Palau

National Environmental Management Strategy

(NEMS: 2022-2030)

SPREP Library Cataloguing-in-Publication Data
Palau National Environmental Management Strategy (NEMS: 2022-2030). Apia, Samoa: SPREP, 2021.
59 pp.; 29 cm.
ISBN: XXXXXXX (print)
XXXXXXX (ecopy)
1.Environmental policy – Palau.
2.Environmental protection.
3.Conservation of natural resources.
I.Pacific Regional Environment Programme (SPREP).
II.Title.
XXX.XXXXXXX

Photos: Unless otherwise acknowledged, all photographs were taken by SPREP staff.
Designed by: XXXXX.
An initiative of the African, Caribbean and Pacific Group of States funded by the European Union.
This document has been produced with the financial assistance of the European Union and the United Nations Environment Programme. The views expressed herein can in no way be taken to reflect the official opinion of the European Union or the United Nations Environment Programme.

SPREP
PO Box 240 Apia, Samoa
+685 21929
sprep@sprep.org
www.sprep.org
A resilient Pacific environment sustaining our livelihoods and natural heritage in harmony with our cultures

CONTENTS

ACKNOWLEDGEMENTS

The Palau National Environmental Management Strategy (2022-2030) was developed through the contributions of many people and organisations, listed below. Their assistance is greatly appreciated.

ANALYSIS, DESIGN, AND WRITING

David Haynes: *GoingTroppo Consulting* goingtroppo@y7mail.com

COORDINATION AND PLANNING

Anuradha Gupta, Ministry of Agriculture, Fisheries, and Environment
Charlene Mersai, National Environment Coordinator PALARIS, Bureau of Budget and Planning, Ministry of Finance
Gwendalyn Sisior, Ministry of Agriculture, Fisheries, and the Environment
Jope Davetanivalu, Secretariate of the Pacific Environment Programme

KEY CONTRIBUTORS

Climate Change Working Group
Xavier Erbai Matsutaro (Lead)
Umai Basilius
Tutii-Elbuchel Chilton
Dr. Pat Colin
Carol Emaurois
Yimnang Golbuu
Dr. Ann Kitalong
Charlene Mersai
Keobel Sakuma

Land, Food Security, Freshwater, and Biodiversity
Leena M Mesebeluu (Lead)
Umai Basilius
Dr. Pat Colin
Carol Emaurois
Sholeh Hanser
Collin Joseph
Heather Ketebengang
Dr. Ann Kitalong
Joyce Kloulchad
Charlene Mersai
Dr. Joel Miles
Geraldine Rengiil
Gwen Sisior
Kiblas Soaladaob
Yvonne Ueda

Nearshore Marine Management
Adelle Lukes Isechal (Lead)
Umai Basilius

Percy Bitoch
Dr. Pat Colin
Jennifer Koskelin Gibbons
Lolita Gibbons
Yimnang Golbuu
Dr. Ann Kitalong
Kevin Mesebeluu
Dr. Joel Miles
Geraldine Rengiil
Miguel Delos Santos
Fabio Siksei
Ann Singeo
Yvonne Ueda
Tom Watson

Chemicals and Waste
Metiek Kimie Ngirchechol (Lead)
Bachat Arsenio
Kliu Basilius
Selby Etibek
Calvin Ikesiil
Dr. Chris Kitalong
Bernice Ngirkelau

Culture, Heritage, and Awareness
Kiblas Soaladaob (Lead)
Umai Basilius
Meked Besebes
Loyola Darius

Built Environment
Anuradha Gupta and Charlene Mersai (Leads)
Compiled from information provided by:
BOT
Bureau of Public Works, MPII
Division of Environmental Health, MHHS
EQPB
OCC
PALARIS
PCC-CRE
PCS
PPUC

Governance
Charlene Mersai (Lead)
Eunice Akiwo
Umai Basilius
Yimnang Golbuu
Xavier Erbai Matsutaro
Brenda Santos
Gwen Sisior
Kiblas Soaladaob

We acknowledge the financial support provided by the Multilateral Environment Agreements (MEAs) project for the African, Caribbean and Pacific (ACP) group, funded by the European Union (EU). The ACP MEA project is supported by the United Nations Environment Programme (UNEP) and executed in the Pacific by SPREP and the Australian Government.

ACRONYMS

ACP	African, Caribbean, Pacific
AFFF	Aqueous Film Forming Foam
BAT	Best Available Technology
BAP	Best Available Practice
BIORAP	Biological Rapid Assessment
BMR	Bureau of Marine Resources
BPW	Bureau of Public Works
CA	Conservation Area
CFC	Chlorofluorocarbons
DDT	Dichlorodiphenyltrichloroethane
DEH	Division of Environmental Health
DoA	Department of Agriculture
EEZ	Exclusive Economic Zone
EIA	Environmental Impact Assessment
EQPB	Environmental Quality Protection Board
ERW	Explosive Remnants of War
ESA	(Palau) Endangered Species Act
E Waste	Electronic and Electrical Waste
FFA	Forum Fisheries Agency
GHG	Greenhouse Gases
GMP	Global Monitoring Plan
HCFC	Hydrochlorofluorocarbons
HCH	Hexachlorocyclohexane
HFC	Hydrofluorocarbon
IAS	Invasive Alien Species
IBA	Important Bird Area
IPM	Integrated Pest Management
IUCN	International Union for Conservation of Nature
IUU	Illegal, Unreported and Unregulated (Fishing)
MEA	Multilateral Environmental Agreement
MIA	Minimata Initial Assessment
MMA	Marine Managed Areas
NBSAP	National Biodiversity Strategic Action Plan
NCD	Non-Communicable Diseases
NEMS	National Environmental Management Strategy
NEPC	National Environmental Protection Council
NGO	Non-Government Organization
NSSD	National Strategy for Sustainable Development
ODS	Ozone Depleting Substances
PA	Protected Area
PALARIS	Palau Automated Land and Resource Information System
PAN	Protected Area Network
PCS	Palau Conservation Society
PFOS	Perfluoro-octane sulfonic acid
PNMS	Palau National Marine Sanctuary
POPs	Persistent Organic Pollutants
PPUC	Palau Public Utilities Corporation
PRIP	Pacific Regional Infrastructure Programme
SDG	Sustainable Development Goal
SIDS	Small Islands Developing States
SoE	State of (the) Environment
SPC	Secretariat of the Pacific Community
SPLA	State Protected Land Area
SPREP	Secretariat of the Pacific Regional Environment Programme
TCDD	Tetra chlorinated-dibenzodioxin
TCDF	Tetra chlorinated-dibenzofuran
uLAB	Used lead acid battery
UN	United Nations
UNCBD	United Nations Convention on Biological Diversity
UNDP	United Nations Development Fund
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
WHO	World Health Organisation

FOREWORD

The National Environmental Management Strategy (2022-2030) portrays Palau's priorities and actions to conserve and improve its environment for current and future generations. The NEMS (2022-2030) promotes sustainable development and integrates environment conservation and the proper governance of development efforts.

INTRODUCTION

1.1 RATIONALE FOR THE PALAU NATIONAL ENVIRONMENTAL MANAGEMENT STRATEGY

According to the Palau State of the Environment Report (2019), the status of the Palauan environment has deteriorated.[1] This is a consequence of increased development and population, increased (tourist) visitor numbers and climate change. The key environmental drivers and risks include:

- increased temperatures and sea-level rise;
- impacts of extreme weather and tidal events, particularly tropical typhoons, storm waves and prolonged drought;
- fires and soil erosion;
- overexploitation of marine resources;
- invasive alien species and feral animals;
- urban expansion and land clearing
- solid and liquid waste management; and
- inadequate governance, legislation and resourcing.

The development and implementation of this 2022-2030 National Environmental Management Strategy (NEMS) will assist the Palau Government and other national environment organisations to prioritise actions to help better manage, protect and restore Palau's environments that are under pressure as identified by the 2019 Palau State of the Environment Report (summarised below). The NEMS also identifies key stakeholders who will assist in the implementation of its programs - this will allow better coordination of activities within, and outside, the government.

[1]NEPC (2019). *2019 State of the Environment Report, Republic of Palau*. National Environmental Protection Council (NEPC), Government of Palau: Koror, Palau. 100 pp.

Summary of 2019 Palau State of the Environment Report[2]

SoE Theme	SoE Indicators (red signifies indicator of concern)	SoE Status	Trend	SoE Response and Recommendations	NEMS Strategy
Coral Reefs	1. Live Coral Cover 2. Bethic (macroalgal) Cover 3. Juvenile Coral Density 4. Reefs with "High" Coral Cover 5. Coral Disease 6. Coral Genus Diversity 7. Ocean water temperature 8. Sea Level Rise 9. Damage to coral from typhoons and tropical storms 10. Marine Acidity 11. Extreme weather 12. Overfishing of herbivores from reefs 13. Sedimentation onto Reefs 14. Damage from Visitation 15. Percentage of Reef in No-Take MAs	1. Very Poor to Very Good 2. 3. Poor to Good 4. Good 5. Poor to Good 6. Poor to Good 7. 8. 9. 10. Not monitored 11. Not monitored 12. Poor 13. Increasing 14. 15.	1. Stable/increasing 2. Stable/increasing 3. 4. Stable 5. Stable 6. Stable/increasing 7. Stable/increasing 8. Increasing 9. Increasing 10. Increasing 11. Variable 12. Increasing 13. 14. 15. Poor to Good	Increase MPAs Investment in management via PAN PNMS Regulate fishing Land use planning Terrestrial PAs Best practice agriculture Aquaculture Research and monitoring Reduce sedimentation through permits Sustainable tourism policy Reduce overfishing Minimise visitor damage	3.1.1 3.1.1 3.1.3 3.3.1, 3.3.2 8.3.1, 10.4.1 2.1.1 2.5.1, 2.5.2 3.4.3 3.1.2 8.3.1 8.4.1 8.4.1, 5.4.1 3.3.1, 3.4.1 8.4.1
Nearshore fisheries	16. Abundance of Commercially Important & Large Fish 17. Biomass of Commercially Important and Large Fish 18. Trochus 19. Sea Cucumber Size 20. Clams (on reefs) 21. Sea Cucumbers Stocks 22. Percent immature fish caught 23. Size of Fish Caught 24. Spawning Potential Ratio (SPR) of Fish Caught 25. Composition of Catch	16. Poor to Fair 17. Poor to Fair 18. 19. 20. 21. Poor to Fair 22. Poor to Good 23. Variable 24. Poor	16. Stable/decreasing 17. Stable/decreasing 18. Decreasing 19. 20. Variable 21. Decreasing 22. Variable 23. Variable 24. Variable	Ban commercial export Promotion of local (including tourism) consumption of tuna MPAs and PAN Land use planning Habitat restoration research Regulate fishery Management of MPAs to reduce poaching PNMS Aquaculture investment Resourced sustainable fisheries management (via BMR funding) Increased fisheries research Review of relevant legislation and regulations	3.3.1 5.4.1, 8.4.1 3.1.1 8.3.3 2.1.4, 3.1.4 3.3.2, 3.4.2 3.1.1, 3.3.3 3.3.3 3.4.3 3.3.3 10.1.3 10.3.2

[2]NEPC (2019). *2019 State of the Environment Report, Republic of Palau*. National Environmental Protection Council (NEPC), Government of Palau: Koror, Palau. 100 pp

SoE Theme	SoE Indicators (red signifies indicator of concern)	SoE Status	Trend	SoE Response and Recommendations	NEMS Strategy
	26. Total Nearshore Fish Harvest 27. Difficulty in catching fish 28. Invertebrate Harvest 29. Catch per Unit Effort (CPUE) 30. Reef Fishery Export (by passenger flight) 31. Declining Reef Fishery Productivity 32. Declining Seagrass Cover 33. Degraded Habitats 34. Overfishing 35. Gaps in knowledge, laws, regulations & investment 36. Extent of sustainable fisheries regulations 37. Coverage of Protected Areas in relation to marine area 38. MPA Management Effectiveness: Ecological impact on nearshore 39. MPA Management Effectiveness: Perceived Socioeconomic and cultural impacts 40. Aquaculture Production 41. Fishery Production from small-medium businesses 42. Sustainable Fisheries as Percent of GDP	25. 26. 27. 28. 29. 30. Poor to Fair 31. 32. 33. 34. 35. 36. Poor to Good 37. Fair to Good 38. Poor to Good 39. Fair to Good 40. 41. 42.	25. 26. 27. 28. 29. Variable 30. 31. Declining 32. Declining 33. 34. 35. 36. 37. 38. 39. 40. 41. 42.		
Offshore fisheries	43. Offshore Fishery Catch 44. Fleet Size and Composition 45. Local use of offshore catches 46. Offshore Fishery Bycatch	43. Fair 44. 45. 46. 47.	43. Variable 44. Steady 45. Increasing 46. 47. Declining	Implement the PNMS Reduced overfishing (through ban on fishing in 80% of EEZ) Research into stock structure Improved monitoring and enforcement to reduce IUU	3.3.3 3.3.1 3.3.1 3.3.3

SoE Theme	SoE Indicators (red signifies indicator of concern)	SoE Status	Trend	SoE Response and Recommendations	NEMS Strategy
	47. Declining Offshore Fishery Productivity 48. Illegal, Unreported, and Unregulated (IUU) Fishing 49. Undervaluation	48. 49.	48. 49.	Development of comprehensive fisheries policy Monitoring of local offshore fishing boats Estimation of maximum sustainable yield in Domestic Fishing Zone of PNMS 100% Observer coverage on Tuna boats	10.2.1 3.3.3 3.4.1 3.3.1
Specific marine locations	50. *Ongeim'l Tketau* (Jellyfish Lake) 51. Damage to shorelines from typhoons and tropical storms 52. Marine Invasive Species 53. Crowding at Marine Recreation Sites	50. 51. 52. 53. Fair	50. 51. 52. 53. Increasing	Long term monitoring (and research) Shoreline revegetation (*Casuarina*, *Scaevloa*) Reduce visitor numbers	3.1.2 2.4.2 8.4.2
Endangered marine species	54. Sea Turtles 55. *Mesekiu* (Dugong) 56. Globally and locally endangered species	54. 55. 56. Poor to Good	54. 55. 56. Variable	MPAs include mangrove protection Increased enforcement in PNMS and PAN Land use mapping to identify sea-level rise threats Implementation of the GEF6 invasives project Zoning of Rock Island Closures of Jelly fish lake as needed Review of laws and regulations Increased research and monitoring	3.1.1 3.3.3 5.3.1, 5.3.2 5.3.1 3.1.2, 5.2.2, 5.2.3, 5.4.1 10.2.1, 10.3.1, 10.3.2, 10.4.1 2.1.4, 3.1.4
Mangroves	57. Mangrove Extent 58. Mangrove Carbon Stocks 59. Sea Level Rise, Increased Rainfall, and Typhoons 60. Clearing and Human Use 61. Fungal Infection 62. Mangrove Protected Area	57. 58. 59. 60. 61. 62.	57. Steady 58. 59. 60. 61. 62.	Controls on mangrove clearing Central data collation Increased monitoring	8.3.1, 8.3.2, 8.3.3 2.4.1 2.1.4
Forests	63. Forest extent and change 64. Forest diversity	63. Good 64. Good	63. Increase 64. Stable	Terrestrial protected habitats	2.1.1, 2.1.2, 5.1.1, 5.1.2,

SoE Theme	SoE Indicators (red signifies indicator of concern)	SoE Status	Trend	SoE Response and Recommendations	NEMS Strategy
	65. Degraded and Disturbed Lands 66. Tree Damage 67. Forest Carbon 68. Fire 69. Rainfall Variability, Typhoons, and Temperature 70. Alien Invasive Species 71. Fungal Infection (*Phellinus noxius*) 72. Unsustainable Human Use 73. Coverage of Protected Areas relative to terrestrial area 74. Protected Freshwater Sites 75. Terrestrial Protected Area Management Effectiveness: Perceived 76. Endangered Terrestrial Species in Palau	65. 66. 67. 68. 69. 70. 71. 72. 73. 74. Poor to Good 75. Fair to Good 76. Variable	65. Increase 66. Increase 67. 68. Stable 69. 70. Stable 71. 72. 73. Increased 74. 75. Increased 76.	Identification of resilient areas Identifying endemic, endangered plants, mapping extent and threats Forest monitoring Forest restoration research Improved response to fire Research into savannah fire ecology Multiple invasive control, eradication efforts Identification of fungal infected areas Update Palau Endangered Species Act (ESA) List Conservation Action Plans for Endangered Species	2.1.4, 5.1.1 5.2.1 5.2.1 2.1.4 2.2.1 2.2.1 5.3.1, 5.3.2 5.1.3 5.2.1 5.2.1, 5.2.3
Birds	77. Bird Diversity 78. *Belochel* (Micronesian Imperial Pigeon) 79. *Biib* (Palau Fruit Dove) 80. *Melabaob* (Rufous Night Heron) 81. *Bekai* (Micronesian Megapode) 82. *Omekrengukl* (Palau Ground Dove) 83. Storms, Sea Level Rise, Variability 84. Alien Invasive Species 85. Poaching & Harassment 86. Habitat Loss and Degradation 87. Protected Bird Areas	77. Good 78. 79. 80. 81. 82. 83. 84. Vulnerable 85. 86. 87.	77. Stable 78. 79. Stable 80. Decrease 81. Increase 82. Decrease 83. 84. 85. 86. 87.	Protected Areas (PAs) Ongoing research and monitoring programs Active rodent eradication programs and cat control Ongoing IAS plant removal programs. Development and Implementation of Megapode Conservation Action Plan National Law prohibiting taking of all birds (minus four exclusions). Public and citizen scientist involvement in bird conservation	5.1.1, 5.1.2 5.2.1, 5.2.2 5.3.1, 5.3.2 5.3.2 5.2.4 9.1.1, 10.5.1

SoE Theme	SoE Indicators (red signifies indicator of concern)	SoE Status	Trend	SoE Response and Recommendations	NEMS Strategy
Earthmoving and Development	88. Earth moving permits 89. Type of earthmoving permit 90. Violations/Violation Rate 91. Environmental Assessments/EA Rate 92. Koror Building Permits 93. Visitor Accommodations, Number of Hotels/Motels	88. 89. 90. 91. 92. 93.	88. Increase 89. Increase 90. Increase 91. Stable 92. Decrease 93. Increase	Land use planning	8.3.1, 8.3.2, 8.3.3
Water Resources	94. Water Supply and Usage (Koror-Airai) 95. Drinking Water Coliform 96. Drinking Water Turbidity 97. Access to treated water 98. Access to Sanitation 99. Marine and River Water Quality	94. 95. Poor to Good 96. Fair to Good 97. Good 98. Good 99.	94. Steady 95. Variable 96. Stable or decrease 97. 98. 99.	Implement marine water quality monitoring programme Improve freshwater monitoring	3.2.1 4.1.1
Solid Waste and Recycling	100. Solid Waste Generation 101. Waste Composition 102. Waste Source and Collection, Koror 103. Total Diversion/Recycling Rate 104. Composting Amount and Rate 105. Beverage Container and Plastic Recycling	100. Fair 101. 102. 103. Poor to Good 104. Poor 105. Poor to Good	100. Increase 101. 102. 103. Stable 104. Increase 105.	Solid Waste Act New Landfill operational Increase recycling rates Increase composting rates	6.1.1 6.2.1 6.3.1 6.4.1
Agriculture	106. Agricultural Production and Consumption 107. Participation in the Agriculture Sector	106. 107.	106. Increase 107. Increase	Improved monitoring of agricultural production, local use, and local demand, including inputs, outputs, and losses	2.5.1, 2.5.2
Energy Sector and Transportation	108. Total Energy/Electricity Consumption 109. Renewable Energy 110. Energy Efficiency 111. Vehicles/Imports	108. 109. Poor to Fair 110. 111.	108. Increase 109. Increase 110. Increase 111.	Decrease GHG emissions Decrease fuel and electricity consumption Increase the % of electrical energy generated from renewables Decrease car imports Improve national energy efficiency	1.6.1 1.5.2,1.5.3 1.5.1 1.5.2

SoE Theme	SoE Indicators (red signifies indicator of concern)	SoE Status	Trend	SoE Response and Recommendations	NEMS Strategy
Awareness and Capacity	112. Public Awareness 113. Public Participation in Environment 114. Capacity Building	112. Good 113. Poor to Fair 114. Fair	112. 113. Poor to Fair 114. Increase	Investment in public participation in environmental activities and decision making Targeted outreach to key stakeholders	9.4.1, 9.4.2, 10.5.1 9.1.1, 9.2.1, 9.3.1

1.2 PALAU NEMS FORMULATION PROCESS

The Government of Palau sought assistance in 2021 for the development of the NEMS from the Secretariat of the Pacific Regional Environment Programme (SPREP), who contracted an international consultant to formulate the NEMS which was completed, under contract, in a series of sequential steps:

i. Contracting of the external consultant by SPREP (September 2021);
ii. An Inception meeting with SPREP, the Government of Palau and the appointed consultant to define the scope of the work (September 2021);
iii. A desktop review and analysis of issues identified by national environmental status and policy reports (see 1.4) was used to develop the first discussion draft of the Palau NEMS (February 2022);
iv. Distribution of the discussion NEMS to the Working Group for input and review (February 2022);
v. Distribution of an updated consultation NEMS to stakeholders for input and review (March 2022);
vi. National stakeholder consultation workshops to incorporate feedback and additions required to the final NEMS (May-August 2022);
vii. A second draft NEMS incorporating stakeholder comments and additional priorities was distributed for final review (September 2022); and
viii. Submission of the final draft NEMS to SPREP and the Palau Government for endorsement (XXXX 2022).

