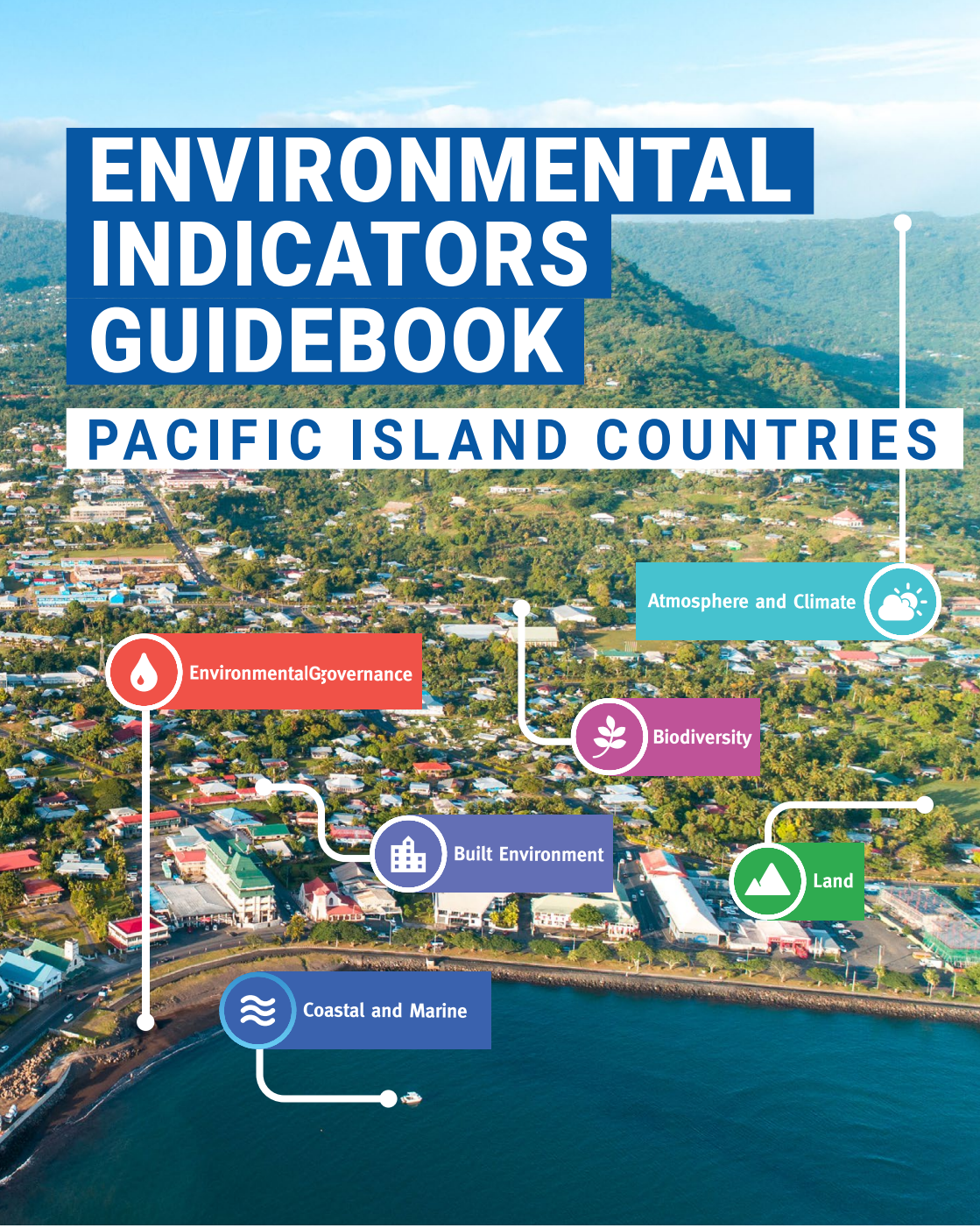
ENVIRONMENTAL INDICATORS GUIDEBOOK

PACIFIC ISLAND COUNTRIES



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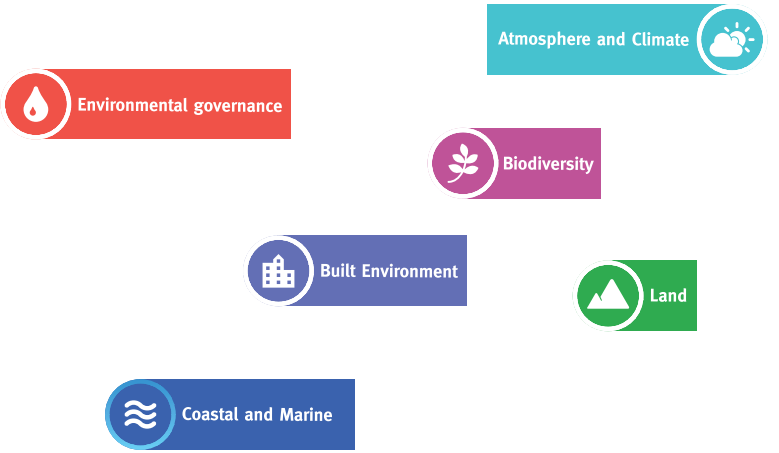

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06/2021.

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THEME: BIODIVERSITY

THEME: ATMOSPHERE AND CLIMATE

THEME: BUILT ENVIRONMENT

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OVERVIEW

This guide introduces environmental indicators and provides an overview of SPREP'S core indicators for Pacific island countries. In 2012, the SPREP members approved the development of a set of standardised indicators for use by member countries at the SPREP meeting. Through the Inform project, SPREP programmes then developed a set of 29 indicators that was endorsed by members at the 2018 SPREP meeting. This document explains the development and use of environmental indicators in Part 1 and provides a summary of each of the 34 'core' indicators in Part 2.

PART 1. ENVIRONMENTAL INDICATORS

What are environmental indicators?

An environmental indicator is a measurement that provides insight into a matter of larger environmental significance. A frequently cited example from meteorology is that of rapidly dropping air pressure, which can indicate an approaching storm or weather front. The measurement of air pressure itself is of little importance, but a storm could be a significant event that impacts people in various ways. A good example from health is the universal measurement of body temperature. High body temperatures indicating an underlying infection that may indicate medical intervention. In a similar way, environmental indicators can tell us whether we need to act to improve environmental health.

Why use environmental indicators?

Indicators have two important defining characteristics that make them useful for environmental decision makers. First, they quantify information so its significance is readily apparent and so that trends can be determined over time. By being measurable, indicators help to remove the human bias or subjectivity component in environmental decision making. By showing trends over time, indicators help decision makers understand where they need to direct funding and policy and whether policy is having the desired impact in maintaining or improving environmental health. Importantly, all indicators are an empirical model of reality and thus their value relies on them being analytically sound having a fixed methodology of measurement.

Second, indicators simplify complex phenomena which helps in communicating messages to decision makers and the public. For example, anthropogenic global warming is an immensely complex phenomenon with many components but a simple chart showing mean temperatures over time tells us earth is rapidly getting hotter and that this must be urgently addressed through mitigation. The efficient use of indictors attempts to strike a balance between understanding complex phenomena (monitoring) and implementing policy (management). Investing too much in the monitoring component (i.e. trying to measure too many things) takes resources from the policy and management components. Conversely, investing too little in the monitoring means that decision makers will be 'in the dark' on whether policy resulting in its intended outcomes.

Indicators and State of Environment reporting

In the Pacific, and indeed in many countries across the world, indicators are used in State of Environment Reports (SoEs). SoEs are a comprehensive national assessment of the state of environment that provide a picture of the parts of the environment that are healthy and those that need help. In the past, SoEs relied heavily on expert opinion and other qualitative data. This resulted in SoEs that were mostly descriptive and that were unable to objectively demonstrate environmental trends over time. Pacific Island countries have now moved to quantitative SoEs based on the 'Drivers, Pressures, State, Impact, Response' (DPSIR) model (Figure 1). The DPSIR model is an internationally accepted approach for reporting on the environment. Drivers are the higher-level factors that indirectly affect the environment (e.g. population growth). These drivers exert pressures that directly impact the environment (e.g. forestry), which may result in observable changes in the state, as measured through environmental indicators. These changes in state will affect communities, economies, and ecosystems. By understanding this system, informed responses can be applied to manage the various factors in this process. The links between processes in the DPSIR are not always simple cause-and-effect relationships, and frequently involve complex interactions including cumulative and historical effects.

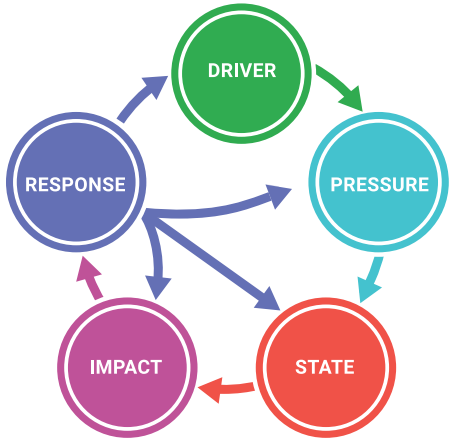


Figure 1. Drivers, Pressures, State, Impact and Response (DPSIR) model used for assessing the state of environment.

Key indicator components

There are several key components that make an effective environmental indicator:

- Definition: what is being measured over time?
- Purpose: what does this indicator tell us more broadly about environmental health?
- Desired outcome: what is the desired trend in the indicator towards good or improved environmental health? Is there a specific number being targeted? e.g. 20% protected area.
- Calculation: how is the indicator measured?
- Visualisation: data should be displayed in a chart that clearly shows the trend over time.
- Assumptions and limitations: What programs need to be in place to collect indicator data and are there factors that may affect the usefulness of the indicator?

Indicator symbols

SPREP has developed infographics as visual aids to help communicate the main findings for each indicator. A generic index was developed that used best available data to inform 'Status' ratings of either 'Good', 'Fair', and 'Poor'. Assessment symbols summarise the 'State' of each indicator (Figure 2). These symbols establish baselines to compare the state of each indicator for future assessments, including SoE reports. The symbol includes ratings for 'Status', 'Trend' and 'Confidence'. Table 1 provides a guide to interpret the symbols and explains how the symbols were derived.

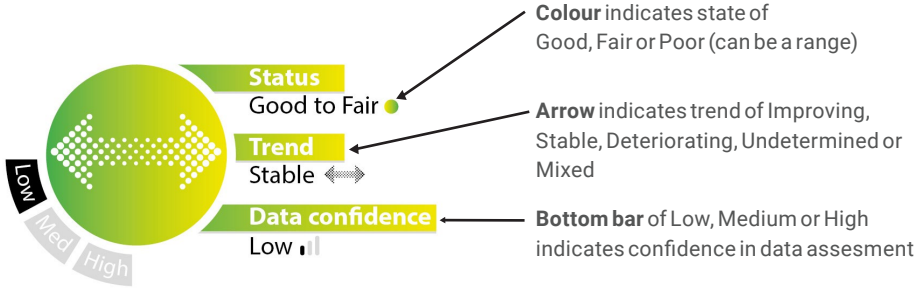
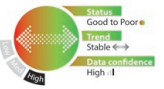


Figure 2.
Explanation of the Indicator symbol.

Table 1.
Guide to interpreting the indicator symbols

	CATEGORY	DESCRIPTION	HOW IS IT DERIVED?	SYMBOL EXAMPLE
STATE (can be a range)	GOOD	The level to which the indicator meets or exceeds (good), is close to meeting (fair) or is well below (poor) a given standard for healthy ecosystems, habitats, species, airsheds, watersheds or an urban environment.	Assessment is based on 1) recent trends, 2) comparison with similar jurisdictions, and 3) comparison with 'healthy' habitats and systems. Where limited data exists to make an assessment based on these criteria, expert opinion is used.	
	FAIR			
	POOR			
TREND	IMPROVING	The state of the environment related to this indicator is getting better.	Trends show a significant increase, or based on weight of evidence that indicators are improving.	
	DETERIORATING	The state of the environment related to this indicator is getting worse.	Trends show a significant decrease, or based on weight of evidence that indicators are worsening.	
	STABLE	The state of the environment related to this indicator shows there is no detectable change.	Trends show no significant increase or decrease, or, based on weight of evidence that indicators are stable.	
	MIXED	The state of the environment related to this indicator shows a mixed trend: sometimes the state is getting better, worse, or there is no change.	Used primarily for sub-topics with multiple indicators, or in cases where data shows two distinct trends.	
	UNDETERMINED	Not enough data exists to determine trend.	Insufficient data available to generate trend.	
CONFIDENCE	HIGH	Data is of high quality and provides good spatial and temporal representation.	Trusted and comprehensive time series and/or national level data sources are used to determine confidence trend.	
	MEDIUM	Data is either lower quality, geographically sparse or limited temporally.	Data is derived from many sources, and is not always consistent, with some extrapolation necessary.	
	LOW	Data does not meet any of the above criteria.	Data is very coarse and outdated, and limited to single country sites.	

Reusing indicators

A key side-benefit of maintaining up-to-date indicators is reducing the reporting burden for Pacific island countries. All Pacific island countries have numerous national, regional and international reporting obligations (including MEAs and SDGs) which can become a significant burden on staff resources (Figure 3). If updated regularly (e.g. annually), environmental indicators developed for SoEs can be reused for other obligations with minimal further work, thus reducing the reporting burden. To aid the reusability of environmental indicators, the Inform project has developed the Indicator Reporting Tool (IRT), an online application for developing and updating indicators and producing reports. To find out more about the IRT please contact SPREP.

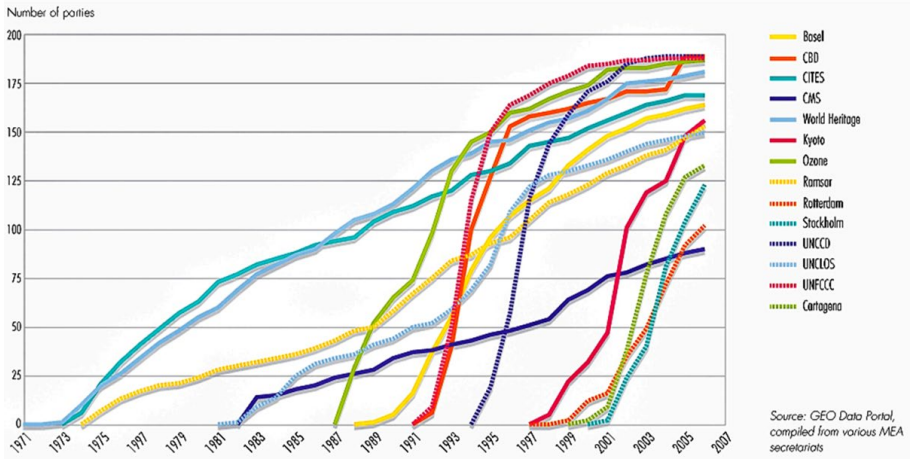


Figure 3.
The rise in ratifications to Multilateral Environment Agreements.

