishing and aquaculture.
- The Samoan fishing fleet comprises approximately 16 international vessels, 53 domestic and untallied subsistence fleet.
- Fisheries-based consumable waste includes 5.7 tonnes of PET (PET water bottles 56%).
- 3.5 tonnes of PS (PS food containers 21% and PS foamed packaging 12.4%), and 1 tonne of HDPE plastics (container lids 1.4%).
- In addition, Samoa's domestic and international commercial fishing fleet leaks 54 nets, 4 traps and 91 lines in the form of abandoned, lost, discarded fishing gear.

The consumption-related personal waste from the fisheries sector is 9.6 tonnes per year or 0.06% of Samoa's overall waste disposal in 2019.

Plastic represented 11.5% of fisheries waste disposal (1.09 tonnes/year), predominantly PET (55.5%) and PS (33.3%).

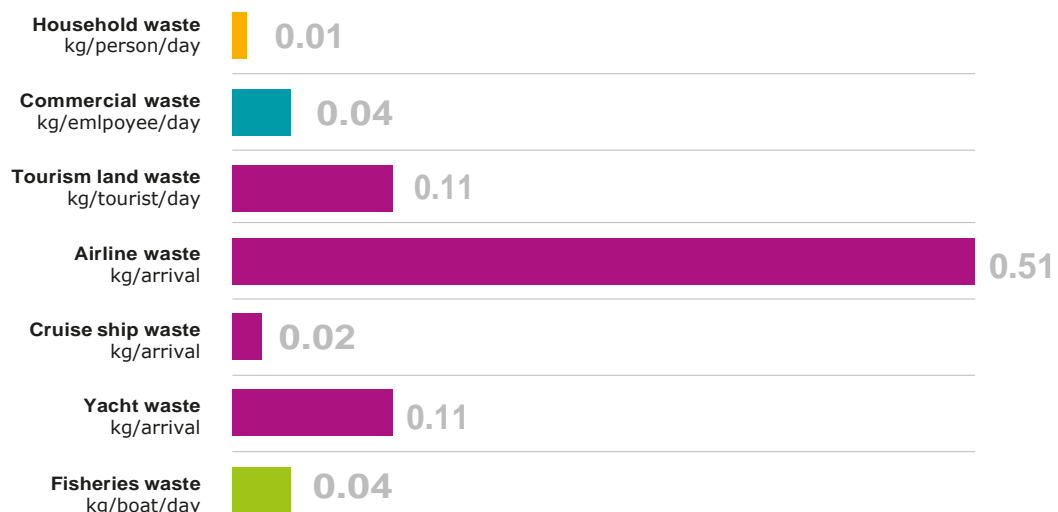
0.7 tonne of fishing gear is lost at sea each year based on a desktop analysis of the fishing fleet and 9.04 tonnes based on imported fishing gear.

Offshore fishing in Samoa is almost exclusively carried out by longlining for tuna.



5. Plastic disposal contribution per sector

The overall plastic disposal rate in Samoa for the period 2019–2020 was 2,370.6 tonnes or 0.01 kilogram per resident per day and 0.04 kilogram per employee per day. Figure 1 outlines the disposal rate in tonnes and disposal percentage share by polymer type per sector.



Plastic waste disposal quantities in Samoa across all sectors of our interest.

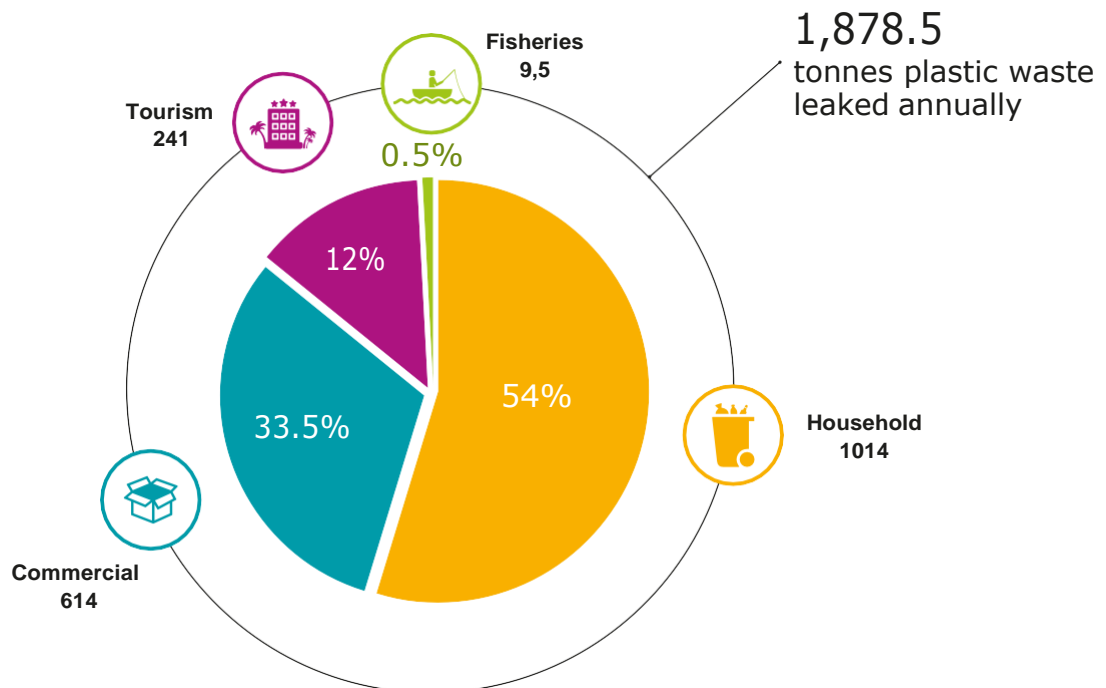
PLASTIC LEAKAGE

Overall, we estimated that 52.9% (95% credible interval: 22%–78%) of imported plastic was leaked or held in long-term reservoirs away from landfill in Samoa; this equates to **1862 tonnes**.

Overall leakage based on plastic imported, recycled, disposed of and leaked in Samoa

	Leakage percent (95% credible interval)
PET	16.2% (0–47%)
HDPE	28.3% (0–72%)
PVC	99.1% (27%–100%)
LDPE	17.6% (0–80%)
PP	11.0% (0–44%)
PS/EPS	19.0% (0–82%)
Other Plastic	74.1% (6%–74%)
Overall	52.9% (22%–78%)

Plastic leakage per sector



Because of a lack of direct samples for fishing gear, potential leakage estimates were calculated using two methods: 1) potential leakage of fishing gear based on type of fishing activity, represented in number of fishing gear items leaked; and 2) potential leakage of fishing gear based on import data, represented in tonnes.