1.3 MANDATE AND SCOPE OF THE NEMS

The NEMS aims to strengthen the national, regional and international coordination of the government's efforts to cope with the nation's complex environmental issues. The implementation of the NEMS will be coordinated and monitored by XXXXX. The NEMS (2022-2030) is consistent with all major government policies, strategies and regulations introduced over the last 15 years relating to national sustainable development and environmental management and was developed and expanded from the issues identified in these reports through stakeholder consultation and review (see 1.4 below).

Specifically, Title 24 of the Palau National Code is dedicated to environmental legislation.[3] The three Divisions most relevant to environmental protection are:

- Division 1 (Environmental Quality) which encompasses the *Environmental Quality Protection Act*, and Provides for the establishment, functions and operation of the Palau Environmental Quality Protection Board (EQPB). EQPB is responsible for the management of drinking water supplies, waste management, earth moving and a permitting system for pollution management.
- Division 2 (Wildlife Protection) provides a framework legislation concerning endangered species and includes an Endangered Species Act (Chapter 10) providing for both animal and plant endangered species. Protected sea-life sub chapters include turtles, sponges, pearl shell, dugong, trochus and clams. Chapter 13 deals with illegal fishing methods, including the use of explosives, poisons and chemicals, and Chapter 14 covers protected land life which is restricted to the conservation of birds (except for four other species). Chapter 34 provides the Protected Area Network (PAN) Act.
- Division 3 (Preserves and Protected Areas) covers the two legally protected areas in Palau, the *Ngerukewid* Islands Wildlife Reserve and the *Ngerumekaol* Spawning Area.

[3] SPREP (2018). *Palau: Review of natural resource and environment related legislation.* 16pp.

Title 27 of the Palau National Code enacts its own fishery zone legislation to manage, conserve, and regulate the harvesting of fish throughout their habitat, both within the reef areas of islands and atolls, and in other areas within the jurisdictional competence of the Republic. The Act provides for the establishment of a Palau Maritime Authority and the definition of Fishery Zones. The access of foreign fishing companies is also regulated by the Act through a licence scheme. The law provides penalties and enforcement powers to the authority.

Title 31 of the Palau National Code incorporates the Trust Territory Land Planning Act which provides the current basis for land use planning. The Act requires the inclusion of conservation elements as part of planning for the conservation, development, utilisation and protection of natural resources, including forests, soils, rivers and other waters, harbors, fisheries, wildlife, minerals and other natural resources. The conservation element may also cover reclamation of land and waters, flood control, prevention and control of the pollution of streams and other waters, prevention, control and correction of the erosion of soils, beaches and shores, and protection of watersheds.

1.4 GOVERNMENT POLICIES AND STRATEGIES CONSIDERED IN THE NEMS

The following recent government policies, strategies and supporting documents were used to guide development of the NEMS:

Climate Change

- Miles, W., Z. Grecni, E. Matsutaro, P. Colin, V. Keener, Y. Golbuu, et al., (2020): *Climate Change in Palau: Indicators and Considerations for Key Sectors.* Report for the Pacific Islands Regional Climate Assessment. Honolulu, HI: East-West Center, https://www.eastwestcenter.org/PIRCA-Palau.
- Republic of Palau (2009). *Strategic Action Plan Energy Sector. A Framework for the Implementation of Palau's National Energy Policy*. Palau Energy Policy Development Working Group Koror, Republic of Palau. 51pp.
- Republic of Palau (2010). *National Energy Policy*. Palau Energy Policy Development Working Group, Koror, Republic of Palau.13 pp.
- Republic of Palau (2010). *National disaster and risk management framework 2010 (amended 2016).* 67pp.
- Republic of Palau (2013). *Second National Communication to the United Nations Framework Convention on Climate Change,* September 2013. 98pp.
- Republic of Palau (2015). *Palau Climate Change Policy for Climate and Disaster Resilient Low Emissions Development.* 56pp.
- Republic of Palau (2015). *Intended Nationally Determined Contribution.* November 2015. Office of the President. 5pp.
- UNEP (2016). *The Kigali Amendment (2016): The amendment to the Montreal Protocol agreed by the Twenty-Eighth Meeting of the Parties (Kigali, 10-15 October 2016).* 10pp.

Land Management and Food Security

- ADB (2017). *Private sector assessment for Palau: Policies for sustainable growth revisited.* Asian Development Bank. 69 pp.
- Kitalong & Sengebau (2015). *Achieving Resilient Agriculture and Aquaculture: A national policy for strengthening food security in Palau as a priority climate change adaptation measure*. 35pp.

- Palau Agriculture and Forestry (2021). *State and Private Forestry Fact Sheet*, Palau 2021. 3pp. https://apps.fs.usda.gov/nicportal/temppdf/sfs/naweb/PW_std.pdf
- Republic of Palau (2000) *The Palau Mangrove Management Plan* (Volume 1). W.D. Metz. Bureau of Natural Resources and Development. 130pp.
- Republic of Palau (2000). *National report to the United Nations Convention to Combat Desertification*. 4pp
- Republic of Palau (2004). *National Action Program to Combat Land Degradation*. 36pp.
- Republic of Palau Republic of Palau (2010). *Statewide Assessment of Forest Resources and Resource Strategy: A comprehensive analysis of forest-related conditions, trends, threats and opportunities.* Bureau of Agriculture. 106pp.
- Republic of Palau (2012). *The Sustainable Land Management Policy of the Republic of Palau.* 13pp.
- Republic of Palau (2012). *The Water Policy for the Republic of Palau. 7pp.*
- Republic of Palau (2016). *Protected Area Network (PAN) Status Report 2003-2015*. 29pp.
- Republic of Palau (2016). *Protected Area Network (PAN) Status Report 2003-2015*. Appendix. 17pp.
- Republic of Palau (2017). *Palau Trade and Investment Policy Framework, 2017-2020.* 72pp.
- Republic of Palau (2018). *Sustainable Forest Management Policy*. 32pp.
- Republic of Palau (2021). *The 2021-2030 Republic of Palau Statewide Assessment of Forest Resources and Resource Strategy (SWARS) (Palau Forest Action Plan).* 174pp.
- Republic of Palau (2021). *Pathways to Sustainable Food Systems in Palau #KeledaNgercheled (Our food is our responsibility).* 26pp.
- Stuart Raetz (2017). *Survey and Clearance of Explosive Remnants of War (ERW) Final Evaluation (Final Report).* Cleared Ground Demining (CGD). 44pp.

Marine Management

- Friedlander AM, Golbuu Y, Caselle JE, Ballesteros E, Letessier TB, Meeuwig JJ, Gouezo M, Olsudong D, Turchik A, Sala E. (2014). *Marine biodiversity and protected areas in Palau: Scientific report to the government of the Republic of Palau*. 47pp.
- Friedlander *et al.* (2017). *Size, age, and habitat determine effectiveness of Palau's Marine Protected Areas*. https://doi.org/10.1371/journal.pone.0174787
- Gouezo *et al.* (2021). *Koror Southern Lagoon Coastal Fisheries Management Plan 2021*. Palau Conservation Society. 109pp.
- *Johannes et al. (1999). Spawning aggregations of groupers (*Serranidae*) in Palau* The Nature Conservancy Marine Research Series Publication No. 1.156pp.
- Republic of Palau (2000) *The Palau Mangrove Management Plan* (Volume 1). W.D. Metz. Bureau of Natural Resources and Development. 130pp.
- Republic of Palau (2009). *National Aquaculture Strategy Draft-28 July 2009.*
- Republic of Palau (2015). *Achieving Resilient Agriculture and Aquaculture: A national policy for strengthening food security in Palau as a priority climate change adaptation measure.* 35pp.
- Republic of Palau (2016). *Exclusive Economic Zone Monitoring, Control, and Surveillance: The Next Five Years 2016–2021*. 60pp.
- Republic of Palau (2017). *Tuna Fisheries Strategic Plan 2017–2021*. 16pp.
- Republic of Palau (2019). *Strategic Plan to Ensure a Pristine Paradise Destination 2019-2023. 74pp.*

- The MAFE strategy sent earlier applies
- Draft PICRC Strategic Plan (content has been adopted, but this is not the final designed version) (attached)

Freshwater Management

- Golbuu *et al*. (2011). Effects of Land-Use Change on Characteristics and Dynamics of Watershed Discharges in Babeldaob, Palau, Micronesia. *Journal of Marine Sciences*. https://doi.org/10.1155/2011/981273
- Mesebeluu, L. (2021) *Melekeok Conservation Network In Situ Water Quality Monitoring Report Palau*. Suva, Fiji SPC, 33pp.
- Michael and Jaensch (2014). *Directory of Wetlands of Palau*. SPREP. 91pp.
- Republic of Palau (2012). *The Water Policy for the Republic of Palau. 7pp.*
- SOPAC (2007). *National Integrated Water Resource Management Diagnostic Report Palau*. SOPAC Miscellaneous Report 642. 64 pp.

Biodiversity

- NEPC (2019). *2019 State of the Environment Report, Republic of Palau*. National Environmental Protection Council (NEPC), Government of Palau: Koror, Palau. 100 pp.
- NEPC (2004). *Palau National Invasive Species Strategy (2004).* National Environmental Protection Council (NEPC), Government of Palau: Koror, Palau. 34pp.
- Republic of Palau (2016). *Revised National Biodiversity Strategy and Action Plan 2015-2025: Promoting Wise Development to Achieve Conservation and Sustainable Use of Biodiversity.* 183pp.
- Republic of Palau (2019). *Republic of Palau's 6th National Report to the Convention on Biological Diversity.* 66pp.
- Republic of Palau (2022). *NISSAP: Palau National Invasive Species Strategic Action Plan (2022–2027).* 12pp.

Waste and Chemical Management

- APWC (2020). *Palau – Waste Audit Report Analysis of waste generation, recycling and disposal data collected in November 2019.* 165pp.
- GHD (2017). *Pesticide Container Management in the Pacific Palau Baseline Survey Report.* SPREP. 30pp.
- Republic of Palau (2010*). National spill contingency plan " Natplan " for the Republic of Palau. 83pp.*
- Republic of Palau (2016). *Standard operating procedure for EQPB responses to land-based hazardous material releases in Palau. 25pp.*
- Republic of Palau (2019). *National Solid Waste Management Strategy: The Roadmap towards a Clean and Safe Palau (2017 to 2026). 62pp.*
- Republic of Palau (2021). *National Implementation Plan for Persistent Organic Pollutants. 75pp.*
- SPREP (2014). *Baseline Study for the Pacific Hazardous Waste Management Project - Healthcare Waste The collection, collation, and review of data on the management of healthcare waste and best-practice options for its disposal in participating Pacific Island Countries: Palau*. 64pp.
- United Nations (2015). *Global monitoring Plan for persistent organic pollutants under the Stockholm Convention Article 16 on effectiveness evaluation. Second regional monitoring report Annex Asia-pacific region. 134pp.*

Built Environment

- ADB (2020). *Proposed Programmatic Approach and Policy-Based Loan for Subprogram 1 and Technical Assistance Grant Republic of Palau: Palau Public Utilities Corporation Reform Program*. 14pp.
- Barr *et al*. (2016). *Sustainable tourism pathways for Palau: findings and recommendations from a cross-sectoral workshop.* Discussion Paper No 16, Conservation Strategy Fund. 26pp.
- Republic of Palau (2004). *Palau National Environmental Health Action Plan (NEHAP)* 2004-2007. 28pp.
- Republic of Palau (2010). *National Energy Policy*. Palau Energy Policy Development Working Group, Koror, Republic of Palau.13 pp.
- Republic of Palau (2012). *Sanitation Master Plan Report.* GHD. 112pp.
- Republic of Palau (2012). *The Water Policy for the Republic of Palau. 7pp.*
- Republic of Palau (2015). *Palau Climate Change Policy for Climate and Disaster Resilient Low Emissions Development.* 56pp.
- Republic of Palau (2019). *Strategic Plan to Ensure a Pristine Paradise Destination 2019-2023. 74pp.*
- Republic of Palau (2020). *Koror-Babeldoab Island Resilient Urban Development Strategy and Action Plan*. Voume I: Main Report. 78pp.
- Republic of Palau (2021). *Palau National Infrastructure Investment Plan (2021-2030)*. 103pp.

- PALARIS Strategy
- EQPB Strategy

Culture, Heritage and Awareness

- Republic of Palau (2010). *Mauritius +5 Status Report: Republic of Palau.* ESCAP. 144pp.
- Republic of Palau (2011). *Cultural Mapping.* 38pp.
- Republic of Palau (undated). *Cultural Policy: Palau National Policy on Culture 2012-2021*. 26pp.

Environmental Governance

- Republic of Palau (1996). *2020: National Master Development Plan: Issues, options and strategies for Palau's development*.
- Republic of Palau (2008). *Actions for Palau's Future: The Medium-Term Development Strategy 2009 to 2014*. 303pp.
- Republic of Palau (2015). *Palau Climate Change Policy for Climate and Disaster Resilient Low Emissions Development.* 56pp.
- Republic of Palau (2016). *Revised National Biodiversity Strategy and Action Plan 2015-2025: Promoting Wise Development to Achieve Conservation and Sustainable Use of Biodiversity.* 183pp.
- Republic of Palau (2018). *National Gender Mainstreaming Policy.* 12pp.
- Republic of Palau (2019). *Pathway to 2030: Progressing with our past towards a resilient, sustainable, and equitable future*. 107pp.
- Republic of Palau (2020). *KOROR-BABELDAOB ISLAND Resilient Urban Development Strategy and Action Plan.* 78pp.
- Republic of Palau (2020*). Gender and Natural Resources Report 2020.* 59pp.

- Republic of Palau (2020). *Gender and Natural Resources: Marine resources. https://drive.google.com/file/d/15_ixFXqmyNcCtrxGgb0bONCANdjr1LCG/view*
- Republic of Palau (2021). *Safeguarding our Environment to Ensure our Wellbeing.* Environmental Quality Protection Board Strategic Plan. 25pp.
- SPREP (2018). *Palau: Review of natural resource and environment related legislation.* 16pp.
- Townsend (2007). *Environmental Review and Stock-take Report*. ADB. 86pp.

- SDGs Executive Order 419 (2018) – create working group, responsible for:
    - Coordinating/Reporting mechanism
    - Performance report
    - Improving M&E of SDG implementation
    - Stakeholder engagement

1.5 NEMS THEMATIC AREAS

The National Environmental Management Strategy encompasses ten thematic areas derived from relevant national environment related policy and strategies. The thematic and strategic focus areas are presented below.

Environment Theme	Strategic Focus Area
1. Climate Change	1.1 Strategic planning for climate change impacts
	1.2 Adaptation to Climate Change impacts
	1.3 Climate finance mechanisms
	1.4 International advocate for climate justice
	1.5 Transition to renewable energy
	1.6 Reduction in Greenhouse Gas emissions
	1.7 Reduction in use of Ozone Depleting Substances
2. Land Management and Food Security	2.1 Land use planning and zoning
	2.2 Food security
	2.3 Protection of water supplies
	2.4 Soil management
	2.5 Forest management
	2.6 Expansion and management of PAN
	2.7 Savannah grassland management
	2.8 Coastal vegetation management
	2.9 Clearance of Explosive Remnants of War (ERW)
3. Nearshore Marine Management	3.1 Data collection, sharing, and feedback systems
	3.2 Marine spatial planning
	3.3 Nearshore fisheries management – Improve status of nearshore fisheries (finfish and invertebrates) and increase value of fisheries products
	3.4 Aquaculture management
	3.5 Marine Protected Area management and expansion
	3.6 Mangrove management
	3.7 Coral Reef management
	3.8 Tourism outside of Koror (Babeldaob, Outer Islands, and offshore)
	3.9 Improved management of Koror's World Heritage Site
	3.10 Management of marine water quality
	3.11 Protection and maintenance of marine biodiversity
4. Offshore Marine Management	

5. Freshwater Management	5.1 Catchment management and protection
	5.2 Freshwater supply management
	5.3 Freshwater monitoring
	5.4 Estuarine habitat protection
	5.5 Freshwater lake protection
6. Biodiversity Conservation	6.1 Endangered species protection
	6.2 Invasive species management and control
	6.3 Protected Area Network expansion and management
	6.4 Environmental reporting
	6.5 Biodiversity mainstreaming
7. Waste Management	7.1 Improved national waste management
	7.2 Improved landfill operations
	7.3 Recycling
	7.4 Composting
	7.5 Hazardous waste management
	7.6 Disaster waste management
	7.7 Marine Plastic
8. Chemical Management	8.1 National chemical management strategy
	8.2 Management of priority obsolete chemicals
	8.3 Contaminated site management
	8.4 Oil spill management
	8.5 Management of other priority chemicals
	8.6 Chemical monitoring and reporting
9. Built Environment	9.1 Climate-resilient building codes in line with land use planning and zoning
	9.2 Water management
	9.3 Improved sanitation
	9.4 Reduce impacts from development and construction
	9.5 Climate-proof sustainable infrastructure and construction program
	9.6 Sustainable tourism
10. Culture, Heritage and Awareness	10.1 Traditional knowledge
	10.2 Protection of Palauan heritage
	10.3 Community education and awareness
	10.4 Professional training and awareness
11. Environmental Governance	11.1 Sustainable Financing
	11.2 Coordination, Monitoring, and Evaluation
	11.3 Environmental Legislative Framework development and review
	11.4 Environmental Policy and Strategy development and review
	11.5 Capacity Building
	11.6 Compliance and Enforcement
	11.7 Stakeholder Engagement and Participatory Decision making
	11.8 Gender and Social Inclusion Mainstreaming
	11.9 Communications and Knowledge Management

1.6 PAST NATIONAL ENVIRONMENTAL ACHIEVEMENTS

Palau is a world leader in many conservation initiatives. These initiatives include the Palau Protected Area Network, the Palau National Marine Sanctuary[4] and creation of the world's first "shark sanctuary" in 2009. The shark sanctuary protects sharks across 600,000 km^2 of ocean. The Protected Areas Network includes marine and terrestrial protected areas and helps to ensure the long-term sustainable use of natural resources. Local communities are empowered to undertake scientific and social assessment of their local network environments and the network also supports traditional systems of natural resource management. To date, 35 protected areas have been designated, including reefs, lagoons, mangroves and a sardine sanctuary. In 2015, the Palau National Congress designated

[4]https://www.futurepolicy.org/oceans/palaus-protected-areas-network-act/

457,077 km^2 of Palau's ocean as a fully protected national marine sanctuary. This elevated Palau as a global leader in efforts to establish "no-take" marine protected areas, where all extractive activities such as fishing, and mining are prohibited. The Palau National Marine Sanctuary (PNMS) now makes up 80 percent of Palau's territorial waters. Other significant recent national environmental achievements include the Palau Bureau of Tourism focus on mitigation of its tourism-based carbon footprint and establishing the country as the world's first official carbon-neutral tourism destination.