PART 2. CORE INDICATORS

In 2012 the SPREP members approved the development of a set of standardised indicators for use by member countries. Through the Inform project, SPREP programmes then developed a set of 34 indicators that was endorsed by members at the 2018 SPREP meeting. The indicators are placed in the six broad themes: Atmosphere and Climate, Biodiversity, Built Environment, Coastal and Marine, and Governance. These are the main themes typically used by Pacific island countries to group indicators in their State of Environment reports and are also consistent with the grouping of datasets on the national environment data portals. All the indicators are quantitative and include a definition, purpose, desired outcome, calculation, assumptions, and data sources for all indicators. Example charts, based on hypothetical data, are also displayed for each indicator and show improving, stable or deteriorating trends in the data. Some indicators are very simple and can be sourced from standard government reports (e.g. Environment Ministry budget allocation) whereas others require environmental sampling across numerous monitoring sites to produce meaningful measures with some level of precision (e.g. Live coral cover). If you need to design a robust monitoring program, please contact SPREP and we can connect you with an appropriate specialist.

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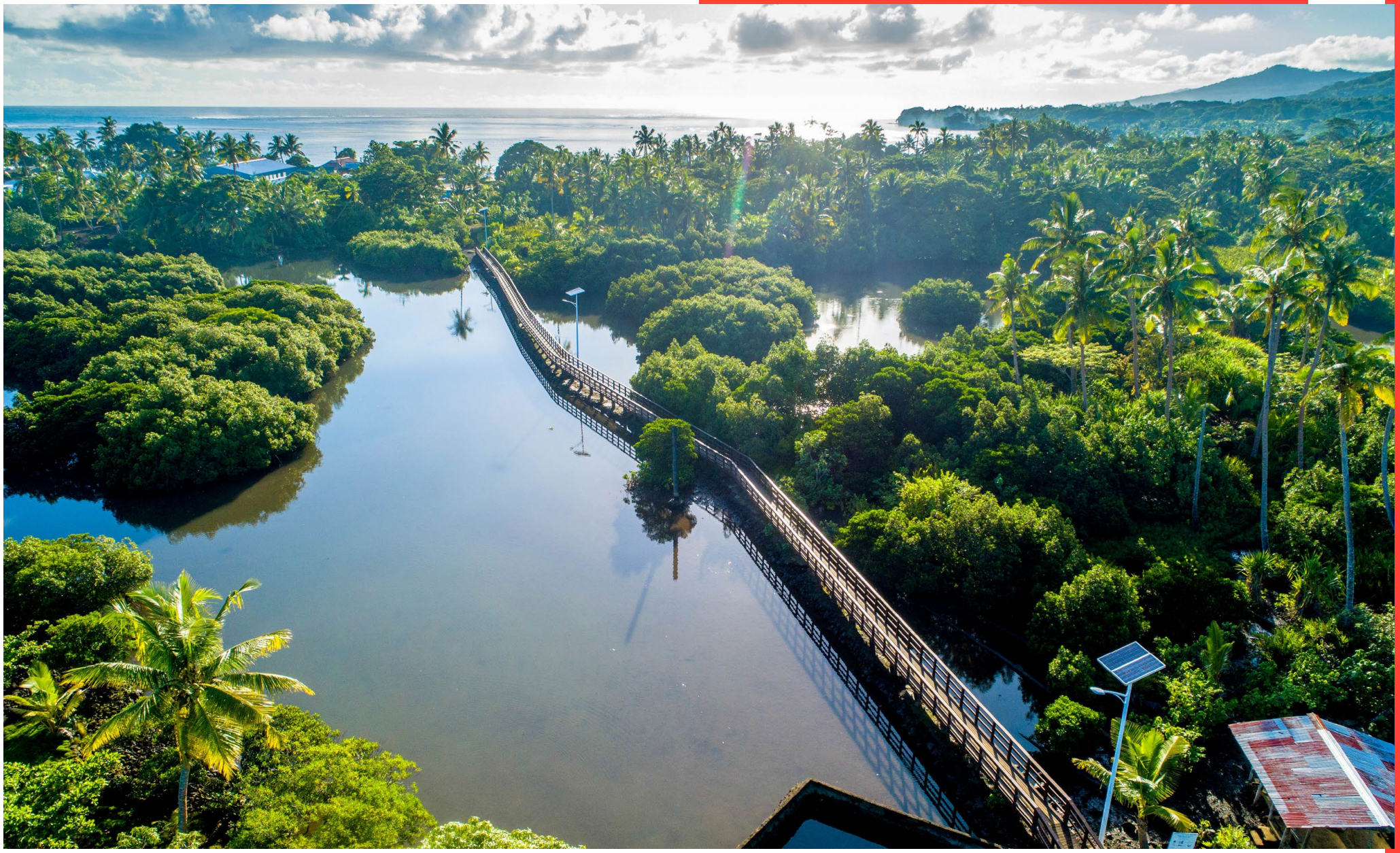
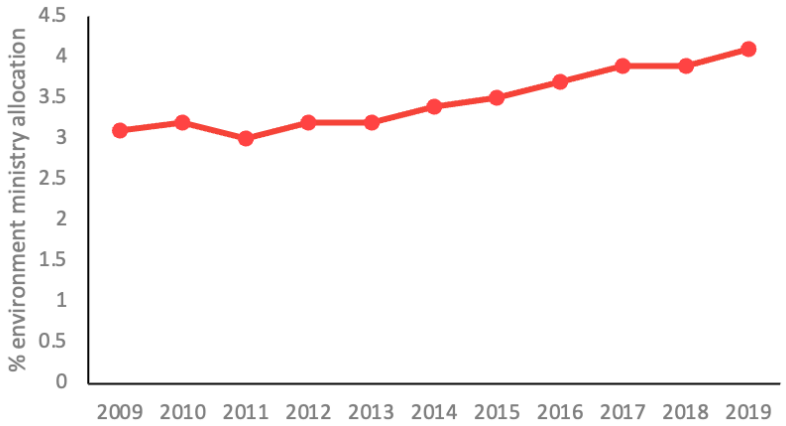




LINKS TO REPORTING OBLIGATIONS		
CBD	SDG	OTHER INTERNATIONAL CONVENTIONS
	15.a, 15.b	SAMOA Pathway (v90c)

ENVIRONMENT MINISTRY BUDGET ALLOCATION

% of national budget allocated to Environment Ministry of equivalent.

PURPOSE

Determine trends in prioritisation of environmental funding within government.

DESIRED OUTCOME

Stable or positive trend; sufficient and sustainable financing to implement environment programs.

ASSUMPTIONS

Assumes ministry budget allocations are transparent and readily available.

CALCULATION

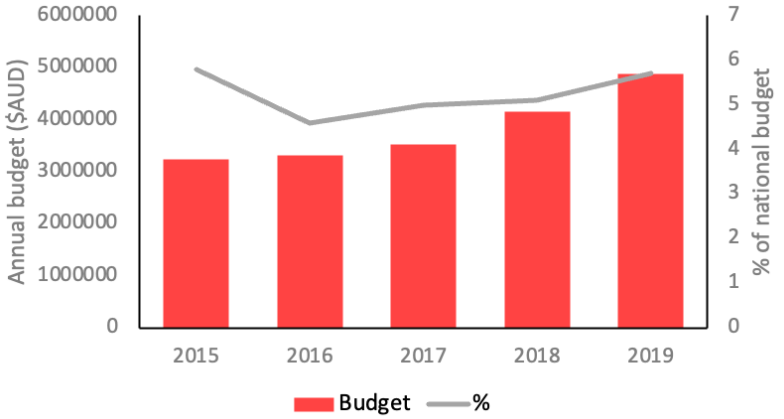
Apply following calculation to a minimum of previous 10 years of data: (environment ministry budget allocation/total government budget)*100

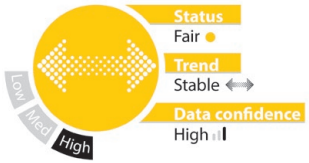
DATA SOURCES

Environment ministry.

INDICATOR IN ACTION

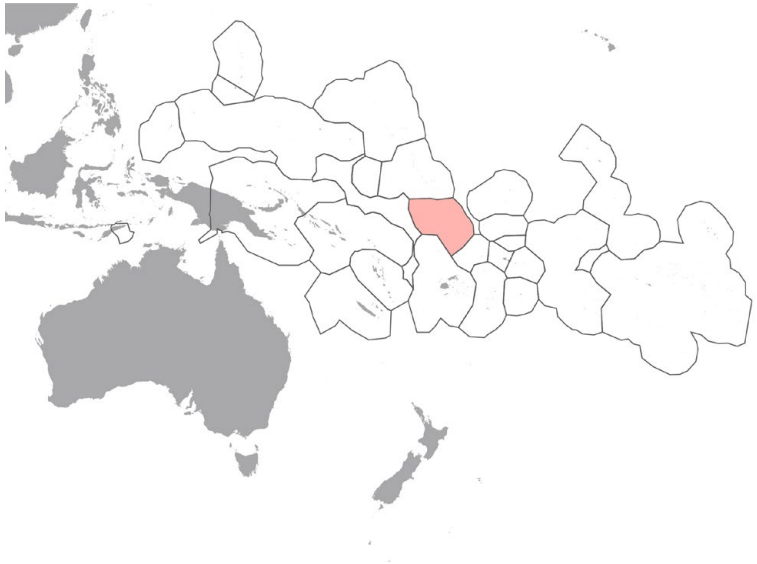
TUVALU MINISTRY BUDGET ALLOCATION





Since 2015 the Ministry's budget has grown from AU$3.2 million to AU$4.9 million, however has remained relatively stable at around 5% of the national budget. It is promising that the Ministry's budget has increased since 2015 in proportion with the growing national budget. It is recommended to increase or at least maintain the DoE's annual budget (as a proportion of the national budget) in order to facilitate the achievement of national environmental objectives, mitigate the impact of pressures on Tuvalu's environment, and maintain the ecosystem services that support the national economy, food security, health and other sectors.

Ministry of Foreign Affairs, Trade, Tourism, Environment and Labour annual budgets (AU$) as proportion of national annual budgets.



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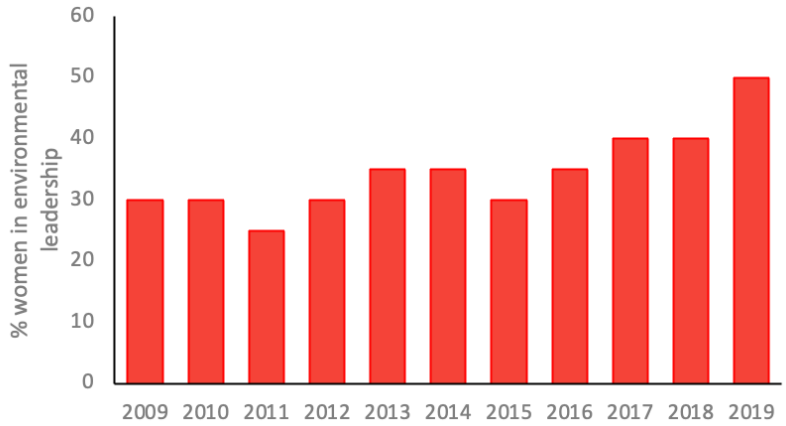


LINKS TO REPORTING OBLIGATIONS		
CBD	SDG	OTHER INTERNATIONAL CONVENTIONS
14	5 GENDER EQUALITY 5.5	SAMOA Pathway (76-77)

WOMEN IN ENVIRONMENTAL LEADERSHIP

% of women in leadership roles (heads of ministries, departments and divisions) in environmental ministries (ministries can include environment, fisheries, agriculture, and forestry).

PURPOSE

Determine trends in gender equality in environmental decision-making roles.

DESIRED OUTCOME

Positive trend towards gender equality in environmental decision-making.

ASSUMPTIONS

Assumes ministry gender breakdown data are available.

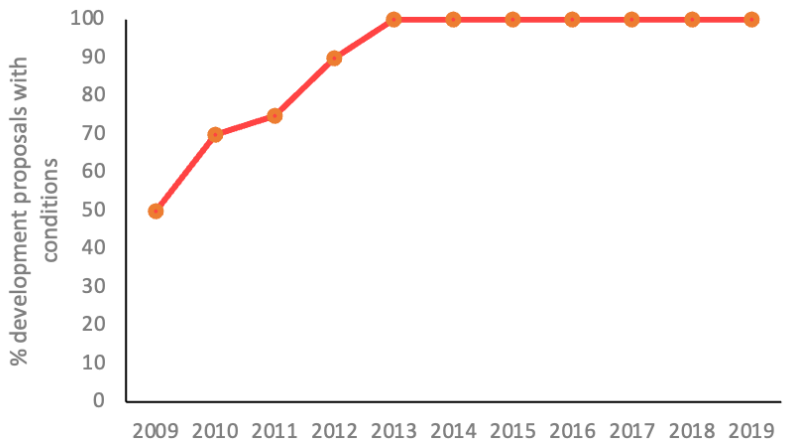
CALCULATION

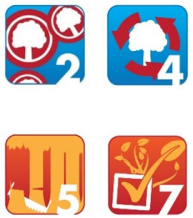
Apply following calculation to a minimum of previous 10 years of data: (number of women in leadership roles in environment ministries/total number of leadership roles in environment ministries)*100

Note that data can be disaggregated by level (ministry, department, division) or ministry if numbers allow.

DATA SOURCES

All relevant ministries.



LINKS TO REPORTING OBLIGATIONS			
CBD	SDG	OTHER INTERNATIONAL CONVENTIONS	REGIONAL MEAS
	 11.4, 11,6, 11.a, 11.b  12.2, 12.b	SAMOA Pathway, Rio Declaration	Noumea convention
LINKS TO REGIONAL FRAMEWORKS			
Regional Goals 4.1 and 4.2			

APPROVED DEVELOPMENT PROPOSALS WITH CONDITIONS

% of approved development proposals with conditions imposed.