2. GUIDING PRINCIPLES

This NEMS is guided by five key principles, which are: leadership and good governance; collective responsibility for the environment; indigenous knowledge, practices and innovations; integration of environmental protection and development, and gender and social equity.

2.1 LEADERSHIP AND GOOD GOVERNANCE

The Palaun Government will lead efforts to protect, manage and promote the sustainable use of the country's environment and its natural resources. This implies upholding good governance practices of transparency, accountability, shared responsibility, and equity in the consideration of environmental requirements in development practices. It respects everyone's right to a clean and healthy environment. It also recognizes key principles for respecting the needs and capacities of the natural environment such as the precautionary, polluter pays and carrying capacity principles.

The *Precautionary Principle* proclaims that *"In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation*".[5]

The *Polluter Pays Principle* means that populations are justly responsible for the waste and pollution they generate either directly or through payments for the available mitigation and management services.[6] The principle extends to society's responsibility to pay for the programs that help to replenish, restore, and rehabilitate natural resources and the environment that were exploited or degraded through past development activities.

The *Carrying Capacity* of a region, comprising its supportive and assimilative capacities, is defined as the ability to produce desired outputs from a constrained resource base to achieve a higher and more equitable quality of life, while maintaining desired environmental quality, and ecological health.[7] Development should respect the limits of the carrying capacities of its hosting environment if it is to achieve a more sustainable pathway.

2.2 COLLECTIVE RESPONSIBILITY FOR THE ENVIRONMENT

Protection, management and sustainable use of the environment and its goods and services are generally accepted as everyone's responsibility. This is carried out at the individual and collective levels. This principle recognises everyone has a responsibility for the environment. It also recognises the relevant roles and influences that all sectors and institutions of society

[5]United Nations (1992*). Rio declaration on environment and development*
[6]OECD (1992). *The polluter-pays principle: OECD analyses and recommendations*. 49pp.
[7]Khanna *et al*. (1999). Carrying-capacity as a basis for sustainable development a case study of National Capital Region in India. *Progress in Planning* 52 (2), 101-166.

have in contributing to the protection and management of the Palau environment and its goods and services.

2.3 INDIGENOUS KNOWLEDGE, PRACTICE, AND INNOVATION

Palau has developed valuable indigenous knowledge and practices. These can contribute positively to the sustainable use and effective management of natural resources and the environment. These traditions and practices are also important elements of Palauan culture and heritage that form national identity.

2.4 INTEGRATION OF THE ENVIRONMENT AND SUSTAINABLE DEVELOPMENT

This principle recognises that the environment underpins development. It recognises the challenges in balancing the needs of the environment and the development needs of human society in Palau. It is vital that economic and physical development is linked with environmental protection, to facilitate long-term sustainability. This principle emphasises the importance of credible scientific information to support the integration of environment protection into development planning and implementation. It also recognizes appropriate value systems of the people of Palau that promote the integrity of the environment.

2.5 GENDER AND SOCIAL EQUITY

It is critical that selective, adverse environmental impacts on vulnerable people are eliminated. This can be achieved through increased active participation in biodiversity protection and ecosystem and environmental management by women, and in decision making bodies and through cross-sectoral approaches. Gender and social considerations must also be considered in ecosystem valuation, budget, and planning reviews using gender disaggregated data to ensure that all groups benefit equitably from investments in ecosystems and the environment.

3. NEMS STRATEGIC DIRECTIONS

THEME ONE: CLIMATE CHANGE

BACKGROUND

Palau, like many other Pacific Islands, is particularly vulnerable to the impacts of climate change, principally from sea level rise and an increased frequency of extreme weather events (particularly flooding, and Category 4 and 5 typhoons).[8,9] Sea-level rise threatens vital infrastructure, settlements, and facilities that support the livelihoods of island communities. Ocean warming and acidification will heavily impact coral reefs, fisheries, and other marine-based resources crucial to local livelihoods, economy and culture. Climate change impacts are also predicted to exacerbate the existing adverse impacts from soil erosion, saltwater intrusion, flooding, and disease and pests to national forestry and agriculture.[10] National climate change responses are focused on adaptation, mitigation and risk management climate change strategies for natural environments and human settlements and infrastructure and are also included directly and indirectly across many other NEMS thematic areas.

NEMS STRATEGIC FOCUS AREAS

1.1 Strategic planning for climate change impacts
1.2 Adaptation to Climate Change impacts
1.3 Climate finance mechanisms
1.4 International advocate for climate justice
1.5 Transition to renewable energy
1.6 Reduction in Greenhouse Gas emissions
1.7 Reduction in use of Ozone Depleting Substances

NEMS Actions		**Targets**	**Performance Indicators**	**Key Implementors and Partners**
1.1.1	Inclusive strategic and spatial planning for climate change impacts link national and international policies to state plans	National strategy for climate change adaptation, mitigation and disaster risk management implemented, minimizing impact to the environment through maximizing Nature-based Solutions	National plan completed and endorsed by the Palau Government by 2025	OCC States/State Planning Commissions
1.1.2	Update Disaster Framework and Contingency Plans	All aspects of climate assessment and preparedness planning is socially equitable and inclusive, and risks like fire, landslides, and flooding are minimized	Climate and disaster risk modelling, maps, and planning is inclusive of gender and social vulnerability	OCC NEMO
1.1.3	Holistic Climate Change science	Science on human and environmental dimensions of climate change guiding	Locally relevant climate science is continually generated to guide	OCC PICRC (marine) BNM (land)

[8]Government of Palau (2010). *National disaster and risk management framework 2010 (amended 2016).* 67pp.
[9]Republic of Palau (2015). *Intended Nationally Determined Contribution.* November 2015. Office of the President. 5pp
[10]Miles, W., Z. Grecni, E. Matsutaro, P. Colin, V. Keener, Y. Golbuu, et al., (2020): *Climate Change in Palau: Indicators and Considerations for Key Sectors.* Report for the Pacific Islands Regional Climate Assessment. Honolulu, HI: East-West Center, https://www.eastwestcenter.org/PIRCA-Palau

		national policy and planning is locally relevant	and update national planning initiatives	
1.1.4	Define Vulnerable People and mainstream their specific risks and needs into plans	Adaptation, resilience, disaster risk, and mitigation plans are inclusive and benefit the most vulnerable	Specific strategies for agreed vulnerable groups	OCC MHRCTD MHHR MOF MAFE MOJ
1.2.1	National adaptation actions continued	Adaptation outcomes prioritised in environmental, agriculture, food security, public health, disaster management, and infrastructure programmes; protected areas gaps filled,	Implemented programmes increase national adaptation capacity and priority coastal habitats provide climate services	OCC MAFE
1.3.1	International climate finance secured and channelled to communities	Vastly increased Climate Finance secured to implement national, state, and community adaptation and mitigation projects	International resources accessed to implement low-emission and climate-resilient projects and programmes	OCC MAFE
1.4.1	Continued visibility in international climate negotiation fora	Key climate information concerning international responsibility for Palau's future is made obvious to international delegates, with increasing support for adaptation funding and Loss and Damage.	Palau continues to have an impact in international Climate negotiations	OCC MAFE Office of the President
1.5.1	Electricity generated through renewable technologies	100% of power generation through diversified renewable resources by 2032	Annual increase in renewable electricity generation rates	OCC PPUC Palau Energy Administration (MPII)
1.6.1	An economy wide reduction in GHG emissions particularly through energy, transportation, and waste sectors	22% reduction in energy sector GHG emissions compared with 2005 levels by 2025	Annual reduction in national GHG emissions	OCC
1.6.2	A reduction in national energy consumption	30% reduction in overall national energy consumption by 2025	Annual reduction in national energy consumption	OCC PPUC
1.6.3	Fuel use reduction in the national transport sector	Fuel use reduction in the national land and sea transport sector	Annual fuel use reduction in the transport sector	OCC PPUC MPII
1.6.4	Set up Carbon sequestration and Payment for Ecosystem Services schemes	Palau is a carbon neutral tourist destination and high sequestering habitats such as mangroves, forests, and seagrass are protected or restored	Tourists offset carbon emissions by funding national carbon sequestration initiatives	BOT PVA MAFE
1.7.1	Minimisation of annual imported quantities of HFCs	Reduction in annual HFC importation rates	HFC consumption reduced by 40% of baseline quantities by 2024[11]	EQPB

[11]Baselines will be calculated from past HCFC consumption baselines plus HFC consumption in 2020-2022. (Kigali Amendment, 2016)

THEME TWO: LAND MANAGEMENT AND FOOD SECURITY

BACKGROUND

Land management is broken into two categories: 1) Protected/Conservation areas, and 2) sustainable land management, targeting all other lands outside of protected areas. Many protected areas fall under Palau's Protected Areas Network (PAN) and are recognized internationally.[12] In 2019, there were 61 protected areas, 20 of which included a terrestrial element and 15 of which had some mangrove. 16 terrestrial and 9 mangrove protected sites were in the PAN. This included 22 km^2 of mangrove forest (approximately 46% of Palau's total mangroves) and 90 km^2 of terrestrial habitat (approximately 22% of Palau's total terrestrial habitat). Approximately 25% of Palau's land area, mainly on the island of Babeldaob, is moderately to steeply sloping grasslands which are susceptible to soil erosion and fire. The cycle of burning and erosion degrades the land and has deleterious effects on low-lying areas, surface water sources, mangrove forests, the lagoon, and eventually, coral reefs.[13] Palau has prioritized achieving food security by 2030. Governance and technical issues hamper food security and the development of the agriculture sector in Palau. These issues include a lack of coordinated land-use planning, issues with land tenure, presence of invasive species, high costs and risks, and high labor and soil inputs needed to increase soil fertility. Agricultural development in Palau requires a coherent and long-term strategy that is owned and institutionally supported by the various organizations involved in the sector.[14] The island of Babeldaob is a priority for development, which is currently occurring without any land use planning and leading to loss of natural habitats such as forests. An estimated total of 2,800 tons (2.8 million kg) of ordnance was dropped or fired on Palau during the Second World War and are an ongoing environmental and human health hazard.[15] Only a fraction of the explosive remnants of war having been removed from the landscape.[16]

NEMS STRATEGIC FOCUS AREAS

2.1 Land use planning and zoning
2.2 Food security
2.3 Protection of water supplies
2.4 Soil management
2.5 Forest management
2.6 Expansion and management of PAN
2.7 Savannah grassland management
2.8 Coastal vegetation management
2.9 Clearance of Explosive Remnants of War (ERW)

NEMS Actions		Targets	Performance Indicators	Key Implementors and Partners
2.1.1	Integrated land use planning and zoning	Sustainable development of land for agriculture, settlement, and commercial and tourism enterprises	State Master Plan for equitable and integrated land-use planning and sustainable land use	PALARIS States / State Planning Commissions

[12]Republic of Palau (2016). *Protected Area Network (PAN) Status Report 2003-2015*. 29pp
[13]Republic of Palau (2000). *National report to the United Nations Convention to Combat Desertification*. 4pp.
[14]ADB (2017). *Private sector assessment for Palau: Policies for sustainable growth revisited*. 69 pp.
[15]https://www.mineactionreview.org/assets/downloads/Palau_Clearing_the_Mines_2017.pdf
[16]Stuart Raetz (2017). *Survey and Clearance of Explosive Remnants of War (ERW) Final Evaluation (Final Report).* Cleared Ground Demining (CGD). 44pp.

2.1.2	Increased access to land resources	Public access to land and water resources increased	Expansion of equitable public leasing programmes across Palau	State Public Land Authorities MAFE
2.1.3	Sustainable Land Management (SLM)	Home, commercial, tourism, and agricultural development proceeds with minimal impact on the environment	Decreasing sedimentation and loss of habitat due to development and maintained permeability in developed areas	EQPB MAFE
2.2.1	National agriculture strategy	Food production tripled by 2030	Annually increased yields of local vegetable and root crops, fruit and livestock production[17]	MAFE BOA
2.2.2	Local sustainable organic food production	Local organic food production increases	Increasing number of organic certified foods, farms, and products	MAFE BOA
2.2.3	Agricultural biodiversity preservation	Best practice agriculture implemented	Farming practices prioritise agrobiodiversity conservation	MAFE BOA PCC-CRE
2.2.4	Prevention and control of invasive alien species and invasive species	Biosecurity keeps new invasive alien species out of Palau and invasive species control minimizes spread	Invasive species control enables increasing fruit production	MAFE BOA MAFE BOE
2.3.1	Protection of high-quality agricultural soils, soil enhancement, and erosion control	Productive soils are maintained and increased	Soil management, amendment, carbon sequestration, and erosion controls implemented	MAFE BOA EQPB
2.4.1	Protection of water supplies	Water supply quality and quantity maintained or improved through integrated hydrological planning	Best practices followed in agriculture, forestry, aquaculture and in waste and wastewater disposal	MAFE PPUC EQPB
2.5.1	Protection of forests	Forests managed sustainably for multiple outcomes	Forest resources managed to protect biodiversity, water supplies and cultural significance	MAFE BNM
2.5.2	Forest monitoring and restoration research	Research and monitoring guides sustainable forest management	Terrestrial monitoring protocol for PAN sites is developed and implemented	MAFE BNM
2.6.1	Expansion of Protected Area Network (PAN)	All key terrestrial habitat types and 30% of terrestrial resources represented in PAN by 2030	Beach strand, raised coralline atoll, swamp forest, and bird aggregation sites added to PAN by 2025[18]	MAFE PAN Office States
2.6.2	PAN Enforcement	Ecological integrity and biodiversity protected in PAN	National Enforcement officers and PAN Rangers enforce relevant State and National Laws	MAFE PAN MOJ States
2.7.1	Management of fire in Savannah landscapes	Risk of wildfire impacts minimised	Fire-degraded lands are rehabilitated	MAFE PAN MOJ (Bureau of Public Safety)
2.8.1	Management and conservation of mangrove forests	Areal extent of mangrove forested area remains stable	Increasing use of Nature-based solutions for climate adaptation and shoreline protection	MAFE PICRC BNM

[17]OOC commitment

[18]NEPC (2019). *2019 State of the Environment Report, Republic of Palau*. National Environmental Protection Council (NEPC), Government of Palau: Koror, Palau. Page 61

2.8.2	Coastal re-planting programmes	Shorelines protected from wave action	Shoreline revegetated with appropriate species (eg *Casuarina*, *Scaevloa*)	States
2.9.1	ERWs removed from the landscape	All ERWs removed from the landscape and from shallow waters	Ordinance removal programmes active across Palau	MOS

THEME THREE: NEARSHORE MARINE MANAGEMENT

BACKGROUND

Nearshore marine areas include all water habitats from the shoreline to about 200 meters depth. Uses in the nearshore vary, but fisheries and gleaning are essential activities across Palau. Palau's marine environment is highly diverse, allowing for multiple competing uses, including fishing, tourism, aquaculture, extraction, cultural practices, biodiversity conservation, transportation, and climate resilience all in the same places. Palauan waters support more than 350 species of hard coral, 200 species of soft coral, over 300 species of sponges and more than 1,300 species of reef fish.[19] Considered one of the "*Seven Underwater Wonders of the World*," Palau has the highest levels of marine and terrestrial biodiversity within Micronesia and is on the north-eastern margin of "the Coral Triangle" which has the highest diversity of shallow-water marine species in the world.[20] In 2015, 1,331 km^2 of nearshore marine habitat (46% of Palau's total nearshore marine area) was protected within the PAN. This includes Koror's Rock Islands Southern Lagoon and its marine lakes which is a World Heritage Site and home to stingless jellyfish that have evolved in these unique ecosystems.[21]

The Koror Southern Lagoon is a vast 859 km^2 coral reef environment with the famous Rock Islands World Heritage Area and the Koror urban area nestled within the lagoon. Koror's urban area is home to 65 percent of Palau's population such that the reefs are intensely fished[22]. Artisanal fishing occurs for subsistence, small-scale commercial, and sports fishing. Because of the Rock Islands, the area is Palau's main tourism hub. Tourism activities, mainly diving and snorkelling are concentrated in the Rock Islands, contributing to a decline of fish abundance that has been noticed and reported by fishermen, and local and regional authorities. Today's recent studies continue to show the decline. This trend is further exacerbated by a nationwide change from traditional subsistence fishing to commercial fishing, changes from a historic "reef assignment" system to an open-access fishery, and with other drivers influencing fish demand and consumption.[23] Much of Palau is located in a lagoon, and current patterns vary widely. In some locations, sediment and pollution from land linger, leading to long-term negative impacts.

NEMS STRATEGIC FOCUS AREAS

3.1 Data collection, sharing, and feedback systems
3.2 Marine spatial planning
3.3 Nearshore fisheries management – Improve status of nearshore fisheries (finfish and invertebrates) and increase value of fisheries products
3.4 Aquaculture Management
3.5 Marine Protected Area management and expansion
3.6 Mangrove management
3.7 Coral Reef management
3.8 Tourism outside of Koror (Babeldaob, Outer Islands, and offshore)
3.9 Improved management of Koror's World Heritage Site
3.10 Management of marine water quality

[19]Republic of Palau. (2002). *National Report to the World Summit on Sustainable Development*. Office of Environment, Response and Coordination. Office of the President of the Republic of Palau.
[20]Hinchley *et al.* (2007). *Biodiversity Planning for Palau's Protected Areas Network.* TNC Pacific Island Countries Report No 1/07. 80pp.
[21]Republic of Palau (2016). *Protected Area Network (PAN) Status Report 2003-2015*. 29pp
[22]Office of Planning and Statistics ROP 2022
[23]Gouezo *et al.* (2021). *Koror Southern Lagoon Coastal Fisheries Management Plan 2021*. Palau Conservation Society. 109pp.

3.11 Protection and maintenance of marine biodiversity

NEMS Actions		Targets	Performance Indicators	Key Implementers and Partners
3.1.1	Conduct Stock Assessments (finfish and invertebrates, including in mangroves)	Understanding of standing stock and level of harvesting that leaves the stock viable	Biomass, Population, SPR for commercially important species and protected species by location (Fisheries-independent data)	BOF, PICRC, SPC, NGO partners
3.1.2	Conduct Harvest Assessments	Understanding of current harvesting by species, location, method, etc. and influences in harvesting (finfish and invertebrates)	Fisheries-dependent data – estimate of catch per year by location and sector for commercially important species, Estimates of IUU fishing for protected species	BOF, RARE, NGO Partners, Business industry
3.1.3	Conduct Market Assessments and Analysis that leads to improved marketing, pricing, and livelihoods	Gaps in market aspects of fisheries are filled, such as target prices, incomes Ocean climate risk and sequestration data used to inform financing	Market Assessment report Sequestration values determined	BOF, NGO Partners, MOF
3.1.4	Establish and improve Data sharing and feedback systems	Data used to manage harvest levels and pricing	Thresholds for action established	BOF, PALARIS, NEPC
3.2.1	Conduct Nearshore Marine Spatial Planning (MSP), incorporating Traditional Knowledge, Spatial Data, and Best Available Data	Data for territorial waters (12 miles) increased and marine habitats zoned/planned for multiple uses including food security, economic uses, and cultural and social uses	100% Sustainable Ocean Plan, with policies and processes for adaptive management, developed and adopted Marine spatial plans included in state master plans	MAFE
3.3.1	Manage Spawning and Aggregation sites	Spawning and aggregation sites protected (fully or seasonally)	Critical spawning sites mapped; Rules and regulations for closure and seasonal access passed	MAFE, PICRC, NGO Partners
3.3.2	Develop and adopt National and Regional Fisheries Plans for Kiukl, Despedal, Outer islands; Adopt and implement Koror Fisheries Plan; Update Northern Reefs Plan	Fishery zones, SPR/sizes, harvest levels, Rules, Regulations, Best Practices, etc. set and adopted	At least 5 Coastal Fisheries Plans adopted Scientifically defendable catch limits established	States, MAFE BOF and BOE, NGO Partners
3.3.3	Monitor nearshore fisheries (fishery, not fish)	Sustainable harvest regimes identified and fisheries-dependent and fisheries-independent data collected and analyzed	System/Framework in place so that national fisheries data feeds into annual Fisheries Plans and licensing, registration system, etc.	PICRC, NGO Partners
3.3.4	Update nearshore fisheries regulations; establish licensing and	Coastal fisheries regulated to ensure sustainable catch	A licensing and reporting system for management implemented and enforced	MAFE

NEMS Actions		Targets	Performance Indicators	Key Implementers and Partners
	permitting system (business permitting and fishing licenses)	according to Fisheries Plans		
3.3.5	Train and build capacity for fisheries management and enforcement	Coastal fisheries enforcement programme improved Fisheries monitoring and management feeds back into fisheries plans and informs adaptive management	Resources available to allow routine fisheries monitoring and control operations in inshore waters	MAFE, States, PAN, PICRC, NGO Partners
3.3.6	Increase Fisheries awareness, including awareness about traditional knowledge and traditional practices	Public support maintained for inshore fisheries management and regulation	A fisheries awareness program is in place	NGO Partners
3.3.7	Provide Extension services to develop fishery-based livelihoods, and assist with Standard Buys, Market Development and fisher access to markets, and Risk Reduction	Fisheries coops and associations able to negotiate lower costs, higher incomes, better plan for supply and demand	Supported Fisheries Coops or Associations in place, with higher incomes and lower risks	BOF, NGO Partners, MOF
3.3.8	Stabilize and optimize supply and demand	Systems in place to determine demand for nearshore fishery products by location and season, and systems in place to produce and distribute supply to meet demand	Increasing number of connections/agreements between fishers and buyers	BOF, NGO Partners, MOF
3.3.9	Track and promote High Value Fishery products “From Hook to Fork” along a transparent and fair value chain	Fishery tracking systems (apps) track fish and communicate the provenance of fishery products (including stories about the producers)	Nearshore fishery products fetch premium prices and those prices are returned to producers Consumers have increased appreciation and paying more for fishery products and producers (men and women)	NGO Partners
3.4.1	Update and modernize the National Aquaculture Policy	Policy document developed and adopted in line with marine regulations	Policies agreed between private sector development and public sector support and subsidies, with agreed policies for support for food security versus export and livelihood development, and policies to ease access to capital	BOF, NGO Partners, Aquaculture Business Sector
3.4.2	Plan for and provide extension services to support expansion of aquaculture (species types and amount)	A 300% increase in aquaculture production for food	Locations for aquaculture identified and agreed	BOF

NEMS Actions		Targets	Performance Indicators	Key Implementers and Partners
3.4.3	Stabilize, diversify, and decentralize supply of aquaculture seedlings	300% increase in seedling production from an increasing number of suppliers	Increasing number of suppliers, number of species, and total number of seedlings produced per year; with decrease in loss due to climate or other risks; with collaboration between government and private sector	BOF, NGO Partners, Aquaculture Business Sector
3.4.4	Protect and enforce aquaculture property; Clarify farm ownership status and enforcement capacities in nearshore marine waters	Theft and poaching of aquaculture farms eliminated	Public sector policies and practices in place to deter and enforce poaching	MAFE, MOJ, States
3.4.5	Identify and access increasing number and diversity of export markets for cultured clams	Increasing export of clams with increasing improvements of farmer livelihoods (in line with national food policy)	Capacity to profit from international markets increased	MAFE, MOS, MOF, NGO Partners, Businesses
3.4.6	Establish an institutionalized training and capacity building program for private sector participants	Training in aquaculture best practices, business skills, risk management, writing and capacity to access financial capital	Increasing number of trained participants actively engaged in aquaculture	NGO Partners
3.5.1	Continue regular monitoring, conduct another round of PAME, and consistently use data to assess targets and adapt management.	Updated PAN Status report feeds into annual PAN planning and strategies Annual monitoring reports for each site with recommendations for management	PAN Status Report Annual Reports/Management Plan updates for MPAs	PAN, NGO Partners
3.5.2	Finalize PAN Strategy, to include marine spatial planning and spatial targets	PAN Strategy includes spatial, habitat, and species targets	Strategy document adopted	PAN
3.5.3	Increase number, size, and diversity of Marine Protected Areas	Micronesia Challenge 2030 target for sustainable management	Increased areas of channels, back and deeper reefs, reef flats, and sustainable use areas (e.g. to include aquaculture farms) and cultural sites protected as MPAs	PAN, States, NGO Partners
3.5.4	Enhance and stabilize PAN training programs and certification programs	Increase PAN Coordinator and Ranger capacity to manage sites, conduct surveys, adapt management enforce relevant laws, write reports, and seek independent funds.	Increasing number of trained individuals Increasing number of skills with training programs	PAN, Koror, PCC, NGO Partners
3.6.1	Align forestry and marine programs on Mangrove Management	Mangroves systematically planned for, including for cumulative impact	Inclusion of mangroves in PAN, Land Use, and Marine Spatial Plans	MAFE, PCC, PICRC, BNM
3.6.2	Determine financial and ecosystem values of mangroves (and coral reefs), including food	Increased study and scientific data of mangroves informs management	Mangrove socioeconomic and biophysical reports	MAFE, NGO Partners

NEMS Actions		Targets	Performance Indicators	Key Implementers and Partners
	production, carbon storage, reducing climate vulnerabilities, cultural ties, and ecosystem services			
3.6.3	Establish Parameters and Standard Operating Practices (SOPs) for mangrove (and coral reef) management and restoration	Degraded mangroves and coral reefs restored to increase value	Scientifically-based documents with SOPs	MAFE, PCC, PICRC, BNM
3.6.4	Improve public awareness and appreciation for mangroves	Mangrove awareness programs implemented	Increasing support for mangrove protection, fewer leases issued in mangroves	MAFE, NGO Partners
3.6.5	Understand status of Unexploded Ordinances (UXOs) in mangroves and rivers	Estimates and recommendations developed (capture knowledge of older generation)	UXO Assessment	MAFE, JICA, Japan Embassy
3.7.1	Conduct coral monitoring and research	Research and monitoring guides sustainable reef management	Regular Coral Reef status reports published	MAFE, PICRC, NGO Partners
3.7.2	Improve coral reef management for long-term resiliency	Coral reef planning includes long-term climate risks and resilience	Resilient reefs identified and sustainably managed	MAFE, PICRC, NGO Partners
3.7.3	Establish Parameters and Standard Operating Practices (SOPs) for coral reef management and restoration	Degraded coral reefs restored to increase value	Scientifically-based documents with SOPs	MAFE, PICRC, NGO Partners
3.8.1	Develop and promote new and unique marine tourism products outside of Koror's nearshore reefs, including for diving, cultural history, whale watching, sportsfishing, kayaking, etc. to an increasingly diversified customer base	Each state has at least one marine-based tourism product	Increasing number of visitors to states outside of Koror	MAFE, MHRCTD, PVA, NGO Partners, Businesses
3.8.2	Update, enhance, and repeatedly offer Tour Guide Training Programs to maximize economic values, minimize environmental impacts, and correctly convey cultural and natural stories	Improve and standardize the delivery of Palau's marine tourism products Upgrade the experiences offered to more customers to generate high values per visitor	Increasing number of tour guides trained in an increasing number of skills and capacities "Certify the stories"	MAFE, PAN, Koror, MHRCTD, NGO Partners
3.9.1	Assist Koror State to maximize the potential of the Rock Islands Southern Lagoon as a World Heritage Site	World Heritage status promoted and mainstreamed Negative impacts on tourist sites minimized (e.g. Jellyfish lake)	Exit surveys indicate increased knowledge of World Heritage Status Increasing dollars due to World Heritage Status	MAFE, NGO Partners
3.10.1	Marine water quality monitoring	Marine water quality routinely assessed	Monthly nation-wide marine water quality	EQPB

NEMS Actions		Targets	Performance Indicators	Key Implementers and Partners
		against internationally recognised guidelines	samples collected, analysed and reported	
3.10.2	Marine water quality management	Marine pollution plan developed and adopted Leaking vessels and other pollutants cleaned up, removed, or minimized	Percent of marine pollution plan funded and implemented Sources of leaking oil removed	EQPB
3.11.1	Finalize and adopt updated Regulations for the Marine Protection Act	Regulations are comprehensive for multiple sectors	Regulations adopted	MAFE
3.11.2	Agree and adopt Marine endangered species regulations and list, in line with international agreements	Endangered species better understood and protected, in line with international commitments (e.g. CITES)	Scientifically-defensible List adopted	MAFE
3.11.3	Minimize and enforce poaching of protected species	Awareness, community buy-in, and enforcement of protected species improves	Improving Population and size status of endangered species	MOJ, PAN, States
3.11.4	Map and plan for high biodiversity sites	High Biodiversity Sites or High Value Marine Sites mapped and included in marine spatial plans with sustainable use or protection regimes	Increasing number of High Biodiversity areas protected via national or state plans	MAFE, PICRC, NGO Partners

THEME FOUR: OFFSHORE MARINE MANAGEMENT

BACKGROUND

NEMS STRATEGIC FOCUS AREAS

NEMS Actions		Targets	Performance Indicators	Key Implementors and Partners

THEME FIVE: FRESHWATER MANAGEMENT

BACKGROUND

Freshwater is generally abundant in Palau through a network of surface streams. There are few groundwater sources. Streams on Babeldaob support diverse riparian and aquatic diversity, including 47 species of fish.[24] The Ngerdorch River drains from Lake Ngardok (a Ramsar Wetland of International Significance and the largest lake in Micronesia) before it flows to the ocean on the east coast of Babeldaob. On the west coast of Babeldaob, the Ngermeskang River flows into Ngermeduu Bay (a UNESCO Biosphere Reserve and the largest estuary in Micronesia), as part the largest watershed in Palau. Both Ngardok Lake and Ngeremeduu Bay are protected by law as conservation areas; however, human disturbance, poaching, fire, unsustainable water usage, erosion, feral animals, and climate change all threaten the ecological integrity of these habitats.[25] Approximately 75% of the Palauan population (in urban areas of Koror and Airai) relies on Airai's Ngerikiil watershed and the Ngerimel Dam for freshwater. Many small water pumps pull water from small watersheds to feed villages around Babeldaob. Diversion of water to meet human needs (particularly during droughts) can lead to decreased river flows, which may potentially interfere with the lifecycles of aquatic organisms. Catchments within Palau watersheds are developed for a variety of purposes, ranging from private residences to agricultural lands. Very few of the watersheds above public water sources are protected or zoned to minimize impact. Most are seeing a growth in development and thus high levels of sedimentation and decreasing water quality. Water sources are covered by several sets of regulations that mandate 60-foot riparian buffers (on both sides) and prohibit development and sewer systems within a 300-foot radius of any water source. Nevertheless, sources of water pollution include sedimentation caused by poor erosion controls, loss of riparian buffers, and poor land use practices.[26] Construction of the National Highway (completed in 2006) and ongoing residential subdivision development released high sediment loads into rivers and bays, much of which has permanently settled into marine environments due to low flushing. Other sources of pollution including sewage and chemical pollution are believed to also be impacting catchment health but are unquantified.[27] Estuarine areas provide important habitat for protection of threatened species including the estuarine crocodiles.[28]

NEMS STRATEGIC FOCUS AREAS

5.1 Catchment management and protection
5.2 Freshwater supply management
5.3 Freshwater monitoring
5.4 Estuarine habitat protection
5.5 Freshwater lake protection

NEMS Actions		Targets	Performance Indicators	Key Implementors and Partners
5.1.1	Water Catchment land use planning, zoning, and protection	Upper catchments and watersheds zoned, protected, or rehabilitated	Maintained or increased forest cover in watersheds above water sources	PALARIS MAFE PAN

[24] Michael and Jaensch (2014). *Directory of Wetlands of Palau*. SPREP. 91pp.
[25] https://www.palaupanfund.org/ngardok.html
[26] https://doi.org/10.1155/2011/981273
[27] SOPAC (2007). *National Integrated Water Resource Management Diagnostic Report PALAU*. SOPAC Miscellaneous Report 642. 64 pp.
[28] Michael and Jaensch (2014). *Directory of Wetlands of Palau*. SPREP. 91pp

				States/State Planning Commissions
5.1.2	Water quality and quantity protection	Development minimizes impact on water supply	Permitted activities avoid adverse water resource impacts and point (especially dumps) and non-point source pollution sources minimized and rehabilitated	MAFE PPUC MPII
5.2.1	Water Conservation	Potable and treated water sources used efficiently	Pre- and post-consumer actions minimize waste and loss of treated water	PPUC
5.2.2	Adequate provision of safe and resilient water, particularly vulnerable people	Clean potable water available to 100% of the population, including in the outer islands, even during natural disasters and times of stress	100% of homes, including new homes and subdivisions, have access to multiple sources of treated water	MPII PPUC
5.2.3	Irrigation supply planning and management	Irrigation water supplies available as needed to the agricultural sector	Irrigation demand modelled and managed to ensure delivery of adequate agricultural water supplies	MAFE BOA
5.2.4	Decreased coliform counts	Reduction in coliform contamination in potable water	Increasing conversion of septic tanks to sewer systems, and conventional piggeries to dry litter systems	MPII EQPB BOA
5.3.1	Freshwater quality monitoring	Freshwater quality routinely assessed against internationally recognised guidelines	Monthly river and lake water quality samples collected, analysed and reported	MAFE BOE EQPB PPUC
5.3.2	Freshwater hydrological research and monitoring	Freshwater supplies extracted sustainably	Baseline research and ongoing hydrological monitoring undertaken and reported; conservation systems triggered by water monitoring thresholds	MAFE
5.4.1	Wetland habitat protection	Estuarine habitats, swamp forests, *mesei* (taro patches), and wetlands maintained (no net loss) and populations of indicator wetland species maintained or increased (crocodile, purple swamphen, invertebrates, reptiles)	Regulations protect wetlands, with maintained wetland coverage	MAFE PAN Ngeremlengui, Ngatpang, and Aimeliik States
5.5.1	Freshwater lake habitat protection	Palau's two freshwater lakes (Ngardok Lake and Ngerkall Pond) are protected and managed in the PAN	Management Plans completed for Ngardok Lake and Ngerkall Pond	MAFE PAN Melekeok and Ngaraard States
5.5.2	Ngerimel Reservoir rehabilitated	Ngerimel Dam functions as a resilient source of water during droughts	Water storage in the dam increased	MPII PPUC

THEME SIX: BIODIVERSITY CONSERVATION

BACKGROUND

Palau's geographical and geological characteristics have allowed for extensive biodiversity development, with over 7,000 terrestrial and 10,000 marine species known to exist in the country. As a consequence, Palau has the most diverse terrestrial biodiversity in the Micronesia region and has one of the most biologically diverse underwater environments globally.[29] Habitats in Palau include tropical rivers, lakes, rainforests, estuaries, mangrove forests, seagrass beds, fringing reefs, barrier reefs and marine lakes. In 2012, the UNESCO World Heritage Committee approved the inscription of Palau's Rock Islands Southern Lagoon as a mixed natural and cultural World Heritage Site, partly on the basis of its high endemism rate and high biodiversity within a small area.[30]

NEMS STRATEGIC FOCUS AREAS

6.1 Endangered species protection
6.2 Invasive species management and control
6.3 Protected Area Network expansion and management
6.4 Environmental reporting
6.5 Biodiversity mainstreaming

NEMS Actions		**Targets**	**Performance Indicators**	**Key Implementors and Partners**
6.1.1	Endangered species regulations and agreements	Endangered Species Regulations completed, implemented, and enforced	Regulations Governing Endangered Species passed and CITES list agreed	MAFE Office of the Minister BNM
6.1.2	Regulatory framework for endangered and endemic species	Protected Life Act updated, Biosecurity Regulations, Marine Protected Act Regulations, and PAN Act Regulations updated to include new understandings of endangered and endemic species	Exemptions for endemic and endangered species removed from regulatory framework	MAFE OEK
6.1.3	Species Management Plans for threatened biodiversity completed and implemented, in line with national laws and international agreements	Viable populations of threatened species live in Palau	Species management plans developed for endangered and other priority species in line with Ramsar, CMS, CBD, Ramsar, and other commitments	BNM MAFE
6.1.4	Comprehensive biological inventory and assessment of all island ecosystems	Collected data utilised in an adaptive management framework to protect biodiversity	National BIORAP undertaken regularly	MAFE
6.1.5	Increased understanding of genetic biodiversity, and Access and Benefit	Agrobiodiversity maintained and benefits from marine and coral	ABS system agreed	MAFE

[29]Republic of Palau (2016). *Revised National Biodiversity Strategy and Action Plan 2015-2025: Promoting Wise Development to Achieve Conservation and Sustainable Use of Biodiversity*. 183pp.
[30]UNESCO (2012). *Rock Island Southern Lagoon Puts Palau on the List of World Heritage Sites*, http://www.unesco.org/new/en/apia/about-this-office/single-view/news/rock_islands_southern_lagoon_puts_palau_on_the_list_of_world_heritage_sites/

	Sharing systems established	genetic diversity accrued in Palau		
6.1.6	Biodiversity priorities established for each island, with increased local and national awareness	Government and non-government organizations consulted on biodiversity priorities	Appropriate policies and legislation on ecosystems services formulated	MAFE
6.2.1	Prevention of the introduction and establishment of invasive species	Introduction or internal spread of invasive species prevented	Early detection of, and rapid action against new introductions of potentially invasive species	MAFE NISC MOJ Biosecurity
6.2.2	Impacts of existing invasive species minimised	Prioritised invasive species are controlled or removed	IAS management actions are identified and implemented through inventory, assessment, and prioritization activities	MAFE NISC
6.3.1	Protected Area Network (PAN)	PAN system expanded to include missing key habitats, enforcement improved at the National and State levels, and private conservation lands supported under PAN	National PAN Management Strategy and Action Plan implemented	MAFE PAN Office
6.3.2	High conservation sites protected	High Conservation Sites have improved biodiversity conservation and ecosystem health status	Under- represented ecosystems (mangroves, swamp forests are identified and protected in the PAN	MAFE PAN Office PICRC BNM States
6.4.1	State of the Environment Reporting	Regular review of national environmental status	SoE Report updated every five years	NEPC
6.4.1	Adaptive management	Monitoring systems feed into adaptive management systems	Increasing percent of monitoring data analysed, reported, and acted upon to continually revise biodiversity priorities	BOE
6.5.1	Biodiversity conservation mainstreamed, including into tourism, cultural site protection, food production, and development	Coral reef and forest disturbances minimised at local scales	Sustainable carrying capacity ranges are established, determining acceptable levels of environmental, cultural, and community impacts	BOT PVA MAFE
6.5.2	Sustainable tourism	Sustainable tourism achieved through accreditation and audit	Eco-friendly tourism certification system implemented	BOT PVA MAFE

THEME SEVEN: WASTE MANAGEMENT

BACKGROUND[31]

The management of solid wastes in Palau is overseen by the Bureau of Public Works (BPW) under the Ministry of Public Infrastructure and Industries (MPII) and Koror State Governments. Waste collection has been privatized and several small businesses collect waste from Korro and Babeldaob. The management of hazardous wastes falls under the mandate of the Environmental Quality Protection Board (EQPB).[32] Koror State Government operates the Koror State Recycling Centre which hosts the National Redemption Centre (where recovered cans, glass and bottles are received and processed), the Energy Recovery Facility (where selected plastic types are converted to oil which is used as fuel to generate energy), a Composting Facility (which processes green waste to produce saleable compost) and a Glass Blowing Facility (where glass is crafted to other ornamental products). Used vehicles, tires and uLABS are collected at M-Dock and used oil is collected by PPUC at their facilities and sites.