PURPOSE

Determine the effectiveness of the national development assessment process.

DESIRED OUTCOME

100% of approved development proposals with conditions.

ASSUMPTIONS

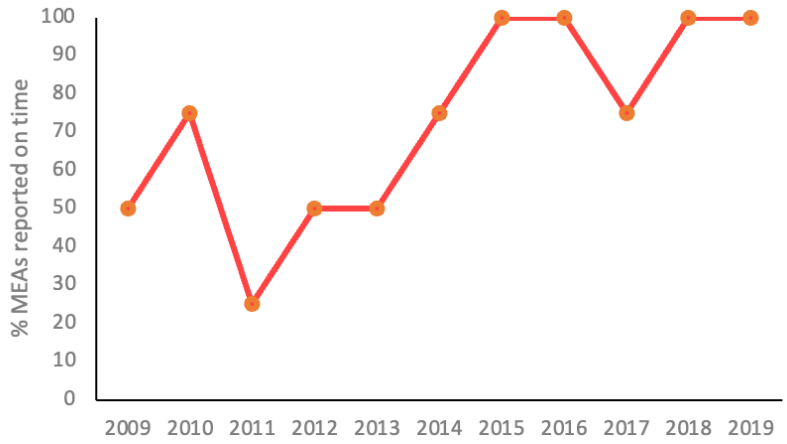
Assumes ministry collects data on development proposals and compliance with conditions.

CALCULATION

Apply following calculation to a minimum of previous 10 years of data: (total number of development proposals with conditions/total number of development proposals)*100

DATA SOURCES

Environment ministry.



MULTILATERAL ENVIRONMENT AGREEMENTS REPORTING REQUIREMENTS

% of MEA reporting requirements met on time.

PURPOSE

Determine the national effectiveness in meeting, and reporting to, MEAs.

DESIRED OUTCOME

100% of MEAs reported on time.

ASSUMPTIONS

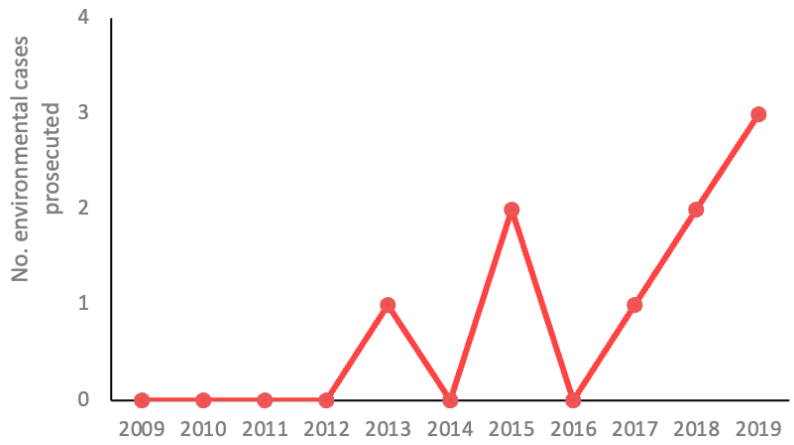
Assumes there are no data gaps in MEA reporting.

CALCULATION

Apply following calculation to a minimum of previous 10 years of data: (total number of MEAs due/total number of MEAs reported on time)*100

DATA SOURCES

Environment ministry; InforMEA (https://www.informea.org)



LINKS TO REPORTING OBLIGATIONS			
CBD	SDG	OTHER INTERNATIONAL CONVENTIONS	REGIONAL MEAS
	11.4	SAMOA Pathway (various), Rio Declaration on Environment and Development	Noumea Convention
LINKS TO REGIONAL FRAMEWORKS			
Regional Goal 4.2			

ENVIRONMENT CASES PROSECUTED

Number of environment cases prosecuted.

PURPOSE

To measure the country's ability to apply existing laws to environment infractions.

DESIRED OUTCOME

Increasing number of cases prosecuted.

ASSUMPTIONS

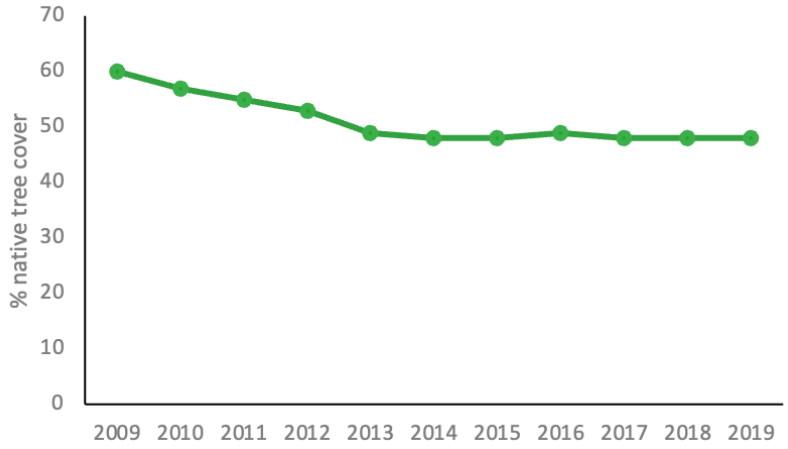
Prosecution procedures and enforcement of environment laws are properly carried out, and the number of prosecutions is collected by relevant agencies and made available.

CALCULATION

Raw annual total number of cases prosecuted.

DATA SOURCES

Environment ministry.



LINKS TO REPORTING OBLIGATIONS			
CBD	SDG	OTHER INTERNATIONAL CONVENTIONS	REGIONAL MEAS
	6.6 12,2 15.1, 15.2, 15.5	SAMOA Pathway (90, 94)	Noumea Convention; Ramsar
LINKS TO REGIONAL FRAMEWORKS			
Regional Goals 2.1, 2.2 and 2.3			

NATIVE TREE COVER

% native tree cover of total land area.

PURPOSE

Recognises the suite of environmental values associated with forests (e.g. biodiversity, carbon sequestration, subsistence hunting).

DESIRED OUTCOME

Positive or stable trend or slowing in rate of tree loss.

ASSUMPTIONS

Assumes tree cover is accurately mapped and that plantations are excluded.

CALCULATION

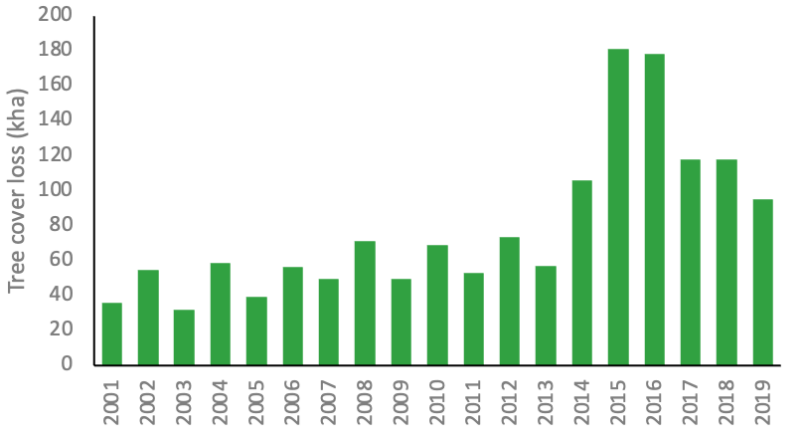
(total tree cover/total land area)*100

DATA SOURCES

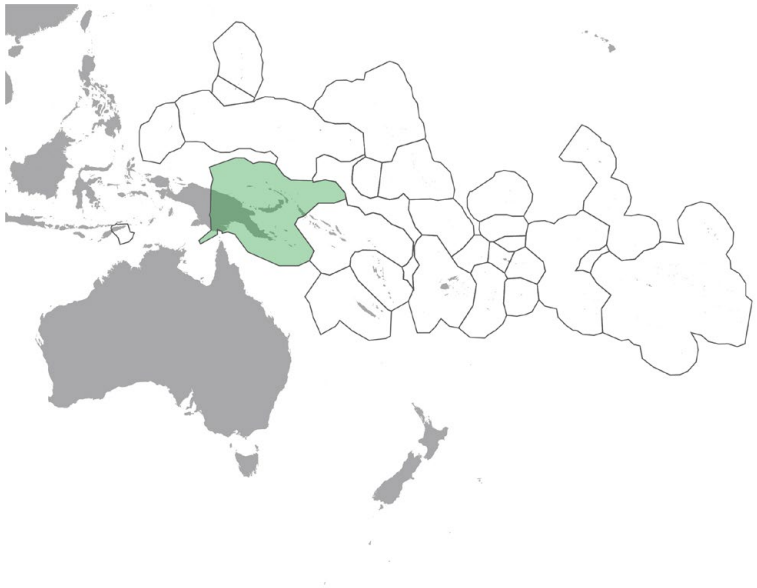
Environment or forestry ministries, Global Forest Watch (https://www.globalforestwatch.org/), FAO (http://www.fao.org/forest-resources-assessment/en/)

INDICATOR IN ACTION

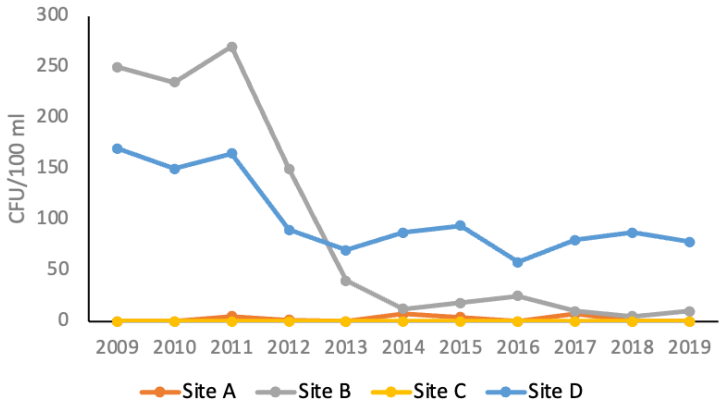
PNG'S TREE COVER



PNG's annual tree cover loss between 2001-2017 (Global Forest Watch).



There has been an increase in annual forest cover losses in Papua New Guinea with the highest losses between 2014-2016 and peaking at 181,000 ha in 2015. Over the period 2002-2019 the total area of primary forest in Papua New has declined by 2.2% (Global Forest Watch). With the vast majority of PNGs forests remaining intact, the country is well placed to deliver sustainable forestry and agriculture operations through revisions to The Environment Act 2000 and improved collaboration between the Conservation and Environmental Protection Authority and the PNG Forestry Authority.



LINKS TO REPORTING OBLIGATIONS			
CBD	SDG		OTHER INTERNATIONAL CONVENTIONS
	6.1, 6.3, 6.6	14.1	Rotterdam Convention, Stockholm Convention, UNCCD, SAMOA Pathway (64-65)
LINKS TO REGIONAL FRAMEWORKS			
Regional Goals 2.1 and 3.4			

FRESHWATER QUALITY

Escherichia coli (E. coli) levels across freshwater monitoring sites.

PURPOSE

E. coli are indicators of faecal contamination in freshwater bodies and are associated with a range of possible human diseases. High levels of E. coli can also be associated with cloudy water and decreased dissolved oxygen.

DESIRED OUTCOME

E. coli thresholds at or below globally accepted standards for drinking and bathing water, which is none detectable per 100 ml for both E. coli and total coliforms for drinking water and varies for bathing and swimming water.

ASSUMPTIONS

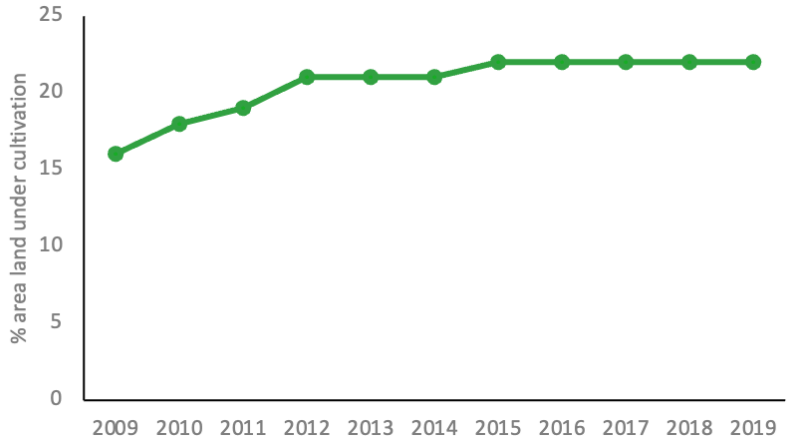
Assumes laboratory facilities available and sufficient water sampling across the country.

CALCULATION

Colony forming units (CFU) per 100 ml in laboratory analysis.

DATA SOURCES

Environment or water resource ministries.



LINKS TO REPORTING OBLIGATIONS			
CBD		SDG	OTHER INTERNATIONAL CONVENTIONS
			SAMOA Pathway (63)
		2.4	

LAND UNDER CULTIVATION

% of total land area that is under cultivation.

PURPOSE

Tracks the area of land that is developed for agriculture as an indicator of pressure on ecosystems.

DESIRED OUTCOME

Stable trend in area under cultivation which implies no ongoing loss of natural areas in agriculture development and no loss of food security and livelihoods.

ASSUMPTIONS

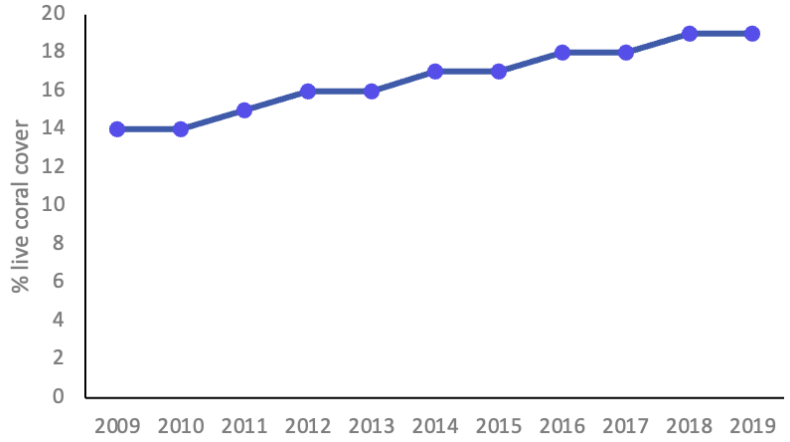
Assumes data on area under cultivation are available and updated annually.

CALCULATION

(total area under cultivation/ total land area)*100.

DATA SOURCES

Agriculture Ministry.



LINKS TO REPORTING OBLIGATIONS		
CBD	SDG	OTHER INTERNATIONAL CONVENTIONS
6, 8, 10, 14	14.2, 14.5	RAMSAR; SAMOA Pathway (90)
LINKS TO REGIONAL FRAMEWORKS		
Regional Goals 2.1 and 2.2; PIRT Objective 4		

LIVE CORAL COVER

% live coral cover in coastal and marine environments.

PURPOSE

An indicator of healthy coral reef systems which are associated with a range of environmental values and ecosystem services.

DESIRED OUTCOME

Stable or increasing trend in live coral cover.

ASSUMPTIONS

Adequate resources are available to undertake coral sampling at a representative suite of nearshore and off-shore sites.

CALCULATION

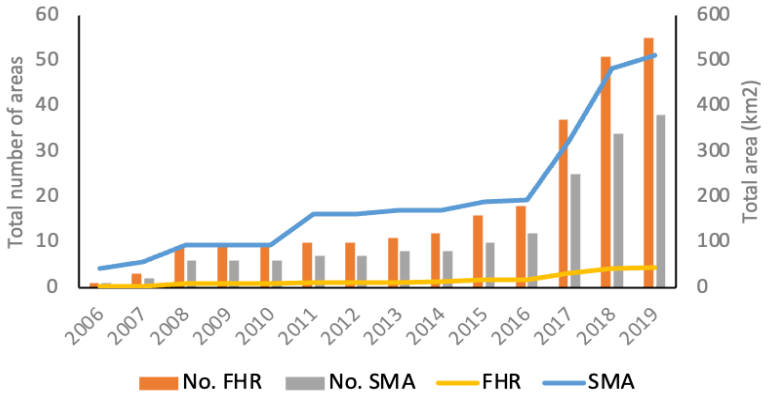
Usually measured along fixed distance transect using a tape underwater. The mean value can then be calculated across all monitoring sites, including precision (ideally 95% confidence intervals).

DATA SOURCES

Environment or fisheries ministries, Status and Trends of Coral Reefs in the Pacific (https://www.sprep.org/sites/default/files/documents/publications/status-coral-reefs-pacific.pdf).

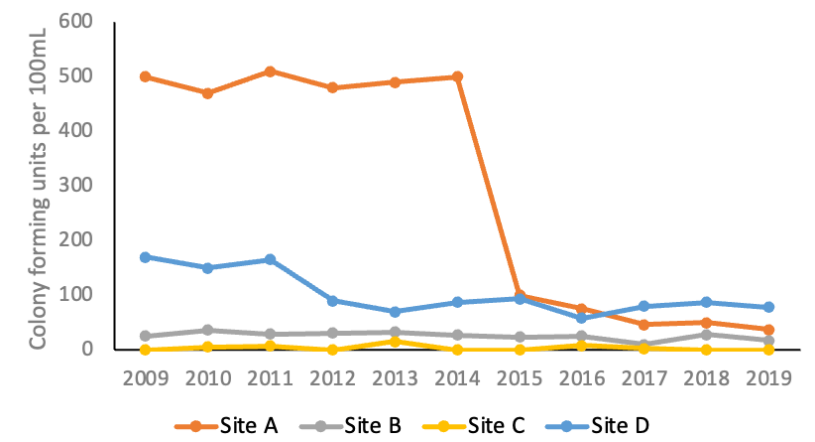
INDICATOR IN ACTION

TONGA'S SPECIAL MANAGEMENT AREAS (INSHORE FISHERIES)



Growth of Tonga's Special Management Area program, including Special Management Areas (SMA's) and no-take Fish Habitat Reserves (FHRs).

Tonga's Special Management Area (SMA) program was introduced to provide greater community ownership of inshore fisheries and coastal marine protected areas. SMAs grant communities exclusive access to the marine environment adjacent to their village to a depth of the 50-metre contour or 2.5 km from shore and only registered members of the community are permitted to fish in this area. A subset of each SMA is designated as no-take Fish Habitat Reserve (FHR). The size and boundaries of FHRs are determined by the Ministry of Fisheries in consultation with communities. Management and enforcement of SMAs is the responsibility of each community and this includes a requirement for developing a coastal management committee and associated management plan. From 2016-2019 31 new SMAs were established and a further 46 SMAs have been confirmed or approved. The overall goal is to include all coastal communities in the program by 2025. Tonga's SMAs are a model program for community managed inshore fisheries and coastal marine protected areas.



LINKS TO REPORTING OBLIGATIONS			
CBD	SDG	OTHER INTERNATIONAL CONVENTIONS	REGIONAL MEAS
8 10	6 CLEAN WATER AND SANITATION 6.3, 6.6	SAMOA Pathway (64-65)	Noumea Convention
LINKS TO REGIONAL FRAMEWORKS			
Regional Goals 2.1 and 2.2			

LAGOON WATER QUALITY

Enterococci levels across lagoon monitoring sites.

PURPOSE

Enterococci are indicators of faecal contamination in coastal waters and are associated with a range of possible human diseases.

DESIRED OUTCOME

Enterococci levels are within the safe threshold for marine recreation at all monitored sites. Current United States EPA thresholds are <110-130 cfu/100 ml for a single sample.

ASSUMPTIONS

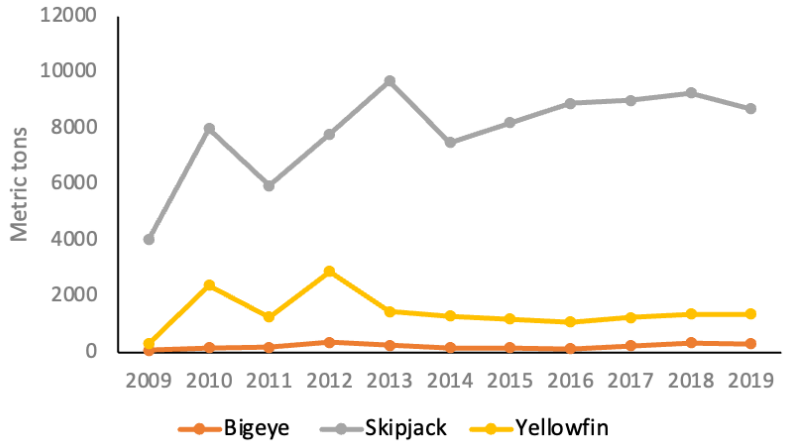
Assumes laboratory facilities available and sufficient water sampling at key sites across the country.

CALCULATION

Colony forming units (CFU) per 100 ml in laboratory analysis.

DATA SOURCES

Environment or water resource ministries.



LINKS TO REPORTING OBLIGATIONS		
CBD	**SDG**	**OTHER INTERNATIONAL CONVENTIONS**
	2.4 14.4, 14.7, 14.c	UN Fish Stocks Agreement; Convention for the conservation and management of highly migratory fish stocks in the western and central Pacific Ocean; SAMOA Pathway (53,58,59,63)
LINKS TO REGIONAL FRAMEWORKS		
Regional Goals 2.1 and 2.2; PIRT Objectives 2 and 5		

STATUS OF OFFSHORE FISHERIES

Annual volume catch of identified indicator species.

PURPOSE

Indicates health of commercially targeted migratory fish species and impact of by-catch on non-target species.

DESIRED OUTCOME

Stable trend in captures.

ASSUMPTIONS

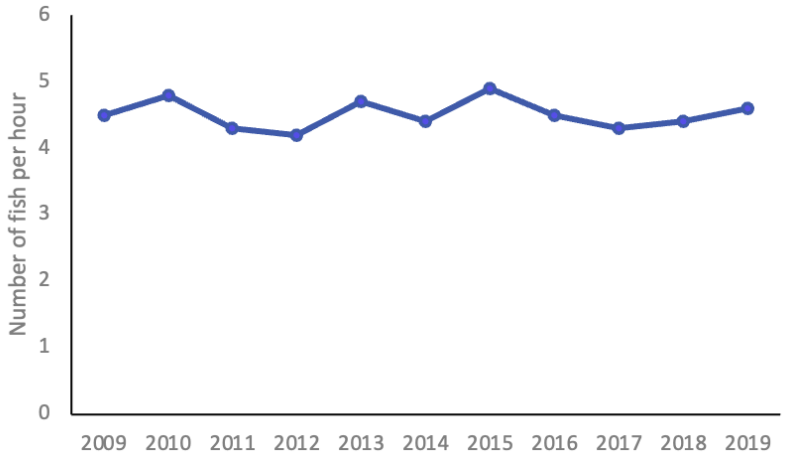
Assumes volume catch records are available or can be recorded. Does not account for inter-annual variation driven by climate.

CALCULATION

Raw values of total annual catches.

DATA SOURCES

Fisheries ministry, SPC.



LINKS TO REPORTING OBLIGATIONS		
CBD	**SDG**	**OTHER INTERNATIONAL CONVENTIONS**
6, 7, 11	2 ZERO HUNGER: 6.3, 6.6 14 LIFE BELOW WATER: 14.4, 14.7	SAMOA Pathway (53, 58, 59, 63)
LINKS TO REGIONAL FRAMEWORKS		
Regional Goals 2.1 and 2.2; PIRT Objectives 2, 4 and 5		

INSHORE FISHERIES

Annual catch per unit effort (CPUE) or volume catch of inshore species.

PURPOSE

Indicates inshore reef fish population status and reef health.

DESIRED OUTCOME

Stable trend in CPUE or volume of captures.

ASSUMPTIONS

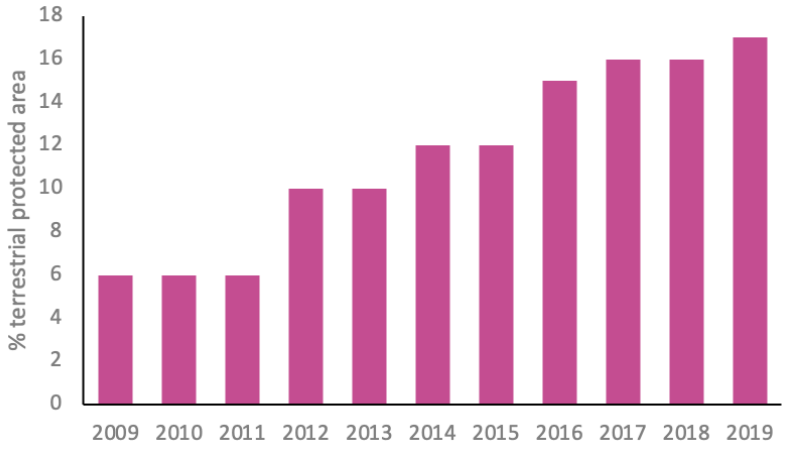
Assumes creel surveys are undertaken at least annually.

CALCULATION

Example measurements include: number of fish per fisher per hour fished (No/F/Hr); weight (kg) of fisher per fisher per hour fished; or volume (kg or tons) of raw captures.

DATA SOURCES

Fisheries ministry, SPC.



LINKS TO REPORTING OBLIGATIONS		
CBD	**SDG**	**OTHER INTERNATIONAL CONVENTIONS**
5, 7, 11	6.6, 12.2, 15.1, 15.2, 15.5	UNCCD; SAMOA Pathway (58, 80, 90, 94)
LINKS TO REGIONAL FRAMEWORKS		
Regional Goals 2.1, 2.2, 2.3; PIRT: Objectives 3 and 4		

TERRESTRIAL PROTECTED AREAS

% of land area formally protected for conservation.

PURPOSE

Protected areas are established to protect biodiversity, cultural and ecosystem values from resource extraction and unsustainable harvesting.

DESIRED OUTCOME

Positive trend in terrestrial protected areas.

ASSUMPTIONS

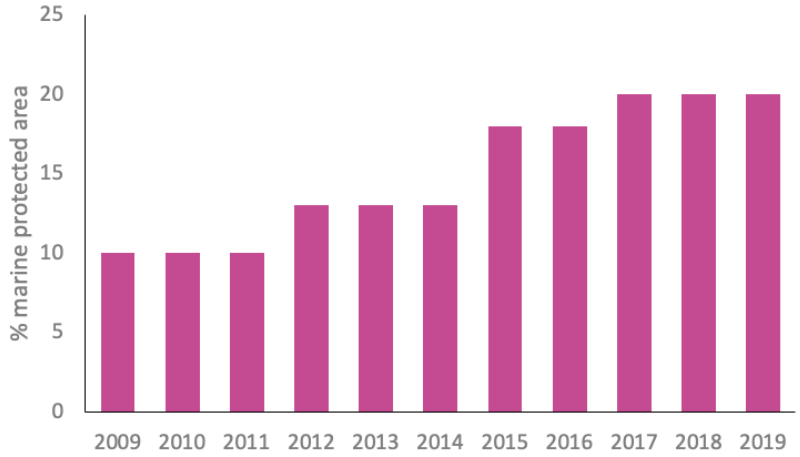
Assumes all terrestrial protected areas are accurately mapped. This indicator gives no indication of the management effectiveness of terrestrial protected areas.

CALCULATION

(total protected area/total land area)*100

DATA SOURCES

Environment ministry, World Database on Protected Areas (https://www.protectedplanet.net/).



LINKS TO REPORTING OBLIGATIONS		
CBD	**SDG**	**OTHER INTERNATIONAL CONVENTIONS**
6, 10, 11	14.2, 14.5	SAMOA Pathway (58, 80, 90, 94) Convention on the Protection of the Underwater Cultural Heritage
LINKS TO REGIONAL FRAMEWORKS		
Regional Goals 2.1, 2.2, 2.3; PIRT Objectives 3 and 4		

MARINE PROTECTED AREAS

% of EEZ formally protected for conservation.

PURPOSE

Protected areas are established to protect biodiversity, cultural and ecosystem values from resource extraction and unsustainable harvesting.

DESIRED OUTCOME

Positive trend area protected.