Approximately 30,000 tonnes of waste are generated annually in Palau.[33] 34 tons per day is generated in Koror and Babeldaob. Recent surveys have determined that on average, small urban households generate 0.90 kg of waste per household per day, regional areas 1.09 kg of waste per household per day and rural areas 0.68 kg of waste per household per day[34]. Waste generation for commercial premises was estimated to be 1.51 kg per premises per day. The largest component of the waste was organics (37%), with plastic waste contributing around 16% of waste volume. The 13-acre M-Dock Landfill was the national landfill located in Koror State which was operated for more than 50 years. It was replaced by a new landfill site in Aimeliik State in 2020, although M-Dock still has five more years of capacity left. Homes in Koror and Babeldaob have weekly garbage pickup, although commercial waste and larger items must be delivered directly. There were also ten community dumpsites operated by other States on Babeldaob Island that are now closed. Other landfills and dumps continue to be operated on every outer island, including a high priority site in Peleliu that drains leachate directly into mangroves.

NEMS STRATEGIC FOCUS AREAS

7.1 Improved national waste prevention and management
7.2 Improved landfill operations
7.3 Recycling
7.4 Composting
7.5 Hazardous waste management
7.6 Disaster waste management
7.7 Marine Plastic

[31]Republic of Palau (2019). National Solid Waste Management Strategy: The Roadmap towards a Clean and Safe Palau (2017 to 2026). 62pp.
[32]Republic of Palau (2019). National Solid Waste Management Strategy: The Roadmap towards a Clean and Safe Palau (2017 to 2026). 62pp.
[33]APWC (2020). *Palau – Waste Audit Report Analysis of waste generation, recycling and disposal data collected in November 2019.* 165pp.
[34]APWC (2020). *Palau – Waste Audit Report Analysis of waste generation, recycling and disposal data collected in November 2019.* 165pp.

NEMS Actions		Targets	Performance Indicators	Key Implementors and Partners
7.1.1	Comprehensive waste minimisation and management	Palau Integrated Waste Policy and Action Plan (2017-2026) is fully implemented	Waste is prevented, reduced, and managed to minimise environmental and human health impacts	MPII Koror State
7.1.2	Improved waste management (collection, segregation, transfer, recovery and disposal) services provided in Koror and the Outer Islands	Palau Integrated Waste Policy and Action Plan (2017-2026) is fully implemented	All wastes are collected and managed to minimise environmental and human health impacts by 2025	MPII States
7.1.3	Improved international and national regulatory framework to prevent waste	Reduced importation of plastics and glass	Rules and financial mechanisms to reduce volume of plastic and glass that becomes waste	OEK MPII MOF (Customs)
7.2.1	National landfill continues to operate to international standards	Palau Integrated Waste Policy and Action Plan (2017-2026) is fully implemented	National landfill is climate proofed and 8 waste transfer stations in operation	*MPII*
7.2.2	Babeldaob State landfills closed and rehabilitated	Old landfills have negligible environmental impacts	Increasing number of old landfills closed, capped, rehabilitated and monitored	MPII
7.2.3	Outer island landfills managed	Outer island landfills meet sanitary standards, include segregation and pathways for recycling and hazmat disposal, are rehabilitated to reduce environmental and health impacts, or are compacted	Outer island landfill plans developed and agreed and an increasing number of actions implemented	MPII
7.3.1	National recycling programmes for plastic, metal, ULABs, paper, and E-waste	Palau Integrated Waste Policy and Action Plan (2017-2026) is fully implemented	All exportable recyclable waste is collected, separated, and sent offshore for recycling by 2025 Increasing waste-to-energy conversion	MPII Koror State
7.3.2	Household segregation	Homes on Koror and Babeldaob recycle	100% of beverage containers, glass, paper, and recyclable metals used in the home are recycled	MPII
7.3.3	Scrap metal recycling	Pathways for scrap metal recycling determined and pursued	Agreements in place for scrap metal recycling	MPII
7.4.1	Organic waste composted	Organic wastes are separated and composted	Reduced organic waste entering landfills Increasing compost and biogas availability	MPII BOA
7.4.2	Food waste reduced	Less food wasted, and food that is wasted is composted	Reduced food waste entering the landfill	MAFE MHHS Council of Chiefs and Female Counterparts

7.5.1	Dedicated landfill storage areas for different waste types including hazardous wastes	Hazardous wastes, metals, tires, large plastics, etc. are separated and stored securely at the landfill prior to export	Segregated storage areas are in operation	MPII Koror State
7.5.2	Medical and biological waste disposal	Biohazard wastes treated by high temperature incineration	High temperature two chamber waste incinerator operational	MPII MHHS
7.6.1	Disaster waste management	Disaster waste management equipment and sites available for emergency use	Disaster Waste Plan incorporated in the National Disaster Response Plan	MPII OCC
7.7.1	Plastic management	Waste plastic generation minimised	Executive Orders and laws on limiting single-use plastics enforced nationally	MPII
7.7.2	Continued national visibility in international marine plastic negotiation fora	Key information concerning the impacts of marine plastic is made obvious to international delegates	Palau continues to have an impact in international marine litter negotiations and outcomes	OCC MAFE

THEME EIGHT: CHEMICAL MANAGEMENT

BACKGROUND

The EQPB functions as the manager of hazardous chemicals in the country in the absence of a designated office to deal with hazardous wastes.[35] Pesticide regulations are contained in EQPB Regulation Chapter §2401-33. Under the Pesticides General Prohibitions, banned, adulterated or mis-labelled pesticides cannot be imported, sold, or distributed in Palau. Small stockpiles of disused chemicals are known to be present in Palau. Specifically, contaminated sites exist at the M-Dock landfill and may also exist adjacent to the airfield where fire-fighting training exercises have been held[36]. Dielectric fluids in old decommissioned electrical transformers stored at PPUC facilities are contaminated with PCBs. Empty pesticide and AFFF containers and other wastes that are disposed of at M-Dock (Koror) and at smaller waste dumps in outlying States may have potentially contaminated these disposal sites with a range of pesticides and flame retardant chemicals.[37] Monitoring of national air samples and human breast milk in 2010 and 2011 detected low concentrations of persistent organic chemicals including chlordane, dieldrin, DDT, HCB, PCBs, lindane, and TCDD.[38] Most asbestos was removed from Palau, but some was left in older water pipes and still needs to be removed.

NEMS STRATEGIC FOCUS AREAS

8.1 National chemical management strategy
8.2 Management of priority obsolete chemicals
8.3 Contaminated site management
8.4 Oil spill management
8.5 Management of other priority chemicals
8.6 Chemical monitoring and reporting

NEMS Actions		**Targets**	**Performance Indicators**	**Key Implementors and Partners**
8.1.1	National Implementation Plan (NIP)	NIP in line with international agreements and conventions, and endorsed by Government	NIP is updated in 2022 to meet UNEP requirements	EQBP
8.1.2	Chemical inventory and import tracking system established	Types and quantities of hazardous materials in Palau established and tracked and aligned with international databases	All Import Logs backtracked, cross-referenced with Harmonized Codes, and database continually updated	EQPB Koror State MOF (Customs)
8.1.3	National chemical management strategy includes procedures and pathways for entry, stockpiling, and disposal	All chemicals imported into Palau are managed to protect the environment and human health, alert system working and effective,	Legislation, regulations and protocols to control importation of all priority chemicals reviewed, updated and enforced	EQPB Koror State MOF (Customs)

[35]Republic of Palau (2019). *National Solid Waste Management Strategy: The Roadmap towards a Clean and Safe Palau (2017 to 2026*). 62pp.
[36]Republic of Palau (2019). *National Implementation Plan for Persistent Organic Pollutants.* 75pp.
[37]GHD (2017). *Pesticide Container Management in the Pacific Palau Baseline Survey Report.* SPREP. 30pp.
[38]United Nations (2015). *Global monitoring Plan for persistent organic pollutants under the Stockholm Convention Article 16 on effectiveness evaluation. Second regional monitoring report Annex Asia-pacific region*. 134pp.

		and capacity to manage chemicals increased	Border alerts system established	
8.1.4	Mainstream chemicals management into national policies	Risks from chemicals minimized during disasters	Chemicals management mainstreamed into Climate Change and Disaster Risk plans	EQPB
8.1.5	Capacity building to manage chemicals	Palau has local expertise in safely managing chemicals	Increasing number of trained individuals retained in Palau	EQPB
8.2.1	Illegal pesticides eliminated and used pesticide container management	Incidental pesticide loss to the environment minimised	Illegal pesticides no longer used and removed, and Used (empty) pesticide containers are safely recycled at the landfill	EQPB Koror State MPII
8.2.2	Polychlorinated biphenyl (PCB) management	All PCBs found, safely stockpiled, and removed from Palau	National inventory of PCBs completed	EQPB
8.2.3	Perfluorooctane sulfonic acid (PFOS) management	Expired AFFF stocks found, safely stockpiled, and removed from Palau	National inventory of AFFFs completed	EQPB
8.3.1	National management of contaminated sites	All potentially contaminated sites investigated and where necessary, remediated	Contaminated sites assessed, prioritised and remediated	EQPB MPII Koror State
8.3.2	Smaller rural landfills and contaminated sites remediated	Hazardous materials safely separated and removed, and contaminated soil removed from Palau	Increasing number of rural landfills (Babeldaob and outer islands) closed and rehabilitated	MPII Koror State
8.3.3	Airfield contaminated sites remediated	AFFF contaminated soil removed from Palau	Contaminated soil removed and shipped offshore for destruction	MPII
8.3.4	Efficient use of the M-Dock landfill	M-Dock site safely capped and managed	M-Dock closed in 5 years (or when full) and capped	Koror State MPII
8.3.5	Airai Landfill managed to reduce chemical runoff	Airai Landfill drainage and ventilation rehabilitated to minimize drainage of chemicals into Airai Bay	Airai Landfill capped and engineering solutions employed around margins	MPII Airai State
8.4.1	Illegal oil disposal and Oil spills managed and contained	Environmental damage caused by accidental or deliberate oil releases minimised	Finalize National Oil Spill Response Plan Increasing capacity to respond to oil spills	MPII EQPB
8.4.2	Existing oil spills and releases cleaned	Amount of oil in the environment reduced	Increasing number of leaking ships and old cars remedied	EQPB
8.5.1	Mercury management	National mercury management priorities identified, including mercury in the environment and from food sources, and existing mercury found, safely stockpiled, and removed	Minimata Convention Initial Assessment (MIA) completed	EQPB
8.5.2	Used battery management	Basil Convention Protocols implemented with prior consent	Increasing number of batteries removed from Palau	EQPB
8.5.3	Fertilizer stockpiles managed	Fertilizer use minimizes damage to downstream environments	Decreasing fertilizer use	EQPB BOA

8.5.4	Chemical sunscreen ban compliance and enforcement	No illegal sunscreens imported into Palau	Monitoring does not detect presence of illegal chemicals from sunscreens	MOF (Customs) Koror State Rangers
8.5.5	Other chemicals, including lead and asbestos, tracked and managed	Reduced environmental and health impact from chemicals	Decreasing sources of lead and asbestos	
8.6.1	Participation in the Global (Chemical) Monitoring Plan (GMP)	Inventory Data available on POPs and chemical concentrations in Palau in an accessible and updated database	Samples from priority national environmental matrices collected and analysed annually under the GMP	EQPB
8.6.2	Public health monitoring	Public health protected	Routine national monitoring of sewer and septic outflows, and pollution point sources (including landfills)	MHHS Division of Environmental Health (DEH)
8.6.3	Unintentional Persistent Organic Chemical (uPOPs) monitoring	Palau meets Stockholm Convention uPOPs reporting requirements	uPOPs data collected and analysed every five years (2023 and 2028), feeds into database, and leads to adaptive management	EQPB
8.6.4	National progress reports to the Stockholm Convention Secretariat	Palau meets Stockholm Convention reporting requirements	Stockholm reports submitted every four years	EQPB

THEME NINE: BUILT ENVIRONMENT

BACKGROUND

Development in Palau is guided by a vision of achieving *"resilient and widespread improvement in general standards of living while preserving cultural and environmental values"*[39]. Palau has adopted an economic development strategy that is based on tourism, and prior to the COVID19 pandemic, a boom in tourist numbers significantly impacted Palau's natural environments.[40] Most of Palau's infrastructure and economic development activities are located near the coast, making them vulnerable to storm surges and sea level rise.[41] At risk infrastructure includes power, telecommunications, sewer and water lines, and housing and public buildings. Development and population pressures also present environmental risks. All development and construction activities that involve movement of soil require an Earth Moving Permit, and research has determined that local river sediment yield increases strongly with increasing numbers of granted earth moving permits.[42]

Catchments within Palau watersheds are developed for a variety of purposes, ranging from private residences to agricultural production. Approximately 75% of the Palauan population relies on the Ngerikiil watershed and the Ngerimel Dam for freshwater supply due to its proximity to the urban areas of Koror and Airai. Water supply systems outside of Koror-Airai are in poor-to-fair condition and service delivery standards are low with frequent water outages. The main source of watershed pollution is sedimentation caused by poor erosion controls, loss of riparian buffers, and poor land-use practices.[43] Other sources of pollution including sewage and chemical pollution.[44] Palau has a centralised domestic wastewater treatment plant located in Koror, although other islands have septic tanks, or composting toilets for wastewater management. The southern lagoon of Palau has composting toilet systems in at least five designated tourist area sites.

NEMS STRATEGIC FOCUS AREAS

9.1 Climate-resilient building codes in line with land use planning and zoning
9.2 Water management
9.3 Improved sanitation
9.4 Reduce impacts from development and construction
9.5 Climate-proof sustainable infrastructure and construction program
9.6 Sustainable tourism

NEMS Actions		**Targets**	**Performance Indicators**	**Key Implementors and Partners**
9.1.1	Land use planning	National information-based land use planning	Maintained, updated and improved PALARIS database used to ensure fact-based land use planning	PALARIS MAFE MOS BDA

[39]Republic of Palau (2020). *Koror-Babeldoab Island Resilient Urban Development Strategy and Action Plan*. Volume I: Main Report. 78pp.
[40]Barr *et al.* (2016). *Sustainable tourism pathways for Palau: findings and recommendations from a cross-sectoral workshop. Discussion Paper No 16, Conservation Strategy Fund.* 26pp.
[41]Republic of Palau (2013). *Second National Communication to the United Nations Framework Convention on Climate Change* September 2013. 98pp.
[42]https://doi.org/10.1155/2011/981273
[43]https://doi.org/10.1155/2011/981273
[44]SOPAC (2007). *National Integrated Water Resource Management Diagnostic Report PALAU*. SOPAC Miscellaneous Report 642. 64 pp.

9.1.2	Climate-resilient Building Codes	Environmental standards and climate resilience maintained or improved by built infrastructure	Building codes consistent with land use planning and zoning schemes enforced	MPII OCC
9.2.1	Water supply planning	Babeldoab residents have access to adequate supplies of safe potable water	Feasibility of a consolidated water system for Babeldaob investigated	MAFE PPUC
9.2.2	Dam and infrastructure maintenance	Water storage infrastructure maintained and protected from saltwater intrusion	Routine maintenance of dams & infrastructure for ground water sources	MPII PPUC
9.2.4	Rainwater harvesting and storage	Best practice harvesting and storage of rainwater	Water tanks available for vulnerable people, including training and maintenance to raise water quality	MPII PPUC OCC
9.2.5	Water supply security	New pipes and new water storages for urban subdivisions	Water supply infrastructure outside of Koror expanded and upgrade water to meet demand	PPUC MPII
9.2.6	Disaster water supplies	Safe potable water supplies maintained during disasters and other emergencies	Back-up climate proof water sources (e.g. desalinization &/or water tanks) for vulnerable people and communities	PPUC MPII OCC
9.3.1	Improved home sanitation	Sewage does not contaminate waterways, ground or lagoon water quality	Improve home sanitation (including garbage, disease vectors, invasive species vectors, leaking sewage systems, un serviced septics)	MHHS DEH EQPB MPII
9.3.2	Improved sewage management	Sewage systems upgraded to minimise environmental impacts	Improve legislative and policy environment to enable and streamline enforcement requirements for home/household sanitation	MPII
9.3.3	Water and effluent monitoring	Trained technicians operate in certified local laboratories to detect chemicals and advise managers	Local laboratories have capacity to detect an increasing number of chemicals and biological parameters	MOE EQPB PCC
9.4.1	Urban pollution	Non-point source urban pollution minimised	Implemented standards, best practices, remedial works and education programmes reduce pollution from urban/built areas	EQPB MPII MAFE
9.4.2	Environmental Impact Assessment	All permitted developments are routinely monitored and compliance enforced	All development activities must undergo an EA/EIA and permitting process	EQPB
9.4.3	Cumulative impact management	All approved developments do not compromise local and historic environments	Acceptable cumulative impacts determined for locations and habitats (e.g. for mangrove filling)	EQPB
9.5.1	Climate proof food delivery infrastructure	Food delivery infrastructure is climate-proof and secured against disaster risks	Climate resilient food supply infrastructure developed (including Central Market/Pelagic Fish Processing & Landing, Food distribution and Storage)	MPII OCC

9.5.2	Climate proof urban infrastructure	Sustainable accessibility on Babeldaob	Roads, drainage, utility services on Babeldoab climate resilient	MPII OCC
9.5.3	Urban amenity	Urban liveability for all residents improved	Urban infrastructure, sidewalks, native tree planting & beautification programmes implemented	OCC
9.6.1	Sustainable tourism	An expanded tourism industry (including Babeldaob) has no net impact on Palau's natural environment	Determine carrying capacities/target visitation numbers for sensitive habitats and locations	MHRCTD MAFE
9.6.2	Tourism industry expansion managed to protect Palau's natural environment	Sustainable tourism carrying capacity ranges are determined and enforced	Encourage, promote, regulate tourism facility development (e.g. hotels) that are in line with RTPF (eco-tourism, low environmental impact, high-end, niche)	MHRCTD
9.6.3	Biodiversity conservation prioritised in planning and development on each island	Island developments do not compromise national biodiversity	Biodiversity conservation mainstreamed in all aspects of National and State planning and development	MAFE BOE

THEME TEN: CULTURE, HERITAGE and AWARENESS

BACKGROUND

Palau is a cultured nation. As with all countries, cultural preservation and perpetuation is of prime concern to the development of Palau.[45] Palauan culture is closely linked with the environment, with biodiversity playing an important role in all facets of traditional Palauan life. Historically, plants and animals provided the natural resources needed for food, shelter, medicine, and all other aspects of *Klechibelau*, or "Palauanness." Traditional management practices, including the traditional institution of *bul* (moratoriums on the harvesting of targeted species), enabled Palauan's to create a sustainable balance between conservation and development.[46] The Palau National Marine Sanctuary (PNMS) is a modern adaption of this traditional conservation practice.[47] While fishing and other uses of nearshore environments continue to be important, changing development trends and the growth of tourism are driving shifts in the Palauan way of life. As a result, not only have pressures on the natural and cultural environment increased, the nature and scope of these pressures has also changed.[48] Of the more than 1,500 potentially significant archaeological sites identified in Palau, less than 15% have been assessed and entered onto the Registry of Historic Places.[49] Of the sites that have been registered, less than 20% have been restored or interpreted.