ASSUMPTIONS

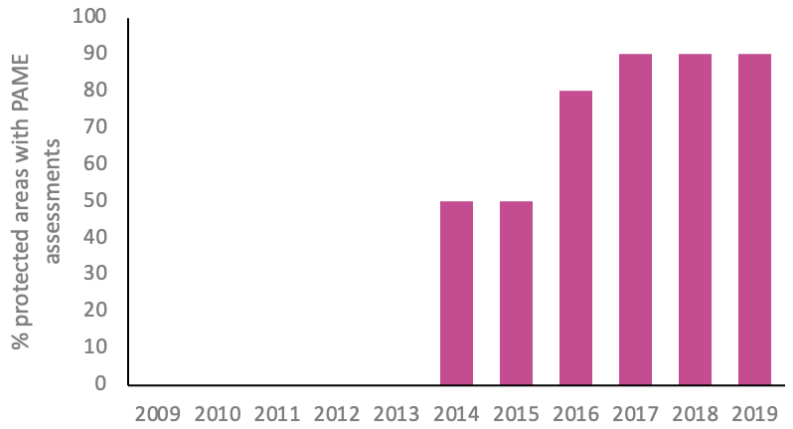
Assumes all marine protected areas are accurately mapped. This indicator gives no indication of the management effectiveness of marine protected areas

CALCULATION

(total protected area/total EEZ)*100

DATA SOURCES

Environment ministry, World Database on Protected Areas (https://www.protectedplanet.net/).



LINKS TO REPORTING OBLIGATIONS		
CBD	SDG	OTHER INTERNATIONAL CONVENTIONS
6, 10, 11	6.6, 12.2, 14.2, 14.5, 15.1, 15.2, 15.5	UNCCD; SAMOA Pathway (58, 80, 90, 94)
LINKS TO REGIONAL FRAMEWORKS		
Regional Goals 2.1, 2.2, 2.3 PIRT Objectives 3 and 4		

PROTECTED AREA MANAGEMENT EFFECTIVENESS

% of formal protected areas (PAs) where PA management effectiveness assessments (PAME) have been completed

PURPOSE

To determine how well management is protecting values and achieving goals and objectives.

DESIRED OUTCOME

Positive trend in effectively managed protected areas.

ASSUMPTIONS

Assumes PAME assessments are being undertaken in the country.

CALCULATION

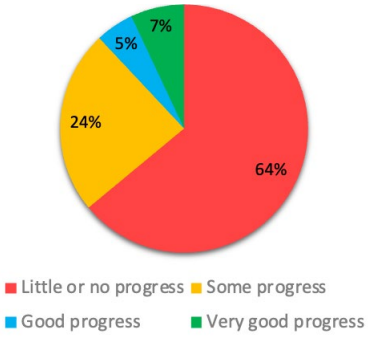
(number of protected areas with management effectiveness assessments/total number of protected areas)*100

DATA SOURCES

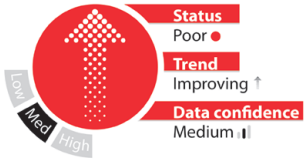
Environment ministry.

INDICATOR IN ACTION

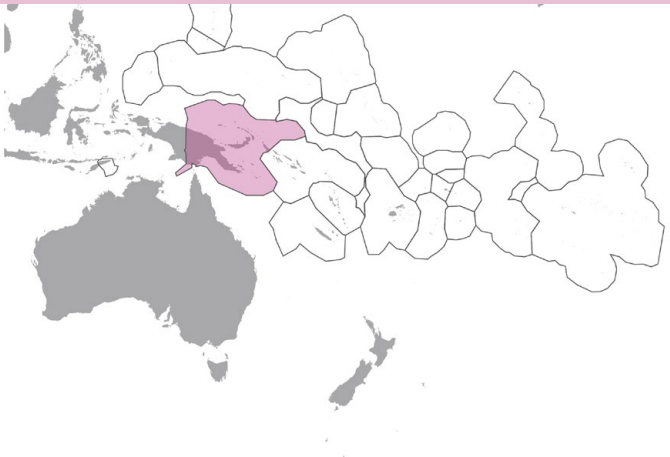
PROTECTED AREA MANAGEMENT EFFECTIVENESS IN PNG



Overall progress in protected area management effectiveness in PNG.



Source: Leverington, F. et al. 2017. Assessment Source: Leverington, F. et al. 2017. Assessment of management effectiveness for Papua New Guinea's protected areas 2017 : final report. Apia, Samoa: SPREP. https://png-data.sprep.org/dataset/assessment-management-effectiveness-pngs-protected-areas-201/resource/c48b26e6-405b-4a9f



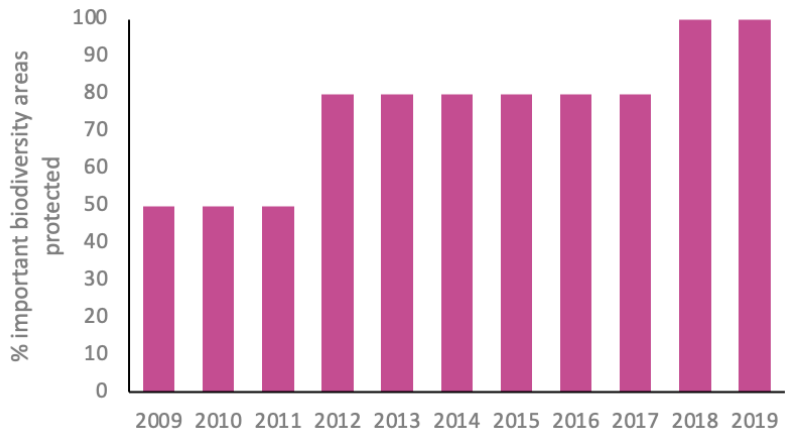
Customary landowners, custodians of 97% of land in PNG, recognise many areas of land and sea as "tambu" – areas of special spiritual significance. Customary landownership is therefore integral to PNGs 2.1 million hectares in its 59 protected areas. Protected areas sustain livelihoods, help maintain culture, provide tourism opportunities, store carbon, and protect biodiversity.

The PNG government recognises the importance of effectiveness management of its protected areas. In 2016–2017 the Government of Papua New Guinea (PNG), through its Conservation and Environmental Protection Authority (CEPA) and with the support of the United Nations Development Program (UNDP), organised for an evaluation of its protected areas, as part of the process to improve management effectiveness.

The key findings of the evaluation were as follows:

- 41 of the 58 of protected areas were good to very good condition
- 45% of the total area protected was in good to very good condition
- Important values are declining in over half of the protected areas

To improve management effectiveness in protected areas CEPA has developed an ambitious and comprehensive Protected Area Policy which has been endorsed by the National Executive Council, and has also prepared the new Protected Areas Bill. The policy and legislation are strongly orientated towards involvement and ownership by customary landowners. These will also assist PNG to meet its Convention on Biodiversity (CBD) target of 17% land area protected area by 2020.



LINKS TO REPORTING OBLIGATIONS		
CBD	SDG	OTHER INTERNATIONAL CONVENTIONS
6, 10, 11	6.6; 12.2; 14.2, 14.5; 15.1, 15.2, 15.5	UNCCD; SAMOA Pathway (58, 80, 90, 94)
LINKS TO REGIONAL FRAMEWORKS		
Regional Goals 2.1, 2.2, 2.3; PIRT Objectives 3 and 4		

AREAS IMPORTANT FOR BIODIVERSITY PROTECTED

Percentage of land and marine areas identified as Key Biodiversity Areas (KBAs) and Ecologically or Biologically Significant Marine Areas (EBSAs).

PURPOSE

KBAs represent the most important sites for biodiversity conservation worldwide and are identified nationally using globally standardised criteria and thresholds.

DESIRED OUTCOME

Positive trend in important areas for biodiversity protected or all important areas protected.

ASSUMPTIONS

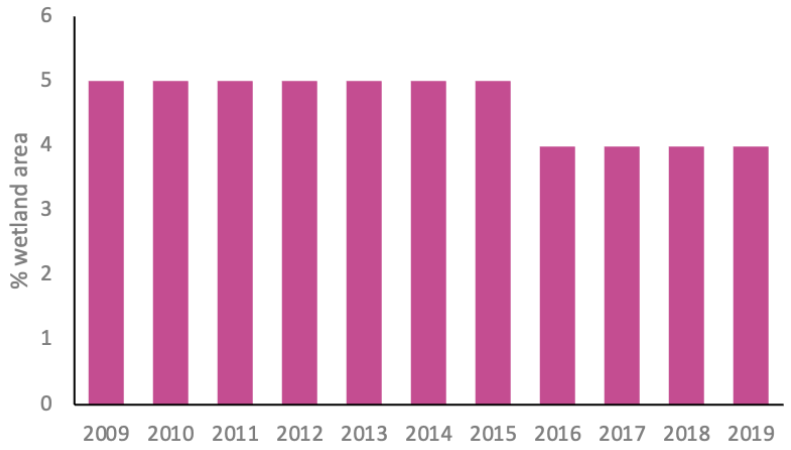
Assumes up to data spatial data are available on important biodiversity areas and protected areas

CALCULATION

(area of important biodiversity area protected/total area important biodiversity area)*100

DATA SOURCES

Environment ministry, World Database of Key Biodiversity Areas (http://www.keybiodiversityareas.org/home), World Database on Protected Areas (https://www.protectedplanet.net/), Important Bird and Biodiversity Areas (http://datazone.birdlife.org).



LINKS TO REPORTING OBLIGATIONS

CBD	SDG	OTHER INTERNATIONAL CONVENTIONS
5, 6, 10, 14	6.6, 12.2, 15.1, 15.2, 15.5	SAMOA Pathway (90, 94) Ramsar

LINKS TO REGIONAL FRAMEWORKS

Regional Goal 2.1

WETLANDS

% of land area comprising wetlands.

PURPOSE

Wetlands support unique biodiversity and provide ecosystem services not provided by other ecosystems.

DESIRED OUTCOME

Stable trend in wetland area.

ASSUMPTIONS

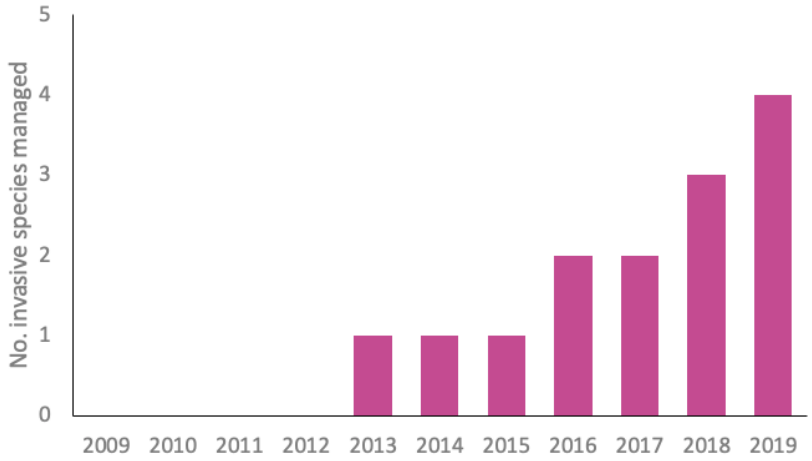
Assumes wetland areas are accurately mapped and updated each year.

CALCULATION

(total wetland area/total land area)*100

DATA SOURCES

Environment ministry, Ramsar (http://Ramsar.org).



LINKS TO REPORTING OBLIGATIONS		
CBD	SDG	OTHER INTERNATIONAL CONVENTIONS
9, 12	6 CLEAN WATER AND SANITATION, 15 LIFE ON LAND 6.3, 6.6 15.1, 15.5	SAMOA Pathway (95)
LINKS TO REGIONAL FRAMEWORKS		
Regional Goals 2.4; PIRT Objective 5		

INVASIVE SPECIES UNDER MANAGEMENT OR ERADICATED

Number of priority invasive species under management or eradicated.

PURPOSE

Priority invasive species can have severe environmental and economic impacts. This indicator is a proxy for the effectiveness of invasive species eradication and management programs.

DESIRED OUTCOME

Positive trend in the number of invasive species under management or eradicated.

ASSUMPTIONS

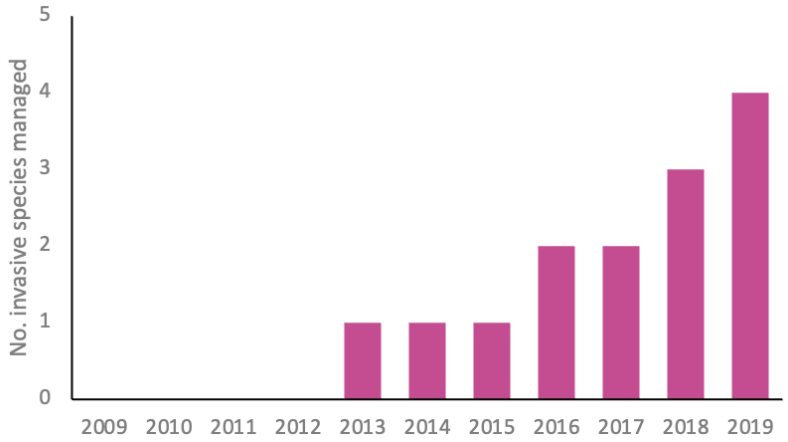
Assumes that management of invasive species is effective.

CALCULATION

Annual sum of number of priority invasive species eradicated or under management. This should be cumulative for species that have been eradicated but not for species for which management has stopped.

DATA SOURCES

Environment Ministry, SPREP (Island and Ocean Ecosytems).



LINKS TO REPORTING OBLIGATIONS		
CBD	SDG	OTHER INTERNATIONAL CONVENTIONS
9 12	6 CLEAN WATER AND SANITATION 15 LIFE ON LAND 6.3, 6.6 15.1, 15.5	SAMOA Pathway (95)
LINKS TO REGIONAL FRAMEWORKS		
Regional Goals 2.4; PIRT Objective 5		

PRIORITY SITES WITH INVASIVE SPECIES MANAGED

% of priority sites with invasive species management.

PURPOSE

Priority sites are identified locations that will benefit the most from ecological management, including invasive species control or eradication (e.g. islands with high biodiversity values).

DESIRED OUTCOME

Positive trend in % priority sites with invasive species management.

ASSUMPTIONS

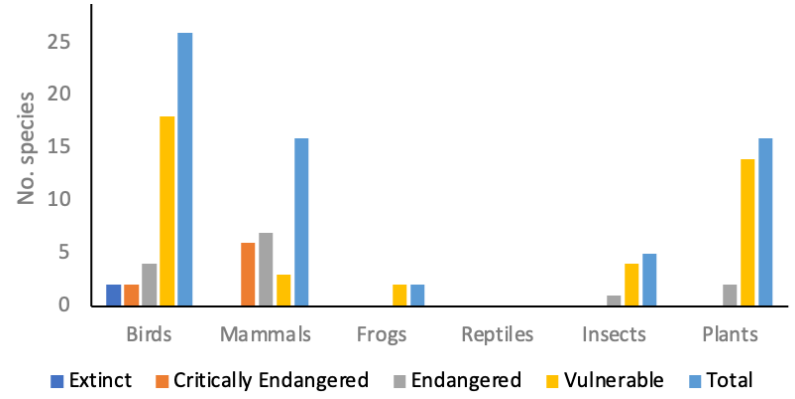
Assumes that management of invasive species is effective.