NEMS STRATEGIC FOCUS AREAS

10.1 Traditional knowledge
10.2 Protection of Palauan heritage
10.3 Community education and awareness
10.4 Professional training and awareness

NEMS Actions		Targets	Performance Indicators	Key Implementors and Partners
10.1.1	Traditional knowledge and practices captured	Traditional knowledge and practices around agriculture, fisheries, agroforestry, forestry, biodiversity, and conservation compiled and disseminated	"Calendars" based on traditional timing methods for aquaculture, harvesting of marine and forest products and agriculture available	BCHP BNM MAFE
10.1.2	Traditional knowledge rights protected	Fair and equitable sharing of benefits arising from the utilization of traditional knowledge and genetic resources	National obligations under the Nagoya Protocol enforced	MAFE PCC-CRE
10.1.3	Traditional agriculture techniques and promotion	Sediment loads to marine environments reduced[50]	Increasing crop production using traditional practices,	MAFE BOA

[45]Republic of Palau (2021). Palau National Infrastructure Investment Plan (2021-2030). 103pp.

[46]Republic of Palau (2016). *Revised National Biodiversity Strategy and Action Plan 2015-2025: Promoting Wise Development to Achieve Conservation and Sustainable Use of Biodiversity*. 183pp.

[47]https://www.futurepolicy.org/oceans/palaus-protected-areas-network-act/

[48]Republic of Palau (2016). *Revised National Biodiversity Strategy and Action Plan 2015-2025: Promoting Wise Development to Achieve Conservation and Sustainable Use of Biodiversity*. 183pp.

[49]Republic of Palau (2010). *Mauritius +5 Status Report: Republic of Palau*. ESCAP. 144pp.

[50]https://oceanservice.noaa.gov/news/jul14/palau.html

			linked with increasing consumption of traditional foods	
10.1.4	Traditional fisheries practices	Traditional fishing grounds (for men and women) recognized and zoned for fishing, and increasing use of traditional fishery practices	Food security linked to traditional fishing practices	MAFE BOF PICRC
10.1.5	Traditional knowledge and Traditional values celebrated and perpetuated	Traditional knowledge valued equitably as a source of data and information for managing Palau's environment and resources	Increased awareness and understanding of traditional knowledge and mainstreaming of traditional knowledge processes into plans and decision making	MAFE BNM
10.2.1	Protection of Palauan heritage	Palau's natural and cultural heritage and cultural sites are documented, managed, and protected	The cultural management sector has adequate human and financial resources	BCHP
10.2.2	A Rights-based approach is incorporated into land use planning and marine planning	Access to traditional fishing grounds, *mesei*, and traditional medicinal plants is protected	Plans increasingly incorporate a rights-based approach and a holistic viewpoint that considers genders and social groups	BCHP NEPC
10.2.3	Gender and social mainstreamed into planning and practices	Policies and practices that impact different genders and social unfairly are reduced	A cultural gender lens is incorporated into national and state plans	MOS Gender Office
10.2.4	Sustainable Cultural Industries perpetuated and expanded	Arts and Creative Industries that rely on locally sourced materials thriving and growing	Increasing availability of sustainably sourced and meaningful respresentative local products	BCHP PVA
10.2.5	Cultural tourism	Growing Cultural Tourism industry benefits local communities (financially, socially, culturally)	Increasing number of sustainably used tourism sites and tourism products that feature cultural artifacts or practices	BCHP PVA
10.3.1	Intangible heritage protected and perpetuated	Community organizations with a historic responsibility for sustainable resource use are supported and strengthened	Increasing number of active *Cheldebechel* (mens, womens, youth, elderly groups)	BCHP Council of Chiefs and Female Counterparts
10.3.2	Community awareness and training	Conservation capacity of residents and communities in Palau strengthened	Public awareness of, and active participation in the environmental decision-making process	MAFE PAN BNM PICRC
10.3.3	Environmental education connects youth and communities to their cultural identity and builds on the concept of *Omengull* (Respect)	Environmental education integrated into curriculum at all levels through the Ministry of Education, which values and balances modern science with traditional knowledge	School curriculum revised to incorporate climate change, environment, waste minimisation and disaster management modules, with respect for traditional knowledge and values	MOE BCHP PICRC BNM MAFE
10.3.4	Standardize and translate modern scientific and	Improved understanding of modern	Priority terms translated	BCHP

	environmental terminology	environmental concepts such as climate change		Palau Language Commission
10.4.1	Professional awareness and training	Public and government employees engaged in environmental management	Professionals incorporate environment protection principles in work activities	MAFE
10.4.2	PAN training programmes	Trained Officers manage PAN sites and other protected areas (including cultural sites)	PAN Coordinator and Ranger professional capacity increased to allow long-term PA management goals to be met	MAFE PAN BCHP
10.4.3	Cultural Statistics	Monitoring and Evaluation and Feedback systems are responsive to cultural context and needs	A set of Cultural Statistics is developed and mainstreamed into environmental plans	BCHP
10.4.4	Capacity to test for chemicals	Trained technicians operate certified local laboratories	Water quality and chemical analysis training and certification course institutionalized at PCC	PCC

THEME ELEVEN: ENVIRONMENTAL GOVERNANCE

BACKGROUND

Responsibility for conservation and management of Palau's environment is held by a number of government agencies, both at the national and state level. State governments have constitutional authority over all land and water out to 12 miles. There is also a strong system of Traditional Leadership governance with active traditional management and governance over natural resource use and specific site management. Palau has a strong Semi-Government and Non-Government Organization (NGO) sector that has accepted significant roles and responsibilities for environmental management. In addition to individual Ministries, the National Environment Protection Council (NEPC) is a formally authorized cross-sector coordinating body consisting of multiple government agencies. Many stakeholder committees are mandated by laws or regulations, such as a PAN Management Committee, which includes community, state, NGO, and government representation. While capacity in the National Government is generally high, capacity at the State government and community levels needs to be strengthened. The status of governing bodies, official plans and policies, and implementation on the ground varies widely.

NEMS STRATEGIC FOCUS AREAS

11.1 Sustainable Financing
11.2 Coordination, Monitoring, and Evaluation
11.3 Environmental Legislative Framework development and review
11.4 Environmental Policy and Strategy development and review
11.5 Capacity Building
11.6 Compliance and Enforcement
11.7 Stakeholder Engagement and Participatory Decision making
11.8 Gender and Social Inclusion Mainstreaming
11.9 Communications and Knowledge Management

NEMS Actions		**Targets**	**Performance Indicators**	**Key Implementers and Partners**
11.1.1	Increase or at least maintain the national annual budget and increase grant financing to support national environmental priorities	Increased achievement of national environmental objectives and obligations	Increasing total and diversity of national budget % of Micronesia Sustainable Finance Plan funded	OEK/ MOF/ MAFE
11.1.2	Increase the availability and diversity of grant opportunities and increase the capacity and eligibility of government agencies and non-government partners to access grants	Increasing number of agencies and partners are able to apply for, receive, and manage grants, including climate financing	Increasing number of grantees Increasing number of grant types Increasing amount of grants	NEPC / MAFE / MOF/ MOE / PCC
11.1.3	States are adequately resourced to undertake environmental management[51]	Land and catchment management undertaken within a funded environmental	Percentage of state master plans that are funded	MOS BDA State Governments

[51] Townsend (2007). *Environmental Review and Stock-take Report*. ADB. 86pp. (page 46)

NEMS Actions		Targets	Performance Indicators	Key Implementers and Partners
		management framework		
11.2.1	Improve delivery of MEA, National, and State commitments through coordinated action	MEA commitments mainstreamed into agency and sector plans and implemented through strong coordination through the NEPC (National) and Regional Planning Body (State)	Regular meetings of the NEPC and Regional Planning Body, with transparency in decision making	MAFE/ NEPC/ MOF (BBP)
11.2.2	Align MEA, SDG, GEF, GCF, Regional, and National indicators and streamline reporting processes and data management as part of a National Monitoring & Evaluation system	Core indicators housed at specific agencies and updated regularly	Increasing number of MEA targets reached	MAFE, MOF (BBP)
11.3.1	Review and update Republic of Palau Environmental laws and regulations: ● Biosecurity Regulations ● Marine Protected Act Regulations ● Endangered Species Regulations ● Marine Mammal Act Regulations	Improved regulatory environment and enabling conditions	Number of laws and regulations adopted by 2025	OEK, MAFE
11.3.2	Develop or amend and pass and implement Republic of Palau Environmental laws and regulations: ● National Planning Act ● Building Codes (in line with National Planning Act)	Improved regulatory environment and enabling conditions	Number of laws and regulations adopted by 2025	OEK
11.4.1	Review and update Republic of Palau Environmental Policies Strategies, and Tools: ● Energy Policy ● Sustainable Land Management Policy ● Resilient Agriculture and Aquaculture Policy (e.g. Food Policy) (in line with NDC Policy) ● PAN Act (especially section on enforcement) ● PAME (PA Mgmt Effectiveness) assessment tool for PAN	Informed policies and strategies guide best practice national environmental protection and management	All relevant policies, Acts and strategies reviewed and amended as necessary by 2025	MAFE, MOF (BBP and PEWA)
11.4.2	Encourage updates and mainstream environmental objectives into other and Republic of Palau Policies and Strategies: ● Cultural Policy	National policies are aligned across policies	Number of environmental sections included in other national policies	MAFE MHRCTD MHHS MOF (BBP)

NEMS Actions		Targets	Performance Indicators	Key Implementers and Partners
	● Gender Mainstreaming Policy ● Tourism Policy ● NCD (Non-communicable Disease) Policy (in line with Food Policy) ● Project Management Manual (Office of Project Management (OPM))			
11.5.1	Provide extension services to State Governments to improve their capacity to implement environmental projects and programs, including: ● Personnel Policy (to keep capacity after election turnover; including for PAN office and Land Planner) ● Master Planning and Zoning, and implementation ● Public Finance management (including PAN finance) ● Grantwriting and management ● Use of data in decisionmaking	Environmental conditions in the field conserved	Number of trained State personnel in skilled positions increases	MAFE, MOS BDA, MOF BBP, NGO partners
11.6.1	Improve awareness of and compliance with environmental laws	Community buy-in for environmental laws	Decreasing number of infractions	MAFE, MOJ, EQPB, NGO Partners
11.6.2	Improve enforcement of environmental laws, especially PAN, Endangered species, Protected species, EQPB regulations	Conflicts in national and state enforcement capacities resolved	Increasing number of trained and certified Rangers able to enforce an increasing number of environmental laws	MAFE, MOJ, PAN Rangers, EQPB
11.7.1	Improve public participation in State and National environmental governance and sustainable development through public hearings and volunteerism	Processes for public participation defined and implemented consistently State permitting processes have a public hearing requirement that is implemented	Increasing participation in public hearings Increasing diversity of participants on Commissions, Boards, and other advisory groups	MAFE States MOS BDA
11.8.1	Mainstream gender and social inclusion into environmental decisions and activities	Women and men participate equally in environmental and risk management decision making	Gender and social inclusion perspectives are integrated into all national environmental policy, legislation, and programs	MOS Gender
11.8.2	Define vulnerable groups and mainstream vulnerable groups into environmental decision making, based on collection of gendered, social, and cultural statistics	Improved service delivery	Number and demographics of vulnerable groups defined by 2024	MOS Gender MOF (BBP)
11.9.1	Modernize environmental communications and improve knowledge management (access	Websites with relevant information consistently updated	Existence of a national library	MOF (BBP and ISSS), MOS (BDA)

NEMS Actions		Targets	Performance Indicators	Key Implementers and Partners
	to laws, policies, plans, best practices, lessons, etc.)			
11.9.2	Standardize spatial data and increase public access and use of spatial data in decision making	PALARIS becomes repository for up-to-date spatial data	Website enables controlled access and use of spatial data	MOF (PALARIS, ISSS)

4. IMPLEMENTATION, MONITORING AND REVIEWING SCHEDULE

The NEMS will support the Palau SoE (2019) and will take effect when the NEMS is approved by government. Operational performance indicators for each NEMS thematic area are to be monitored and reviewed biennially by the NEPC and EPQB and other lead agencies. Performance indicators are explicitly identified in this 2022-2030 NEMS for each strategic target. This will enable tracking of performance towards achieving environmental outcomes, sustainable development goals, MEA obligations, the SAMOA Pathway, and the Framework for Pacific Regionalism. The review will consider environmental monitoring records, corrective actions and the results of any audits. During the review process, any reasons for varying the NEMS will be documented, clearly identifying where changes have been made. If a variation in activity is considered necessary, the varied activity should not commence until the Minister has approved the variation in writing. As a guiding principle, the Minister will not approve a varied NEMS unless the revised NEMS would result in an equivalent or improved environmental outcome over time. Selected NEMS action data for performance monitoring are included below:

NEMS Action		Performance Indicator	Baseline (2022)	Review Status
1.1.1	Inclusive strategic and spatial planning for climate change impacts link national and international policies to state plans	National plan completed and endorsed by the Palau Government by 2025		
1.1.2	Update Disaster Framework and Contingency Plans	Climate and disaster risk modelling, maps, and planning is inclusive of gender and social vulnerability		
1.1.3	Holistic Climate Change science	Locally relevant climate science is continually generated to guide and update national planning initiatives		
1.1.4	Define Vulnerable People and mainstream their specific risks and needs into plans	Specific strategies for agreed vulnerable groups		
1.2.1	National adaptation actions continued	Implemented programmes increase national adaptation capacity and priority coastal habitats provide climate services		
1.3.1	International climate finance secured and channelled to communities	International resources accessed to implement low-emission and climate-resilient projects and programmes		

1.4.1	Continued visibility in international climate negotiation fora	Palau continues to have an impact in international Climate negotiations		
1.5.1	Electricity generated through renewable technologies	Annual increase in renewable electricity generation rates		
1.6.1	An economy wide reduction in GHG emissions particularly through energy, transportation, and waste sectors	Annual reduction in national GHG emissions		
1.6.2	A reduction in national energy consumption	Annual reduction in national energy consumption		
1.6.3	Fuel use reduction in the national transport sector	Annual fuel use reduction in the transport sector		
1.6.4	Set up Carbon sequestration and Payment for Ecosystem Services schemes	Tourists offset carbon emissions by funding national carbon sequestration initiatives		
1.7.1	Minimisation of annual imported quantities of HFCs	HFC consumption reduced by 40% of baseline quantities by 2024[52]		
2.1.1	Integrated land use planning and zoning	State Master Plan for equitable and integrated land-use planning and sustainable land use		
2.1.2	Increased access to land resources	Expansion of equitable public leasing programmes across Palau		
2.1.3	Sustainable Land Management (SLM)	Decreasing sedimentation and loss of habitat due to development and maintained permeability in developed areas		
2.2.1	National agriculture strategy	Annually increased yields of local vegetable and root crops, fruit and livestock production[53]		
2.2.2	Local sustainable organic food production	Increasing number of organic certified foods, farms, and products		
2.2.3	Agricultural biodiversity preservation	Farming practices prioritise agrobiodiversity conservation		
2.2.4	Prevention and control of invasive alien species and invasive species	Invasive species control enables increasing fruit production		
2.3.1	Protection of high-quality agricultural soils, soil enhancement, and erosion control	Soil management, amendment, carbon sequestration, and erosion controls implemented		
2.4.1	Protection of water supplies	Best practices followed in agriculture, forestry, aquaculture and in waste and wastewater disposal		
2.5.1	Protection of forests	Forest resources managed to protect biodiversity, water supplies and cultural significance		
2.5.2	Forest monitoring and restoration research	Terrestrial monitoring protocol for PAN sites is developed and implemented		
2.6.1	Expansion of Protected Area Network (PAN)	Beach strand, raised coralline atoll, swamp forest, and bird aggregation sites added to PAN by 2025[54]		

[52]Baselines will be calculated from past HCFC consumption baselines plus HFC consumption in 2020-2022. (Kigali Amendment, 2016)
[53]OOC commitment
[54]NEPC (2019). *2019 State of the Environment Report, Republic of Palau*. National Environmental Protection Council (NEPC), Government of Palau: Koror, Palau. Page 61

2.6.2	PAN Enforcement	National Enforcement officers and PAN Rangers enforce relevant State and National Laws		
2.7.1	Management of fire in Savannah landscapes	Fire-degraded lands are rehabilitated		
2.8.1	Management and conservation of mangrove forests	Increasing use of Nature-based solutions for climate adaptation and shoreline protection		
2.8.2	Coastal re-planting programmes	Shoreline revegetated with appropriate species (eg *Casuarina*, *Scaevloa*)		
2.9.1	ERWs removed from the landscape	Ordinance removal programmes active across Palau		
3.1.1	Conduct Stock Assessments (finfish and invertebrates, including in mangroves)	Biomass, Population, SPR for commercially important species and protected species by location (Fisheries-independent data)		
3.1.2	Conduct Harvest Assessments	Fisheries-dependent data – estimate of catch per year by location and sector for commercially important species, Estimates of IUU fishing for protected species		
3.1.3	Conduct Market Assessments and Analysis that leads to improved marketing, pricing, and livelihoods	Market Assessment report Sequestration values determined		
3.1.4	Establish and improve Data sharing and feedback systems	Thresholds for action established		
3.2.1	Conduct Nearshore Marine Spatial Planning (MSP), incorporating Traditional Knowledge, Spatial Data, and Best Available Data	100% Sustainable Ocean Plan, with policies and processes for adaptive management, developed and adopted Marine spatial plans included in state master plans		
3.3.1	Manage Spawning and Aggregation sites	Critical spawning sites mapped; Rules and regulations for closure and seasonal access passed		
3.3.2	Develop and adopt National and Regional Fisheries Plans for Kiukl, Despedal, Outer islands; Adopt and implement Koror Fisheries Plan; Update Northern Reefs Plan	At least 5 Coastal Fisheries Plans adopted Scientifically defendable catch limits established		
3.3.3	Monitor nearshore fisheries (fishery, not fish)	System/Framework in place so that national fisheries data feeds into annual Fisheries Plans and licensing, registration system, etc.		
3.3.4	Update nearshore fisheries regulations; establish licensing and permitting system (business permitting and fishing licenses)	A licensing and reporting system for management implemented and enforced		
3.3.5	Train and build capacity for fisheries management and enforcement	Resources available to allow routine fisheries monitoring and control operations in inshore waters		
3.3.6	Increase Fisheries awareness, including awareness about	A fisheries awareness program is in place		

	traditional knowledge and traditional practices			
3.3.7	Provide Extension services to develop fishery-based livelihoods, and assist with Standard Buys, Market Development and fisher access to markets, and Risk Reduction	Supported Fisheries Coops or Associations in place, with higher incomes and lower risks		
3.3.8	Stabilize and optimize supply and demand	Increasing number of connections/agreements between fishers and buyers		
3.3.9	Track and promote High Value Fishery products “From Hook to Fork” along a transparent and fair value chain	Nearshore fishery products fetch premium prices and those prices are returned to producers Consumers have increased appreciation and paying more for fishery products and producers (men and women)		
3.4.1	Update and modernize the National Aquaculture Policy	Policies agreed between private sector development and public sector support and subsidies, with agreed policies for support for food security versus export and livelihood development, and policies to ease access to capital		
3.4.2	Plan for and provide extension services to support expansion of aquaculture (species types and amount)	Locations for aquaculture identified and agreed		
3.4.3	Stabilize, diversify, and decentralize supply of aquaculture seedlings	Increasing number of suppliers, number of species, and total number of seedlings produced per year; with decrease in loss due to climate or other risks; with collaboration between government and private sector		
3.4.4	Protect and enforce aquaculture property; Clarify farm ownership status and enforcement capacities in nearshore marine waters	Public sector policies and practices in place to deter and enforce poaching		
3.4.5	Identify and access increasing number and diversity of export markets for cultured clams	Capacity to profit from international markets increased		
3.4.6	Establish an institutionalized training and capacity building program for private sector participants	Increasing number of trained participants actively engaged in aquaculture		
3.5.1	Continue regular monitoring, conduct another round of PAME, and consistently use data to assess targets and adapt management.	PAN Status Report Annual Reports/Management Plan updates for MPAs		
3.5.2	Finalize PAN Strategy, to include marine spatial planning and spatial targets	Strategy document adopted		
3.5.3	Increase number, size, and diversity of Marine Protected Areas	Increased areas of channels, back and deeper reefs, reef flats, and sustainable use areas (e.g. to include aquaculture farms) and cultural sites protected as MPAs		
3.5.4	Enhance and stabilize PAN training programs and certification programs	Increasing number of trained individuals		

		Increasing number of skills with training programs		
3.6.1	Align forestry and marine programs on Mangrove Management	Inclusion of mangroves in PAN, Land Use, and Marine Spatial Plans		
3.6.2	Determine financial and ecosystem values of mangroves (and coral reefs), including food production, carbon storage, reducing climate vulnerabilities, cultural ties, and ecosystem services	Mangrove socioeconomic and biophysical reports		
3.6.3	Establish Parameters and Standard Operating Practices (SOPs) for mangrove (and coral reef) management and restoration	Scientifically-based documents with SOPs		
3.6.4	Improve public awareness and appreciation for mangroves	Increasing support for mangrove protection, fewer leases issued in mangroves		
3.6.5	Understand status of Unexploded Ordinances (UXOs) in mangroves and rivers	UXO Assessment		
3.7.1	Conduct coral monitoring and research	Regular Coral Reef status reports published		
3.7.2	Improve coral reef management for long-term resiliency	Resilient reefs identified and sustainably managed		
3.7.3	Establish Parameters and Standard Operating Practices (SOPs) for coral reef management and restoration	Scientifically-based documents with SOPs		
3.8.1	Develop and promote new and unique marine tourism products outside of Koror's nearshore reefs, including for diving, cultural history, whale watching, sportsfishing, kayaking, etc. to an increasingly diversified customer base	Increasing number of visitors to states outside of Koror		
3.8.2	Update, enhance, and repeatedly offer Tour Guide Training Programs to maximize economic values, minimize environmental impacts, and correctly convey cultural and natural stories	Increasing number of tour guides trained in an increasing number of skills and capacities "Certify the stories"		
3.9.1	Assist Koror State to maximize the potential of the Rock Islands Southern Lagoon as a World Heritage Site	Exit surveys indicate increased knowledge of World Heritage Status Increasing dollars due to World Heritage Status		
3.10.1	Marine water quality monitoring	Monthly nation-wide marine water quality samples collected, analysed and reported		
3.10.2	Marine water quality management	Percent of marine pollution plan funded and implemented Sources of leaking oil removed		
3.11.1	Finalize and adopt updated Regulations for the Marine Protection Act	Regulations adopted		

3.11.2	Agree and adopt Marine endangered species regulations and list, in line with international agreements	Scientifically-defensible List adopted		
3.11.3	Minimize and enforce poaching of protected species	Improving Population and size status of endangered species		
3.11.4	Map and plan for high biodiversity sites	Increasing number of High Biodiversity areas protected via national or state plans		
4.1.1				
4.1.2				
5.1.1	Water Catchment land use planning, zoning, and protection	Maintained or increased forest cover in watersheds above water sources		
5.1.2	Water quality and quantity protection	Permitted activities avoid adverse water resource impacts and point (especially dumps) and non-point source pollution sources minimized and rehabilitated		
5.2.1	Water Conservation	Pre- and post-consumer actions minimize waste and loss of treated water		
5.2.2	Adequate provision of safe and resilient water, particularly vulnerable people	100% of homes, including new homes and subdivisions, have access to multiple sources of treated water		
5.2.3	Irrigation supply planning and management	Irrigation demand modelled and managed to ensure delivery of adequate agricultural water supplies		
5.2.4	Decreased coliform counts	Increasing conversion of septic tanks to sewer systems, and conventional piggeries to dry litter systems		
5.3.1	Freshwater quality monitoring	Monthly river and lake water quality samples collected, analysed and reported		
5.3.2	Freshwater hydrological research and monitoring	Baseline research and ongoing hydrological monitoring undertaken and reported; conservation systems triggered by water monitoring thresholds		
5.4.1	Wetland habitat protection	Regulations protect wetlands, with maintained wetland coverage		
5.5.1	Freshwater lake habitat protection	Management Plans completed for Ngardok Lake and Ngerkall Pond		
5.5.2	Ngerimel Reservoir rehabilitated	Water storage in the dam increased		

6.1.1	Endangered species regulations and agreements	Regulations Governing Endangered Species passed and CITES list agreed		
6.1.2	Regulatory framework for endangered and endemic species	Exemptions for endemic and endangered species removed from regulatory framework		
6.1.3	Species Management Plans for threatened biodiversity completed and implemented, in line with national laws and international agreements	Species management plans developed for endangered and other priority species in line with Ramsar, CMS, CBD, Ramsar, and other commitments		
6.1.4	Comprehensive biological inventory and assessment of all island ecosystems	National BIORAP undertaken regularly		
6.1.5	Increased understanding of genetic biodiversity, and Access and Benefit Sharing systems established	ABS system agreed		
6.1.6	Biodiversity priorities established for each island, with increased local and national awareness	Appropriate policies and legislation on ecosystems services formulated		
6.2.1	Prevention of the introduction and establishment of invasive species	Early detection of, and rapid action against new introductions of potentially invasive species		
6.2.2	Impacts of existing invasive species minimised	IAS management actions are identified and implemented through inventory, assessment, and prioritization activities		
6.3.1	Protected Area Network (PAN)	National PAN Management Strategy and Action Plan implemented		
6.3.2	High conservation sites protected	Under- represented ecosystems (mangroves, swamp forests are identified and protected in the PAN		
6.4.1	State of the Environment Reporting	SoE Report updated every five years		
6.4.1	Adaptive management	Increasing percent of monitoring data analysed, reported, and acted upon to continually revise biodiversity priorities		
6.5.1	Biodiversity conservation mainstreamed, including into tourism, cultural site protection, food production, and development	Sustainable carrying capacity ranges are established, determining acceptable levels of environmental, cultural, and community impacts		
6.5.2	Sustainable tourism	Eco-friendly tourism certification system implemented		
7.1.1	Comprehensive waste minimisation and management	Waste is prevented, reduced, and managed to minimise environmental and human health impacts		
7.1.2	Improved waste management (collection, segregation, transfer, recovery and disposal) services provided in Koror and the Outer Islands	All wastes are collected and managed to minimise environmental and human health impacts by 2025		
7.1.3	Improved international and national regulatory framework to prevent waste	Rules and financial mechanisms to reduce volume of plastic and glass that becomes waste		
7.2.1	National landfill continues to operate to international standards	National landfill is climate proofed and 8 waste transfer stations in operation		
7.2.2	Babeldaob State landfills closed and rehabilitated	Increasing number of old landfills closed, capped, rehabilitated and monitored		

7.2.3	Outer island landfills managed	Outer island landfill plans developed and agreed and an increasing number of actions implemented		
7.3.1	National recycling programmes for plastic, metal, ULABs, paper, and E-waste	All exportable recyclable waste is collected, separated, and sent offshore for recycling by 2025 Increasing waste-to-energy conversion		
7.3.2	Household segregation	100% of beverage containers, glass, paper, and recyclable metals used in the home are recycled		
7.3.3	Scrap metal recycling	Agreements in place for scrap metal recycling		
7.4.1	Organic waste composted	Reduced organic waste entering landfills Increasing compost and biogas availability		
7.4.2	Food waste reduced	Reduced food waste entering the landfill		
7.5.1	Dedicated landfill storage areas for different waste types including hazardous wastes	Segregated storage areas are in operation		
7.5.2	Medical and biological waste disposal	High temperature two chamber waste incinerator operational		
7.6.1	Disaster waste management	Disaster Waste Plan incorporated in the National Disaster Response Plan		
7.7.1	Plastic management	Executive Orders and laws on limiting single-use plastics enforced nationally		
7.7.2	Continued national visibility in international marine plastic negotiation fora	Palau continues to have an impact in international marine litter negotiations and outcomes		
8.1.1	National Implementation Plan (NIP)	NIP is updated in 2022 to meet UNEP requirements		
8.1.2	Chemical inventory and import tracking system established	All Import Logs backtracked, cross-referenced with Harmonized Codes, and database continually updated		
8.1.3	National chemical management strategy includes procedures and pathways for entry, stockpiling, and disposal	Legislation, regulations and protocols to control importation of all priority chemicals reviewed, updated and enforced Border alerts system established		
8.1.4	Mainstream chemicals management into national policies	Chemicals management mainstreamed into Climate Change and Disaster Risk plans		
8.1.5	Capacity building to manage chemicals	Increasing number of trained individuals retained in Palau		
8.2.1	Illegal pesticides eliminated and used pesticide container management	Illegal pesticides no longer used and removed, and Used (empty) pesticide containers are safely recycled at the landfill		
8.2.2	Polychlorinated biphenyl (PCB) management	National inventory of PCBs completed		
8.2.3	Perfluorooctane sulfonic acid (PFOS) management	National inventory of AFFFs completed		
8.3.1	National management of contaminated sites	Contaminated sites assessed, prioritised and remediated		

8.3.2	Smaller rural landfills and contaminated sites remediated	Increasing number of rural landfills (Babeldaob and outer islands) closed and rehabilitated		
8.3.3	Airfield contaminated sites remediated	Contaminated soil removed and shipped offshore for destruction		
8.3.4	Efficient use of the M-Dock landfill	M-Dock closed in 5 years (or when full) and capped		
8.3.5	Airai Landfill managed to reduce chemical runoff	Airai Landfill capped and engineering solutions employed around margins		
8.4.1	Illegal oil disposal and Oil spills managed and contained	Finalize National Oil Spill Response Plan Increasing capacity to respond to oil spills		
8.4.2	Existing oil spills and releases cleaned	Increasing number of leaking ships and old cars remedied		
8.5.1	Mercury management	Minimata Convention Initial Assessment (MIA) completed		
8.5.2	Used battery management	Increasing number of batteries removed from Palau		
8.5.3	Fertilizer stockpiles managed	Decreasing fertilizer use		
8.5.4	Chemical sunscreen ban compliance and enforcement	Monitoring does not detect presence of illegal chemicals from sunscreens		
8.5.5	Other chemicals, including lead and asbestos, tracked and managed	Decreasing sources of lead and asbestos		
8.6.1	Participation in the Global (Chemical) Monitoring Plan (GMP)	Samples from priority national environmental matrices collected and analysed annually under the GMP		
8.6.2	Public health monitoring	Routine national monitoring of sewer and septic outflows, and pollution point sources (including landfills)		
8.6.3	Unintentional Persistent Organic Chemical (uPOPs) monitoring	uPOPs data collected and analysed every five years (2023 and 2028), feeds into database, and leads to adaptive management		
8.6.4	National progress reports to the Stockholm Convention Secretariat	Stockholm reports submitted every four years		
9.1.1	Land use planning	Maintained, updated and improved PALARIS database used to ensure fact-based land use planning		
9.1.2	Climate-resilient Building Codes	Building codes consistent with land use planning and zoning schemes enforced		
9.2.1	Water supply planning	Feasibility of a consolidated water system for Babeldaob investigated		
9.2.2	Dam and infrastructure maintenance	Routine maintenance of dams & infrastructure for ground water sources		
9.2.4	Rainwater harvesting and storage	Water tanks available for vulnerable people, including training and maintenance to raise water quality		
9.2.5	Water supply security	Water supply infrastructure outside of Koror expanded and upgrade water to meet demand		

9.2.6	Disaster water supplies	Back-up climate proof water sources (e.g. desalinization &/or water tanks) for vulnerable people and communities		
9.3.1	Improved home sanitation	Improve home sanitation (including garbage, disease vectors, invasive species vectors, leaking sewage systems, un serviced septics)		
9.3.2	Improved sewage management	Improve legislative and policy environment to enable and streamline enforcement requirements for home/household sanitation		
9.3.3	Water and effluent monitoring	Local laboratories have capacity to detect an increasing number of chemicals and biological parameters		
9.4.1	Urban pollution	Implemented standards, best practices, remedial works and education programmes reduce pollution from urban/built areas		
9.4.2	Environmental Impact Assessment	All development activities must undergo an EA/EIA and permitting process		
9.4.3	Cumulative impact management	Acceptable cumulative impacts determined for locations and habitats (e.g. for mangrove filling)		
9.5.1	Climate proof food delivery infrastructure	Climate resilient food supply infrastructure developed (including Central Market/Pelagic Fish Processing & Landing, Food distribution and Storage)		
9.5.2	Climate proof urban infrastructure	Roads, drainage, utility services on Babeldoab climate resilient		
9.5.3	Urban amenity	Urban infrastructure, sidewalks, native tree planting & beautification programmes implemented		
9.6.1	Sustainable tourism	Determine carrying capacities/target visitation numbers for sensitive habitats and locations		
9.6.2	Tourism industry expansion managed to protect Palau's natural environment	Encourage, promote, regulate tourism facility development (e.g. hotels) that are in line with RTPF (eco-tourism, low environmental impact, high-end, niche)		
9.6.3	Biodiversity conservation prioritised in planning and development on each island	Biodiversity conservation mainstreamed in all aspects of National and State planning and development		
10.1.1	Traditional knowledge and practices captured	"Calendars" based on traditional timing methods for aquaculture, harvesting of marine and forest products and agriculture available		
10.1.2	Traditional knowledge rights protected	National obligations under the Nagoya Protocol enforced		
10.1.3	Traditional agriculture techniques and promotion	Increasing crop production using traditional practices, linked with increasing consumption of traditional foods		
10.1.4	Traditional fisheries practices	Food security linked to traditional fishing practices		
10.1.5	Traditional knowledge and Traditional values celebrated and perpetuated	Increased awareness and understanding of traditional knowledge and mainstreaming of		

		traditional knowledge processes into plans and decision making		
10.2.1	Protection of Palauan heritage	The cultural management sector has adequate human and financial resources		
10.2.2	A Rights-based approach is incorporated into land use planning and marine planning	Plans increasingly incorporate a rights-based approach and a holistic viewpoint that considers genders and social groups		
10.2.3	Gender and social mainstreamed into planning and practices	A cultural gender lens is incorporated into national and state plans		
10.2.4	Sustainable Cultural Industries perpetuated and expanded	Increasing availability of sustainably sourced and meaningful respresentative local products		
10.2.5	Cultural tourism	Increasing number of sustainably used tourism sites and tourism products that feature cultural artifacts or practices		
10.3.1	Intangible heritage protected and perpetuated	Increasing number of active *Cheldebechel* (mens, womens, youth, elderly groups)		
10.3.2	Community awareness and training	Public awareness of, and active participation in the environmental decision-making process		
10.3.3	Environmental education connects youth and communities to their cultural identity and builds on the concept of *Omengull* (Respect)	School curriculum revised to incorporate climate change, environment, waste minimisation and disaster management modules, with respect for traditional knowledge and values		
10.3.4	Standardize and translate modern scientific and environmental terminology	Priority terms translated		
10.4.1	Professional awareness and training	Professionals incorporate environment protection principles in work activities		
10.4.2	PAN training programmes	PAN Coordinator and Ranger professional capacity increased to allow long-term PA management goals to be met		
10.4.3	Cultural Statistics	A set of Cultural Statistics is developed and mainstreamed into environmental plans		
10.4.4	Capacity to test for chemicals	Water quality and chemical analysis training and certification course institutionalized at PCC		
11.1.1	Increase or at least maintain the national annual budget and increase grant financing to support national environmental priorities	Increasing total and diversity of national budget % of Micronesia Sustainable Finance Plan funded		
11.1.2	Increase the availability and diversity of grant opportunities and increase the capacity and eligibility of government agencies and non-government partners to access grants	Increasing number of grantees Increasing number of grant types Increasing amount of grants		
11.1.3	States are adequately resourced to undertake environmental management[55]	Percentage of state master plans that are funded		
11.2.1	Improve delivery of MEA, National, and State commitments through coordinated action	Regular meetings of the NEPC and Regional Planning Body, with transparency in decision making		

[55] Townsend (2007). *Environmental Review and Stock-take Report*. ADB. 86pp. (page 46)