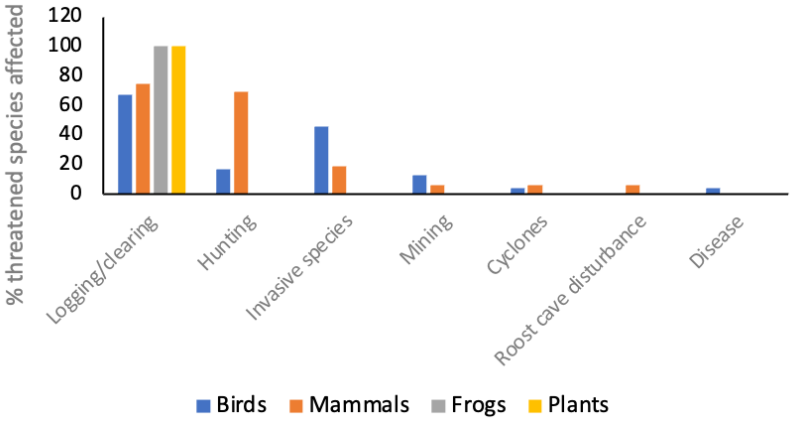
CALCULATION

(number of priority sites with invasive species management/total number of priority sites)*100

DATA SOURCES

Environment Ministry, SPREP (Island and Ocean Ecosystems).





LINKS TO REPORTING OBLIGATIONS		
CBD	SDG	OTHER INTERNATIONAL CONVENTIONS
12	15 LIFE ON LAND 15.5, 15.7, 15.C	SAMOA Pathway (90, 94 d)
LINKS TO REGIONAL FRAMEWORKS		
Regional Goal 2.3; PIRT Objective 4		

IUCN RED LIST SUMMARY

Number of species listed in the IUCN red list and summary of their threats.

PURPOSE

To track the status of threatened species and understand the most important threats operating at a national scale.

DESIRED OUTCOME

Reduction in the number of threatened species over time.

ASSUMPTIONS

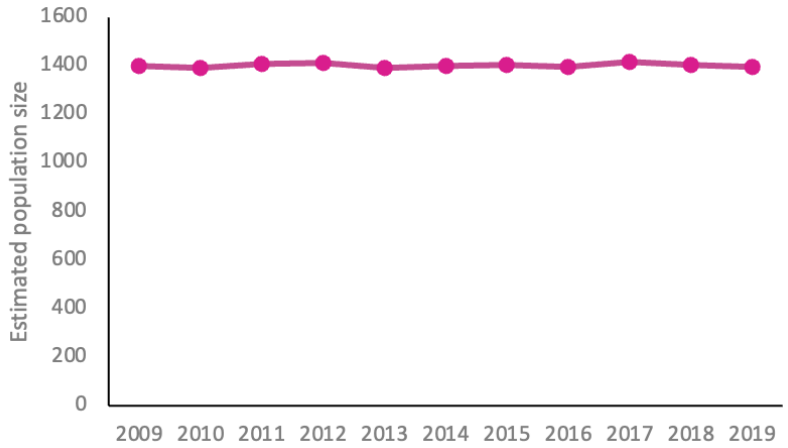
Assumes that all or most species have been formally assessed under IUCN criteria. Note that an increase in the number of threatened species over time may reflect more species being assessed in intervening years.

CALCULATION

Report numbers of each type of species (e.g. grouped by Class) in each threat category and their dominant threat types.

DATA SOURCES

IUCN red list of threatened species (https://www.iucnredlist.org/).



LINKS TO REPORTING OBLIGATIONS		
CBD	SDG	OTHER INTERNATIONAL CONVENTIONS
	15.5, 15.7, 15.C	SAMOA Pathway (90, 94 d)
LINKS TO REGIONAL FRAMEWORKS		
Regional Goal 2.3; PIRT Objective 4		

STATUS OF THREATENED, ENDEMIC AND MIGRATORY SPECIES

Trend in population size or occupancy of selected species.

PURPOSE

To track species status over time.

DESIRED OUTCOME

Stable or increasing population size or occupancy.

ASSUMPTIONS

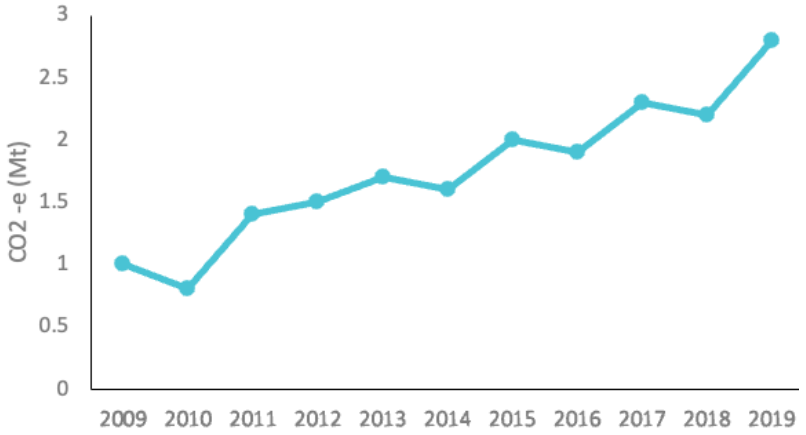
Requires rigorous and ongoing monitoring programs for selected priority species.

CALCULATION

Various specific methods are available for estimating population size or occupancy.

DATA SOURCES

Environment Ministry



LINKS TO REPORTING OBLIGATIONS		
CBD	SDG	OTHER INTERNATIONAL CONVENTIONS
	7.2, 11.b, 13.2	UNFCCC; SAMOA Pathway (43)
LINKS TO REGIONAL FRAMEWORKS		
Regional Goal 1.1		

GREENHOUSE GAS (GHG) EMISSIONS

Trend in annual greenhouse gas (GHG) emssions.

PURPOSE

Greenhouse gas emissions are the primary cause of global warming. Countries have committed to UNFCCC and Paris Agreement to reduce GHG emissions.

DESIRED OUTCOME

Negative trend in GHG emissions as per Nationally Determined Contributions (NDCs).

ASSUMPTIONS

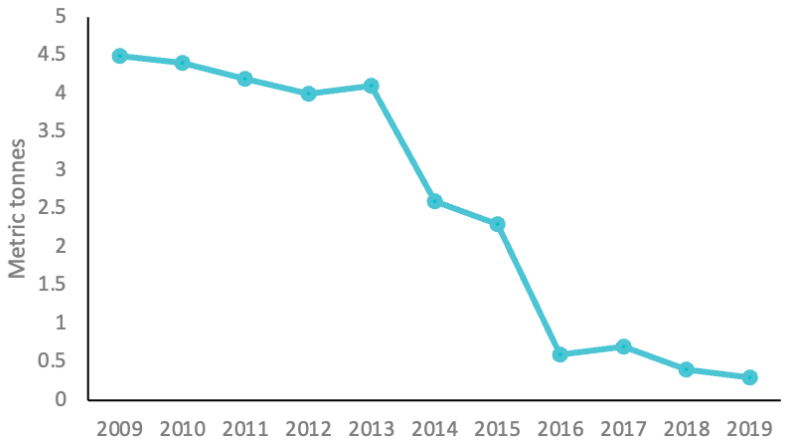
Assumes data are accurately reported in NDCs on a 5-yearly basis.

CALCULATION

Specified in NDCs. Guidance can be found in the IPCC 2006 greenhouse gas inventory guidelines and the 2014 IPCC KP supplement.

DATA SOURCES

Government ministries responsible for energy production and reporting to UNFCCC.



LINKS TO REPORTING OBLIGATIONS		
CBD	SDG	OTHER INTERNATIONAL CONVENTIONS
	7.2 11.b 13.2	Montreal Protocol Samoa Pathway (45)
LINKS TO REGIONAL FRAMEWORKS		
Regional Goal 1.1, Regional Goal 3.1		

OZONE DEPLETING SUBSTANCES (ODS)

Trend in annual consumption or imports of ozone depleting substances (ODS).

PURPOSE

ODS such as chlorofluorocarbons destroy the earth's protective ozone layer. This indicator tracks countries commitment to phasing out ODS under the Montreal Protocol.

DESIRED OUTCOME

Negative trend in annual ODS consumption or imports.

ASSUMPTIONS

All countries have ratified the Montreal Protocol but assumes access to data on ODS imports or use.

CALCULATION

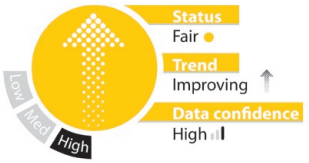
Annual total imports or consumption, frequently measured in tonnes.

DATA SOURCES

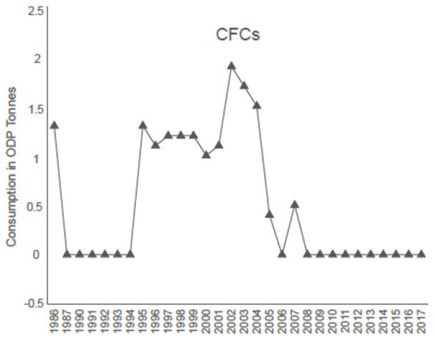
Government ministries responsible for monitoring imported goods and reporting to Montreal Protocol.

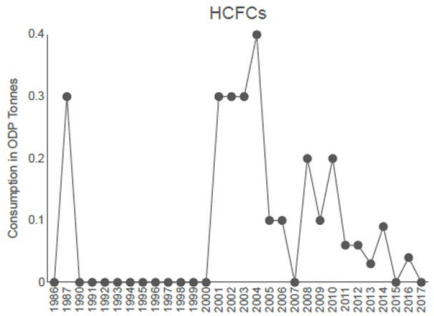
INDICATOR IN ACTION

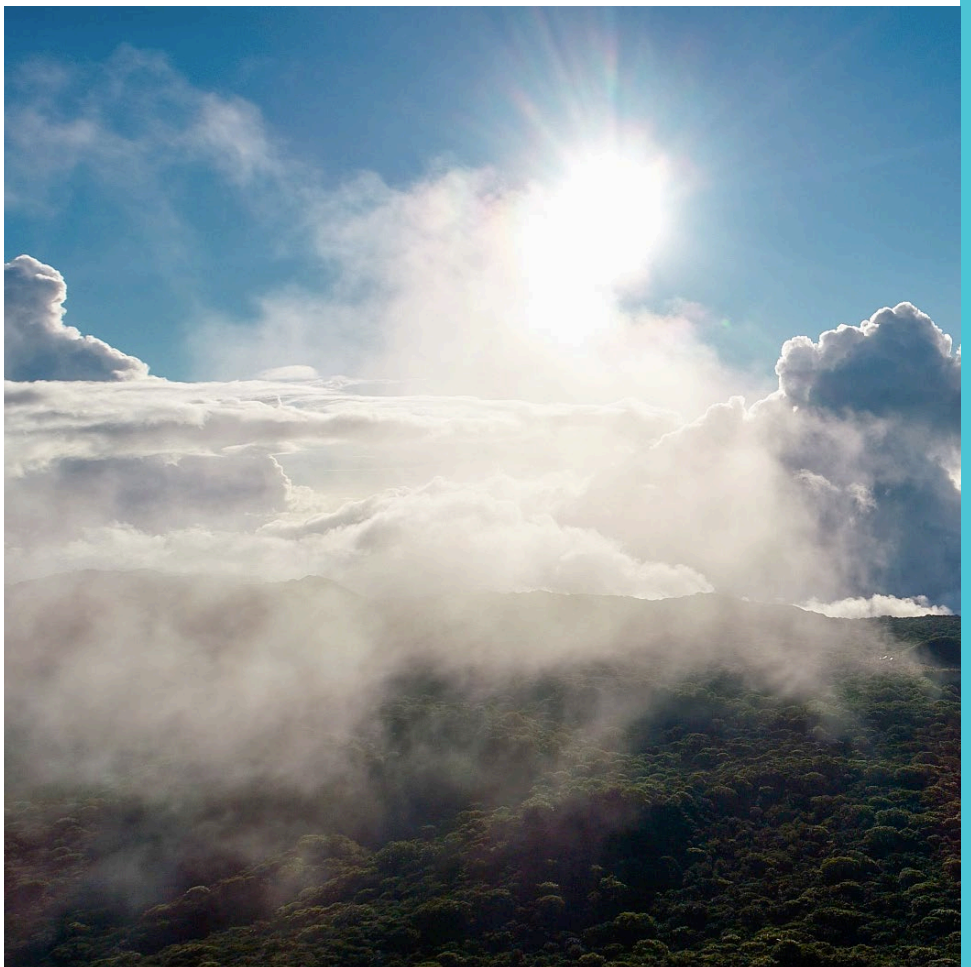
OZONE DEPLETING SUBSTANCES IN FEDERATED STATE OF MICRONESIA (FSM)



Consumption of CFCs and HCFCs in FSM between 1986 and 2017. Values are given in ozone depleting potential (ODP) units, which is a measure of the relative amount of degradation to the ozone layer that ODS chemicals can cause (UNEP Data Center).

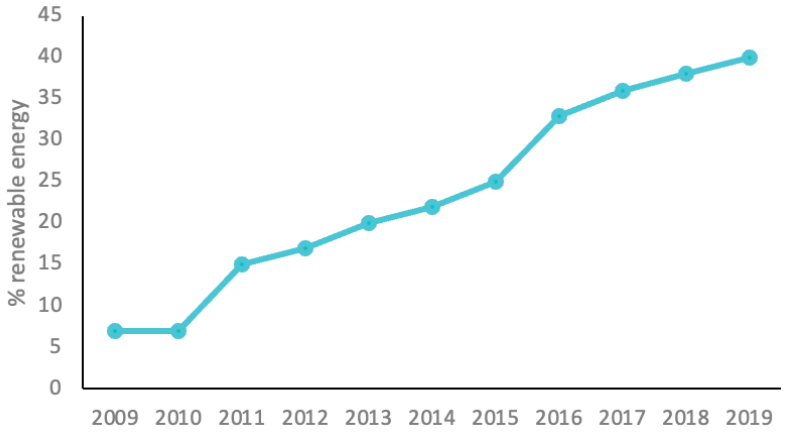






From 2009 the FSM phased out the use of CFCs, reducing consumption to zero Ozone Depleting Potential (ODP) units (UNEP, 2018). Similar progress is under way for the HCFCs, which are also being phased out. The imports of HCFCs decreased by 97% from a baseline consumption of 2.55 metric tonnes to 0.065 metric tonnes in 2017. In 2017 the consumption reduction of HCFCs surpassed the 35% reduction target from its baseline, indicating that the country is in the advanced stages of phasing out HCFC consumption ahead of the Montreal Protocol reduction schedule.

Between 2011 and 2018 the consumption of HCFCs in FSM has dropped below 0.1 ODP tonnes. FSM is in the process of establishing regulations to ban the import of HCFC-based equipment, and has established the RAC (Refrigeration and Air Conditioning) Association to support the implementation of HCFCs phase-out activities (UNEP, 2018). FSM has distributed across the four state RAC Associations servicing equipment and tools that comprise: (i) a recovery machine, (ii) recovery cylinders, (iii) servicing tool boxes, (iv) refrigerant recovery kit and (v) vacuum pumps. The country complies with the reporting of illegal trade to the Ozone Secretariat. In 2015, in efforts to curb trade of mislabelled refrigerants, the FSM confiscated and stored 180 canisters for a total of 45 kg of Dichlorodifluoromethane (CFC). The FSM ceased imports of CFCs in 2008 even before the global ban in 2010. The FSM is progressing well in the total phase-out of HCFC consumption, reaching a 97% reduction of HCFC imports in 2018.



LINKS TO REPORTING OBLIGATIONS		
CBD	SDG	OTHER INTERNATIONAL CONVENTIONS
	7.2, 7.2, 7.a, 7.b	UNFCCC; Samoa Pathway (47-50)
LINKS TO REGIONAL FRAMEWORKS		
Regional Goal 1.1		

RENEWABLE ENERGY

Trend in percentage of annual national production of energy from renewable sources.

PURPOSE

Energy generation is the main source of GHG emissions globally. Pacific islands are also particularly vulnerable to fluctuations in fossil fuel cost and availability.

DESIRED OUTCOME

Positive trend in energy productions from renewable sources.

ASSUMPTIONS

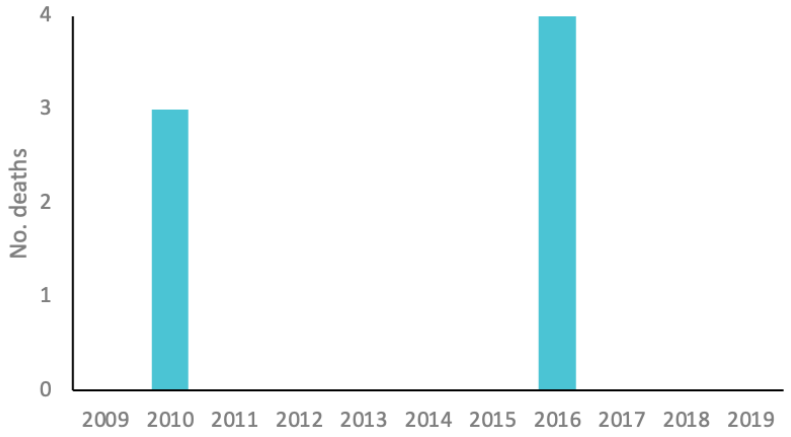
These data should be readily available from ministry of energy or equivalent.

CALCULATION

Apply following calculation to annual data for a minimum of previous 10 years: (total energy from renewable sources/ annual total national energy production)*100

DATA SOURCES

Government ministries responsible for energy production, Asia Pacific Energy Portal (https://asiapacificenergy.org/), IRENA Renewable Energy statistics (https://www.irena.org/Statistics), ADB Pacific Energy Update series (https://www.adb.org/publications/series/pacific-energy-update).



LINKS TO REPORTING OBLIGATIONS

SDG

11.b

13.1

LINKS TO REGIONAL FRAMEWORKS

Regional Goal 1.2, Regional Goal 1.5

CLIMATE-RELATED DEATHS

Number of annual climate-related deaths from declared disasters.

PURPOSE

Climate change is resulting in more extreme weather events globally and the Pacific islands are particularly vulnerable to cyclones and storm surges. This indicator assesses how well adaptation measures protect the population against these extreme events.

DESIRED OUTCOME

Nil deaths associated with extreme weather events.

ASSUMPTIONS

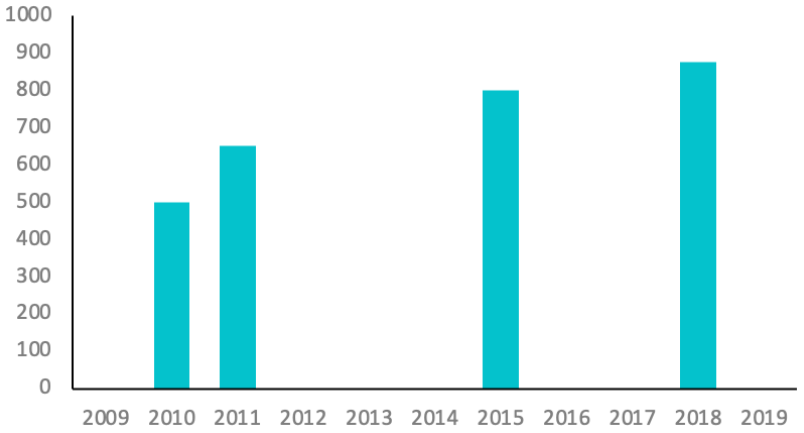
Assumes these data are being collected my relevant government authority.

CALCULATION

Climate-related deaths are summed annually.

DATA SOURCES

Government ministries responsible for health and disaster response.



LINKS TO REPORTING OBLIGATIONS	
SDG	OTHER INTERNATIONAL CONVENTIONS
11.b, 13.1	UNFCCC; Samoa Pathway (51-52); Sendai Framework for Disaster Risk Reduction
LINKS TO REGIONAL FRAMEWORKS	
Regional Goal 1.2, Regional Goal 1.5	

CLIMATE-RELATED DISASTER LOSSES

Total annual dollars of financial loss occurring due to climate-related disaster (cyclones, floods, landslides, drought) national government losses.

PURPOSE

Climate change is resulting in more extreme weather events globally and the Pacific islands are particularly vulnerable to these. This indicator assesses how well adaptation measure protect the population against these extreme events.

DESIRED OUTCOME

Negative trend in financial losses associated with natural disasters.

ASSUMPTIONS

Assumes financial impacts associated with disasters are accurately costed.

CALCULATION

Climate-related losses are summed annually.

DATA SOURCES

Government finance and disaster response ministries.

INDICATOR	'NO'	'PARTIAL'	'YES'
Sub-indicator 2.4	National adaptation planning documents (including NAPs, JNAPs, NAPAs etc) do not consider/include climate projections and future scenarios	National adaptation planning documents (including NAPs, JNAPs, NAPAs etc) are based on out of date climate projections (AR4 or earlier)	National adaptation planning documents (including NAPs, JNAPs, NAPAs etc) are based on the most recent Climate projections are based on the most recent (RCP-based/AR5 onwards) GCM and RCM simulations and climate projections

EXAMPLE TABLE

LINKS TO REPORTING OBLIGATIONS	
SDG	**OTHER INTERNATIONAL CONVENTIONS**
 11.b  13.1	UNFCCC; Samoa Pathway (11, 15, 31-46, 51, 52); Sendai Framework for Disaster Risk Reduction
LINKS TO REGIONAL FRAMEWORKS	
Regional Goal 1.2, Regional Goal 1.5	

PACIFIC CLIMATE CHANGE PREPAREDNESS SCORECARD

A set of sub-indicators for measuring climate change adaptation and preparedness across three focus areas (Adaptation Planning, Addressing Impacts and Vulnerabilities, Mainstreaming Climate Adaptation).

PURPOSE

To develop a consistent methodology for assessing adaptation and preparedness.

DESIRED OUTCOME

Progress towards effective adaptation and preparedness (ideally 'yes' for all sub-indicators)

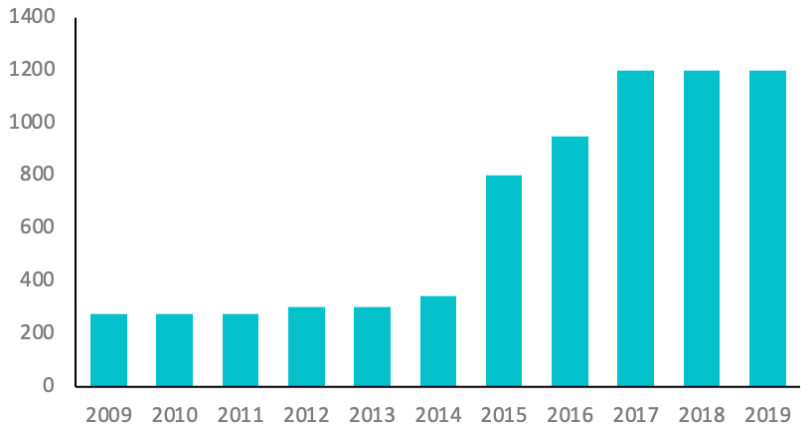
CALCULATION

The sub-indicators have been compiled into a scorecard format with each assessed against "No", "Partial", or "Yes" criteria, developed to be as objective and unambiguous as possible to allow the practitioner to impartially determine a robust answer. In addition, progress towards each indicator can be described in more detail in a brief narrative section. Within each focus area (e.g. Adaptation Planning) sub-indicators can be 'averaged' to determine overall states and trends, resulting in three states and trends (one for each focus area).

INDICATORS FOR THE PACIFIC CLIMATE CHANGE PREPAREDNESS SCORECARD		NO	PARTIAL	YES
1. ADAPTATION PLANNING				
1.1	An up-to-date national adaptation plan (NAP; or Joint National Action Plan including an implementation plan) has been published and is being implemented.			
1.2	Adaptation action is coordinated at a sectoral level evidenced by sector adaptation plans or mainstreaming of adaptation into sector plans and policies.			
1.3	Mechanisms are in place to facilitate inclusive involvement of stake-holders in national adaptation planning, including incorporation of views from sectors (horizontal) and sub-national level (vertical).			
1.4	A systematic prioritisation of adaptation activities (e.g. country programme, project pipeline etc) with indicative costs and potential funders identified, endorsed by the relevant authority.			
1.5	Actions to address climate change adaptation are supported by a national level authoritative financial entity (e.g. a Ministry of Finance) which is able to facilitate access international climate finance (the financial mechanisms of the UNFCCC - GEF, GCF and AF)			
2. ADDRESSING IMPACTS AND VULNERABILITIES (INCLUDING EARLY WARNING SYSTEMS)				
2.1	Observational systems are in place to enable the monitoring of weather and climate change.			
2.2	The country has access to Multi-Hazard Early Warning Systems (MHEWS) and can effectively disseminate warnings to communi-ties.			
2.3	Up-to-date scenarios and climate projections are used to inform national adaptation planning.			
2.4	Up-to-date scenarios and climate projections are used to inform national adaptation planning.			
2.5	A consistent approach to vulnerability assessments is used at an island level with a standardised methodology.			

INDICATORS FOR THE PACIFIC CLIMATE CHANGE PREPAREDNESS SCORECARD		NO	PARTIAL	YES
3. MAINSTREAMING CLIMATE ADAPTATION				
3.1	Climate change adaptation considerations are included in the country's Environmental Impact Assessment legisla-tion (or in the developments approval document/consent licenses/approval conditions).			
3.2	National Development Plans (national strategic plans, national sustainable development plans, frameworks, or similar) consider the impacts of climate change.			
3.3	Climate change information and knowledge (including climate science; vulnerability and risk assessments; policies and plans; traditional knowledge; and information from civil society) is being collated and organised and is in publicly accessible formats.			

FULL LIST OF SUB-INDICATORS



LINKS TO REPORTING OBLIGATIONS		
CBD	SDG	OTHER INTERNATIONAL CONVENTIONS
2, 14, 15, 20	6.6, 12.2, 13.1, 14.2, 14.5, 15.1	UNFCCC; Samoa Pathway (44, 51-52, 92, 106)
LINKS TO REGIONAL FRAMEWORKS		
Regional Goal 1.4, PIRT Objective 6		

FUNDING FOR ECOSYSTEM-BASED ADAPTATION

Trend in annual funds received to implement ecosystem-based approaches to climate adaptation.

PURPOSE

To indicate capacity of country to adapt to climate change through ecosystem-based approaches.

DESIRED OUTCOME

Positive or stable trend in ecosystem-based adaptation funding.

ASSUMPTIONS

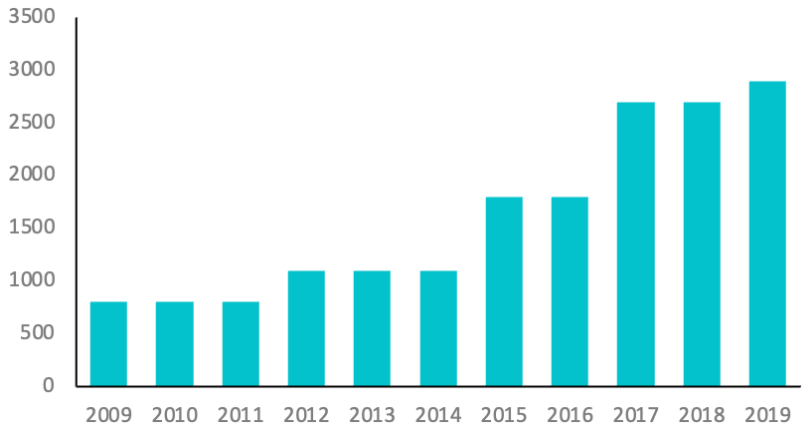
Assumes these data across multiple projects are collected and consolidated.

CALCULATION

Ecosystem-based adaptation funds are summed annually.

DATA SOURCES

Government environment ministry.



LINKS TO REPORTING OBLIGATIONS		
CBD	SDG	OTHER INTERNATIONAL CONVENTIONS
2, 14, 15, 20	6.6, 12.2, 13.1, 14.2, 14.5, 15.1	UNFCCC; Samoa Pathway (51-52)
LINKS TO REGIONAL FRAMEWORKS		
Regional Goal 1.4, PIRT Objective 6		

CLIMATE-BASED ADAPTATION AND MITIGATION FUNDING

Trend in annual funds received to implement all climate change and mitigation work.

PURPOSE

To indicate the improved capacity of countries to adapt to climate change impacts and reduce their carbon footprint.

DESIRED OUTCOME

Positive or stable trend in ecosystem-based adaptation funding.

ASSUMPTIONS

Assumes these data across multiple projects are collected and consolidated.

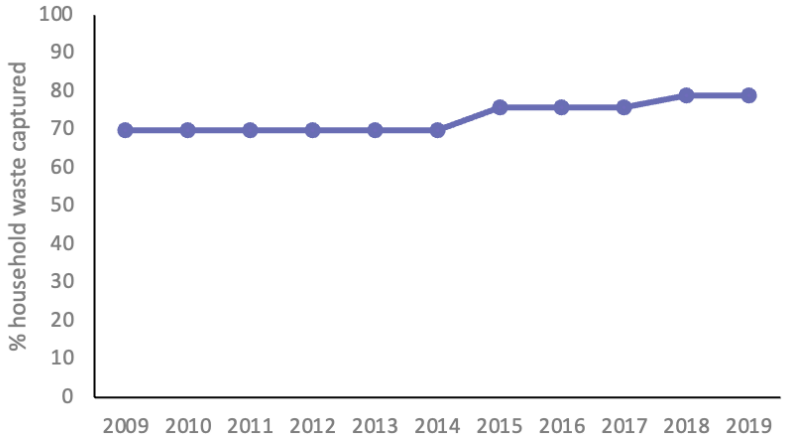
CALCULATION

Funds are summed annually.

DATA SOURCES

Environment, finance and infrastructure ministries.

EMERALD PRINCESS



LINKS TO REPORTING OBLIGATIONS			
CBD	SDG	OTHER INTERNATIONAL CONVENTIONS	REGIONAL MEAS
	6.3, 11.6, 12.4, 14.1	Samoa Pathway (71a)	Noumea Convention
LINKS TO REGIONAL FRAMEWORKS			
Regional Goal 3.1; PIRT Objective 5			

HOUSEHOLD WASTE CAPTURED

% household waste capture by authorised waste collection.

PURPOSE

To measure the percentage of total household waste disposed in waste facilities.

DESIRED OUTCOME

Positive trend in household waste captured by authorised collection.

ASSUMPTIONS

Assumes volumes/weights of waste are recorded at landfills and that households surveys conducted to accurately estimate amount of total waste generated.

CALCULATION

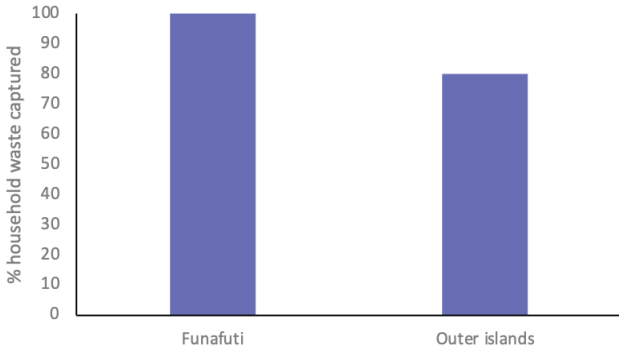
Capture rate is measured by volume or weight at waste disposal facilities

(Total household waste captured/total waste generated)*100

DATA SOURCES

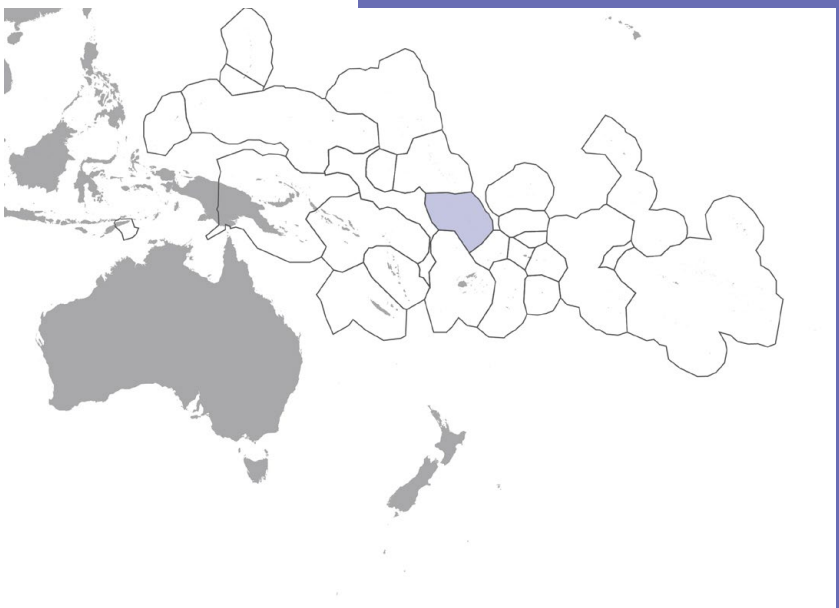
Household surveys conducted by national authority; waste management records for amount of waste; Human population from national bureau of statistics.

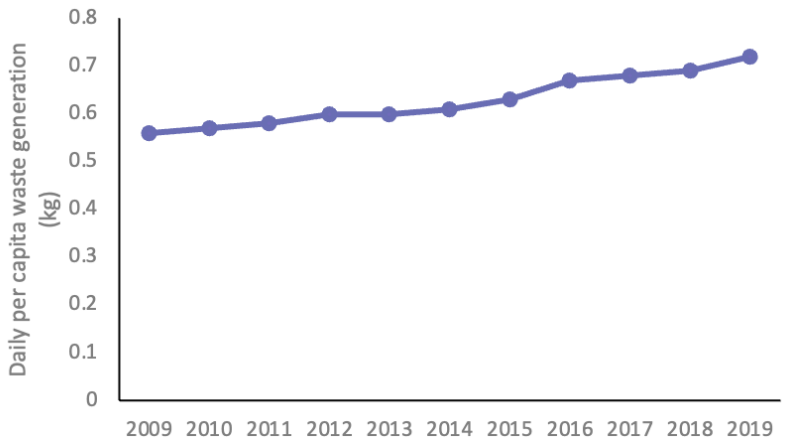
INDICATOR IN ACTION
TUVALU WASTE COLLECTION



% of households with waste collection in Funafuti and outer islands, Tuvalu.

The responsibility for household waste collection in Tuvalu is held by the Department of Waste Management in Funafuti and the Falekaupules (traditional assembly of elders) in the outer islands. Coverage is excellent in Funafuti with 100% of households provided with waste collection services and relatively good on the outer islands with 80% of households covered. Waste is collected following a regular schedule, using flat-tray vehicles and taken directly to local landfill sites. In Fongafale, Funafuti (where most of the nation's population reside), general waste is collected twice per week, green waste is collected twice per week and bulky waste is collected once per week. On the outer islands, waste is generally collected twice per week. Unfortunately, data are not available to determine the percentage of waste collected from the total waste generated and illegal dumping and incineration need to be addressed.





LINKS TO REPORTING OBLIGATIONS			
CBD	SDG	OTHER INTERNATIONAL CONVENTIONS	REGIONAL MEAS
	11.6 12.4	Samoa Pathway (71 a,d)	Noumea Convention
LINKS TO REGIONAL FRAMEWORKS			
Regional Goal 3.1; PIRT Objective 5			

PER CAPITA GENERATION OF MUNICIPAL SOLID WASTE

Trend in average daily per capita generation of municipal solid waste.

PURPOSE

Accurate measurement of per capita waste generation for improved waste management and tracking of consumption patterns.

DESIRED OUTCOME

Stable or negate trend in generation of solid waste.

ASSUMPTIONS

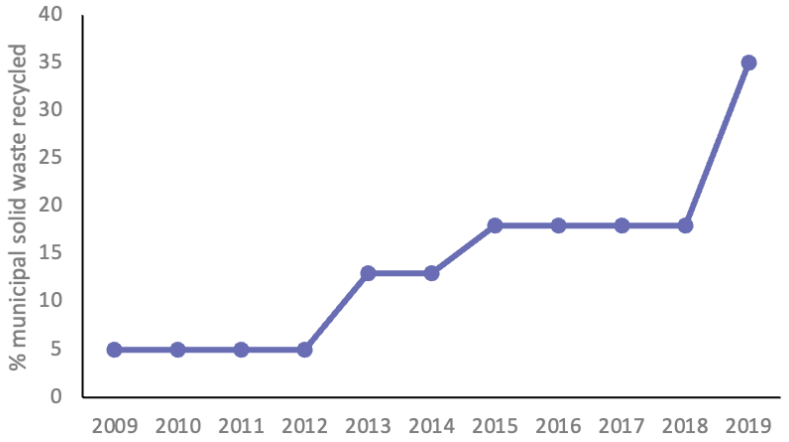
Assumes sufficient annual sampling of per-capita waste generation.

CALCULATION

Representative sampling of households using daily waste separation over a minimum two-week period.

DATA SOURCES

Household surveys conducted by national authority or national authority partner (e.g. JICA).



LINKS TO REPORTING OBLIGATIONS			
CBD	SDG	OTHER INTERNATIONAL CONVENTIONS	REGIONAL MEAS
8	11 SUSTAINABLE CITIES AND COMMUNITIES: 11.6 12 RESPONSIBLE CONSUMPTION AND PRODUCTION: 12.4, 12.5	Samoa Pathway (71 a,d)	Noumea Convention
LINKS TO REGIONAL FRAMEWORKS			
Regional Goal 3.1; PIRT Objective 5			

MUNICIPAL WASTE RECYCLED

Annual trend in % national solid waste recycled or average daily per capita % of municipal solid waste recycled.

PURPOSE

To determine % of solid municipal waste diverted from landfill through recycling.

DESIRED OUTCOME

Positive trend in recycling of solid waste.

ASSUMPTIONS

Assumes either that % of total solid waste is recorded at landfill facilities or that household waste surveys are conducted annually.

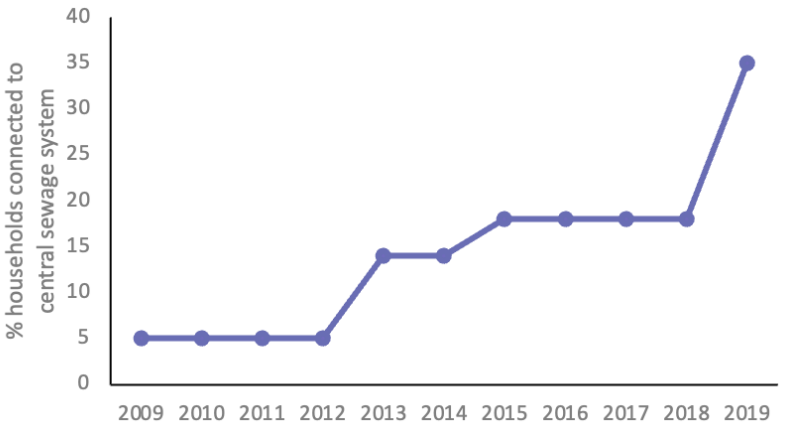
CALCULATION

National scale: % of total solid waste volume or weight recorded diverted from landfill facilities.

Household scale: Annual household surveys sampling daily proportions of municipal waste recycled.

DATA SOURCES

Household surveys conducted by national authority ; waste management records for amount of waste; Human population from national bureau of statistics.



LINKS TO REPORTING OBLIGATIONS		
CBD	SDG	OTHER INTERNATIONAL CONVENTIONS
	6.2, 6.3, 6.A; 11.6	Samoa Pathway (64-65)
LINKS TO REGIONAL FRAMEWORKS		
Regional Goal 3.1; PIRT Objective 5		

ACCESS TO AND QUALITY OF SEWAGE TREATMENT

% of households connected to central sewage system.

PURPOSE

Untreated sewage and leaking septic systems are a major source of ground and surface water contamination. This indicator tracks progress in managing sewage in a way that minimises the risk of water contamination.

DESIRED OUTCOME

Positive trend in % of households connected to central sewage.

ASSUMPTIONS

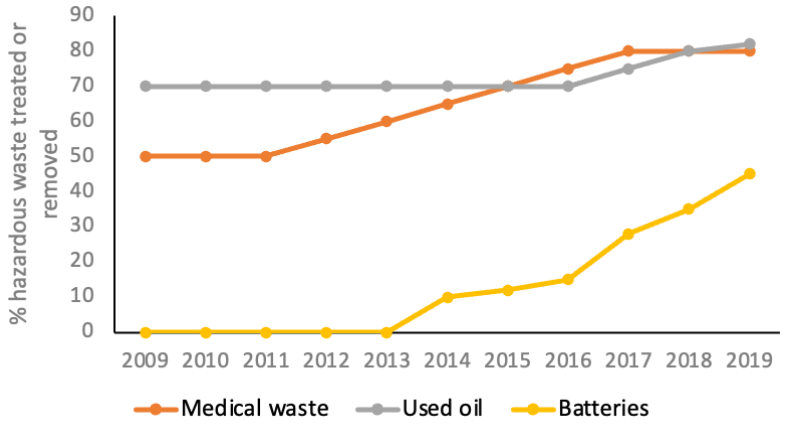
Assumes either that number of houses connected to central sewage is recorded.

CALCULATION

% of households connected to central sewage.

DATA SOURCES

National census data or ministries responsible for waste management or infrastructure.



LINKS TO REPORTING OBLIGATIONS			
CBD	SDG	OTHER INTERNATIONAL CONVENTIONS	REGIONAL MEAS
8	6.2, 6.3, 6.A; 11.6; 12.4, 12.5	Samoa Pathway 64-65, BRS Conventions, Minamata Convention	Waigani Convention
LINKS TO REGIONAL FRAMEWORKS			
Regional Goal 3.1; PIRT Objective 5			

HAZARDOUS WASTE

% of hazardous waste treated or removed.

PURPOSE

Treatment and safe storage of hazardous waste (e.g. medical waste, chemicals and containers, asbestos, used oil, batteries, paint) mitigates the risk to humans and nature. Hazardous materials can have direct and indirect, chronic or acute impacts.

DESIRED OUTCOME

100% of hazardous wastes treated or removed.

ASSUMPTIONS

Assumes disaggregated hazardous waste data are available.

CALCULATION

(Volume of hazardous wastes treated or removed/ total volume of hazardous wastes)*100 for each hazardous waste type (see example chart below).

DATA SOURCES

Ministries responsible for waste management, health or infrastructure.

Inform Project

“Environmental Information for Decision Making”