11.2.2	Align MEA, SDG, GEF, GCF, Regional, and National indicators and streamline reporting processes and data management as part of a National Monitoring & Evaluation system	Increasing number of MEA targets reached		
11.3.1	Review and update Republic of Palau Environmental laws and regulations: ● Biosecurity Regulations ● Marine Protected Act Regulations ● Endangered Species Regulations Marine Mammal Act Regulations	Number of laws and regulations adopted by 2025		
11.3.2	Develop or amend and pass and implement Republic of Palau Environmental laws and regulations: ● National Planning Act Building Codes (in line with National Planning Act)	Number of laws and regulations adopted by 2025		
11.4.1	Review and update Republic of Palau Environmental Policies and Strategies: ● Energy Policy ● Sustainable Land Management Policy ● Resilient Agriculture and Aquaculture Policy (e.g. Food Policy) (in line with NDC Policy) ● PAN Act (especially section on enforcement) PAME (PA Mgmt Effectiveness) assessment tool) for PAN	All relevant policies, Acts and strategies reviewed and amended as necessary by 2025		
11.4.2	Encourage updates and mainstream environmental objectives into other and Republic of Palau Policies and Strategies: ● Cultural Policy ● Gender Mainstreaming Policy ● Tourism Policy ● NDC Policy (in line with Food Policy) Project Management Manual (Office of Project Management (OPM))	Number of environmental sections included in other national policies		
11.5.1	Provide extension services to State Governments to improve their capacity to implement environmental projects and programs, including: ● Personnel Policy (to keep capacity after election turnover; including for PAN office and Land Planner) ● Master Planning and Zoning, and implementation	Number of trained State personnel in skilled positions increases		

	● Public Finance management (including PAN finance) ● Grantwriting and management Use of data in decisionmaking			
11.6.1	Improve awareness of and compliance with environmental laws	Decreasing number of infractions		
11.6.2	Improve enforcement of environmental laws, especially PAN, Endangered species, Protected species, EQPB regulations	Increasing number of trained and certified Rangers able to enforce an increasing number of environmental laws		
11.7.1	Improve public participation in State and National environmental governance and sustainable development through public hearings and volunteerism	Increasing participation in public hearings Increasing diversity of participants on Commissions, Boards, and other advisory groups		
11.8.1	Mainstream gender and social inclusion into environmental decisions and activities	Gender and social inclusion perspectives are integrated into all national environmental policy, legislation, and programs		
11.8.2	Define vulnerable groups and mainstream vulnerable groups into environmental decision making, based on collection of gendered, social, and cultural statistics	Number and demographics of vulnerable groups defined by 2024		
11.9.1	Modernize environmental communications and improve knowledge management (access to laws, policies, plans, best practices, lessons, etc.)	Existence of a national library		
11.9.2	Standardize spatial data and increase public access and use of spatial data in decision making	Website enables controlled access and use of spatial data		

5. LINKS TO INTERNATIONAL AGREEMENTS AND STRATEGY

NEMS Environment Theme	NEMS Strategic Focus Area	Sustainable Development Goals[56]	Aichi Targets[57]	GEF7 Indicators[58]
1. Climate Change	1.1 Strategic planning for climate change impacts	1.5, 11.5, 11b, 13.1	10	
	1.2 Adaptation to Climate Change impacts	13.1, 13b	15	
	1.3 Climate Finance Mechanisms	13a	20	
	1.4 International advocate for climate justice	13.2, 13.3		
	1.5 Transition to renewable energy	7.1, 7.2, 7.3, 7b, 13.2	8	6.4
	1.6 Reduction in Greenhouse Gas emissions	13.2	8	6
	1.7 Reduction in use of Ozone Depleting Substances	9.4, 13.2	8	9.3
2. Land Management	1.1 Land use planning and zoning		10	4
	2.2 Food security	1.5, 2.3, 2.4, 15.3	5, 7,13,14,15,18	4.3,9.5
	2.3 Protection of water supplies	6.6		
	2.4 Soil management	15.3	10	
	2.5 Forest management	15.2	5,10	3.2,4.4
	2.6 Expansion and management of PAN	15.1	5, 10, 11	1
	2.7 Savannah grassland management	15.1	5, 15	3.3
	2.8 Coastal vegetation management	1.5, 6.6, 13.1, 15.2	5, 14	3.4
	2.9 Clearance of Explosive Remnants of War (ERW)			
3. Nearshore Marine Management	3.1 Data collection, sharing, and feedback systems			
	3.2 Marine spatial planning			5.2,7.4
	3.3 Nearshore fisheries management – Improve status of nearshore fisheries (finfish and invertebrates) and increase value of fisheries products	12.2, 14.2, 14.4, 14.5,14.7	4, 6, 10	5.1,8
	3.4 Aquaculture management	14.7, 14b	6, 7	5
	3.5 Marine Protected Area management and expansion	14.5	10, 11, 14, 18	2,7.4
	3.6 Mangrove management	15.1,15.5		3.4
	3.7 Coral Reef management	15.1,15.5	11	
	3.8 Tourism outside of Koror (Babeldaob, Outer Islands, and offshore)			
	3.9 Improved management of Koror's World Heritage Site	15.1		5.2
	3.10 Management of marine water quality			5.2
	3.11 Protection and maintenance of marine biodiversity			4.2
4. Offshore Marine Management		14.4,14.5,14.7		5.1,8

[56]Global indicator framework for the Sustainable Development Goals and targets of the 2030 Agenda for Sustainable Development https://unstats.un.org/sdgs/indicators/indicators-list/
[57]https://www.cbd.int/sp/targets/
[58]https://www.thegef.org/sites/default/files/documents/10530_core_indicator_worksheet.pdf

5. Freshwater Management	5.1 Catchment management and protection	6.1, 6.6, 15.1	11, 14	
	5.2 Freshwater supply management	6.1		
	5.3 Freshwater monitoring	6.6	14	
	5.4 Estuarine habitat protection	6.6	11	
	5.5 Freshwater lake protection	6.6	11, 14	
6. Biodiversity Conservation	6.1 Endangered species conservation	15.5	12	
	6.2 Invasive species management and control	15.8	9	
	6.3 Protected Area Network expansion and management	15.5		
	6.4 Environmental reporting			
	6.5 Biodiversity mainstreaming	15.5		
7. Waste Management	7.1 Improved national waste management	11.6, 12.5, 17.1	15	9.4,9.6, 10.2
	7.2 Improved landfill operations	12.5	8	9.6,10.2
	7.3 Recycling	12.4, 12.5	8	
	7.4 Composting	12.5	8	
	7.5 Hazardous waste management	3.9	8	9.4,9.6,10.2
	7.6 Disaster waste management	1.5, 12.4, 13.1	8	
	7.7 Marine Plastic	12.5	8	5.3
8. Chemical Management	8.1 National chemical management strategy	12.4		9.3, 9.4,10.1, 10.2
	8.2 Management of priority obsolete chemicals	12.4		9.1, 9.3
	8.3 Contaminated site management	3.9, 12.4	8	9.1
	8.4 Oil spill management			
	8.5 Management of other priority chemicals	3.9, 12.4	8	9.2,9.4, 9.6
	8.6 Chemical monitoring and reporting	17.18	8	
9. Built Environment	9.1 Climate-resilient building codes in line with land use planning and zoning	3.9, 11.1. 11b, 13.2	8	9.6
	9.2 Water management	3.9, 6.1, 6.3, 6.4	14	
	9.3 Improved sanitation	3.9, 6.2, 6.3	8	
	9.4 Reduce impacts from development and construction	9.1, 11.1, 11.6, 11.7,15.9	2,14	3.4
	9.5 Climate-proof sustainable infrastructure and construction program	3.9, 11.1	8	9.6
	9.6 Sustainable tourism	12b	1, 2, 4	
10. Culture, Heritage and Awareness	10.1 Traditional knowledge	11.4	18	
	10.2 Protection of Palauan heritage	11.4	18	
	10.1 Community education and awareness	4.7, 12.8, 13.3	1	
	10.2 Professional training and awareness	4.3, 13.3	1, 2	
11. Environmental Governance	11.1 Sustainable Financing	17.4	20	
	11.2 Coordination, Monitoring, and Evaluation			
	11.3 Environmental Legislative Framework development and review	12.2	6, 7	
	11.4 Environmental Policy and Strategy development and review	17.16		

	11.5 Capacity Building	17.18		
	11.6 Compliance and Enforcement			
	11.7 Stakeholder Engagement and Participatory Decision making			11
	11.8 Gender and Social Inclusion Mainstreaming	5.5, 5a, 5c	1, 14	11
	11.9 Communications and knowledge Management	17.18	19	

6. HUMAN RESOURCES AND FINANCIAL IMPLICATIONS

Palau's Government environmental agencies will plan for more human resources to contribute to the effective implementation of the NEMS. The support of the wider network of partner agencies and stakeholders, whose portfolios overlap with Government Agencies is vital. The expansion of human and financial resources to meet the implementation needs of this strategy will be guided by the priorities of the government. The Government of Palau, in consultation with other agencies within government and in partnership with development partners and the private sector, will identify key areas where funding proposals can be made to donor partners and regional agencies. It will also guide donor and regional organisations' contributions to support livelihoods, human health, the economy and sustainable development.

NEMS Action		Target	Performance Indicator	5-Year Budget Estimate (US$)	Budget Reference
1.1.1	Inclusive strategic and spatial planning for climate change impacts link national and international policies to state plans	National strategy for climate change adaptation, mitigation and disaster risk management implemented, minimizing impact to the environment through maximizing Nature-based Solutions	National plan completed and endorsed by the Palau Government by 2025	5,000,000	Republic of Palau (2015). Palau Climate Change Policy for Climate and Disaster Resilient Low Emissions Development. 56pp.
1.1.2	Update Disaster Framework and Contingency Plans	All aspects of climate assessment and preparedness planning is socially equitable and inclusive, and risks like fire, landslides, and flooding are minimized	Climate and disaster risk modelling, maps, and planning is inclusive of gender and social vulnerability		
1.1.3	Holistic Climate Change science	Science on human and environmental dimensions of climate change guiding national policy and planning is locally relevant	Locally relevant climate science is continually generated to guide and update national planning initiatives		
1.1.4	Define Vulnerable People and mainstream their specific risks and needs into plans	Adaptation, resilience, disaster risk, and mitigation plans are inclusive and benefit the most vulnerable	Specific strategies for agreed vulnerable groups		
1.2.1	National adaptation actions continued	Adaptation outcomes prioritised in environmental, agriculture, food security, public health, disaster management, and infrastructure programmes; protected areas gaps filled,	Implemented programmes increase national adaptation capacity and priority coastal habitats provide climate services		

1.3.1	International climate finance secured and channelled to communities	Vastly increased Climate Finance secured to implement national, state, and community adaptation and mitigation projects	International resources accessed to implement low-emission and climate-resilient projects and programmes		
1.4.1	Continued visibility in international climate negotiation fora	Key climate information concerning international responsibility for Palau's future is made obvious to international delegates, with increasing support for adaptation funding and Loss and Damage.	Palau continues to have an impact in international Climate negotiations		
1.5.1	Electricity generated through renewable technologies	100% of power generation through diversified renewable resources by 2032	Annual increase in renewable electricity generation rates	25,650,000	Republic of Palau (2015). Palau Climate Change Policy for Climate and Disaster Resilient Low Emissions Development. 56pp.
1.6.1	An economy wide reduction in GHG emissions particularly through energy, transportation, and waste sectors	22% reduction in energy sector GHG emissions compared with 2005 levels by 2025	Annual reduction in national GHG emissions		
1.6.2	A reduction in national energy consumption	30% reduction in overall national energy consumption by 2025	Annual reduction in national energy consumption	16,390,000	Republic of Palau (2015). Palau Climate Change Policy for Climate and Disaster Resilient Low Emissions Development. 56pp.
1.6.3	Fuel use reduction in the national transport sector	Fuel use reduction in the national land and sea transport sector	Annual fuel use reduction in the transport sector	1,000,000	Republic of Palau (2015). Palau Climate Change Policy for Climate and Disaster Resilient Low Emissions Development. 56pp.
1.6.4	Set up Carbon sequestration and Payment for Ecosystem Services schemes	Palau is a carbon neutral tourist destination and high sequestering habitats such as mangroves, forests, and seagrass are protected or restored	Tourists offset carbon emissions by funding national carbon sequestration initiatives		
1.7.1	Minimisation of annual imported quantities of HFCs	Reduction in annual HFC importation rates	HFC consumption reduced by 40% of baseline quantities by 2024[59]		
2.1.1	Integrated land use planning and zoning	Sustainable development of land for agriculture, settlement,	State Master Plan for equitable and integrated land-use		

[59]Baselines will be calculated from past HCFC consumption baselines plus HFC consumption in 2020-2022. (Kigali Amendment, 2016)

		and commercial and tourism enterprises	planning and sustainable land use		
2.1.2	Increased access to land resources	Public access to land and water resources increased	Expansion of equitable public leasing programmes across Palau		
2.1.3	Sustainable Land Management (SLM)	Home, commercial, tourism, and agricultural development proceeds with minimal impact on the environment	Decreasing sedimentation and loss of habitat due to development and maintained permeability in developed areas		
2.2.1	National agriculture strategy	Food production tripled by 2030	Annually increased yields of local vegetable and root crops, fruit and livestock production[60]		
2.2.2	Local sustainable organic food production	Local organic food production increases	Increasing number of organic certified foods, farms, and products	10,000,000	Republic of Palau (2015). Palau Climate Change Policy for Climate and Disaster Resilient Low Emissions Development. 56pp.
2.2.3	Agricultural biodiversity preservation	Best practice agriculture implemented	Farming practices prioritise agrobiodiversity conservation		
2.2.4	Prevention and control of invasive alien species and invasive species	Biosecurity keeps new invasive alien species out of Palau and invasive species control minimizes spread	Invasive species control enables increasing fruit production		
2.3.1	Protection of high-quality agricultural soils, soil enhancement, and erosion control	Productive soils are maintained and increased	Soil management, amendment, carbon sequestration, and erosion controls implemented		
2.4.1	Protection of water supplies	Water supply quality and quantity maintained or improved through integrated hydrological planning	Best practices followed in agriculture, forestry, aquaculture and in waste and wastewater disposal		
2.5.1	Protection of forests	Forests managed sustainably for multiple outcomes	Forest resources managed to protect biodiversity, water supplies and cultural significance		

[60] OOC commitment

2.5.2	Forest monitoring and restoration research	Research and monitoring guides sustainable forest management	Terrestrial monitoring protocol for PAN sites is developed and implemented		
2.6.1	Expansion of Protected Area Network (PAN)	All key terrestrial habitat types and 30% of terrestrial resources represented in PAN by 2030	Beach strand, raised coralline atoll, swamp forest, and bird aggregation sites added to PAN by 2025[61]	5,700,000 1,000,000	Republic of Palau (2015). Palau Climate Change Policy for Climate and Disaster Resilient Low Emissions Development. 56pp.
2.6.2	PAN Enforcement	Ecological integrity and biodiversity protected in PAN	National Enforcement officers and PAN Rangers enforce relevant State and National Laws		
2.7.1	Management of fire in Savannah landscapes	Risk of wildfire impacts minimised	Fire-degraded lands are rehabilitated		
2.8.1	Management and conservation of mangrove forests	Areal extent of mangrove forested area remains stable	Increasing use of Nature-based solutions for climate adaptation and shoreline protection		
2.8.2	Coastal re-planting programmes	Shorelines protected from wave action	Shoreline revegetated with appropriate species (eg *Casuarina*, *Scaevloa*)		
2.9.1	ERWs removed from the landscape	All ERWs removed from the landscape and from shallow waters	Ordinance removal programmes active across Palau	1,000,000 ($AUS annual)	https://geneva.mission.gov.au/gene/Statement790.html
3.1.1	Conduct Stock Assessments (finfish and invertebrates, including in mangroves)	Understanding of standing stock and level of harvesting that leaves the stock viable	Biomass, Population, SPR for commercially important species and protected species by location (Fisheries-independent data)		
3.1.2	Conduct Harvest Assessments	Understanding of current harvesting by species, location, method, etc. and influences in harvesting (finfish and invertebrates)	Fisheries-dependent data – estimate of catch per year by location and sector for commercially important species, Estimates of IUU fishing for protected species		

[61] NEPC (2019). *2019 State of the Environment Report, Republic of Palau*. National Environmental Protection Council (NEPC), Government of Palau: Koror, Palau. Page 61

3.1.3	Conduct Market Assessments and Analysis that leads to improved marketing, pricing, and livelihoods	Gaps in market aspects of fisheries are filled, such as target prices, incomes Ocean climate risk and sequestration data used to inform financing	Market Assessment report Sequestration values determined		
3.1.4	Establish and improve Data sharing and feedback systems	Data used to manage harvest levels and pricing	Thresholds for action established		
3.2.1	Conduct Nearshore Marine Spatial Planning (MSP), incorporating Traditional Knowledge, Spatial Data, and Best Available Data	Data for territorial waters (12 miles) increased and marine habitats zoned/planned for multiple uses including food security, economic uses, and cultural and social uses	100% Sustainable Ocean Plan, with policies and processes for adaptive management, developed and adopted Marine spatial plans included in state master plans		
3.3.1	Manage Spawning and Aggregation sites	Spawning and aggregation sites protected (fully or seasonally)	Critical spawning sites mapped; Rules and regulations for closure and seasonal access passed		
3.3.2	Develop and adopt National and Regional Fisheries Plans for Kiukl, Despedal, Outer islands; Adopt and implement Koror Fisheries Plan; Update Northern Reefs Plan	Fishery zones, SPR/sizes, harvest levels, Rules, Regulations, Best Practices, etc. set and adopted	At least 5 Coastal Fisheries Plans adopted Scientifically defendable catch limits established		
3.3.3	Monitor nearshore fisheries (fishery, not fish)	Sustainable harvest regimes identified and fisheries-dependent and fisheries-independent data collected and analyzed	System/Framework in place so that national fisheries data feeds into annual Fisheries Plans and licensing, registration system, etc.		
3.3.4	Update nearshore fisheries regulations; establish licensing and permitting system (business permitting and fishing licenses)	Coastal fisheries regulated to ensure sustainable catch according to Fisheries Plans	A licensing and reporting system for management implemented and enforced		
3.3.5	Train and build capacity for fisheries management and enforcement	Coastal fisheries enforcement programme improved	Resources available to allow routine fisheries monitoring and control operations in inshore waters		

		Fisheries monitoring and management feeds back into fisheries plans and informs adaptive management			
3.3.6	Increase Fisheries awareness, including awareness about traditional knowledge and traditional practices	Public support maintained for inshore fisheries management and regulation	A fisheries awareness program is in place		
3.3.7	Provide Extension services to develop fishery-based livelihoods, and assist with Standard Buys, Market Development and fisher access to markets, and Risk Reduction	Fisheries coops and associations able to negotiate lower costs, higher incomes, better plan for supply and demand	Supported Fisheries Coops or Associations in place, with higher incomes and lower risks		
3.3.8	Stabilize and optimize supply and demand	Systems in place to determine demand for nearshore fishery products by location and season, and systems in place to produce and distribute supply to meet demand	Increasing number of connections/agreements between fishers and buyers		
3.3.9	Track and promote High Value Fishery products “From Hook to Fork” along a transparent and fair value chain	Fishery tracking systems (apps) track fish and communicate the provenance of fishery products (including stories about the producers)	Nearshore fishery products fetch premium prices and those prices are returned to producers Consumers have increased appreciation and paying more for fishery products and producers (men and women)		
3.4.1	Update and modernize the National Aquaculture Policy	Policy document developed and adopted in line with marine regulations	Policies agreed between private sector development and public sector support and subsidies, with agreed policies for support for food security versus export and livelihood development, and policies to ease access to capital	1,150,000	Kitalong & Sengebau (2015). Achieving Resilient Agriculture and Aquaculture: A national policy for strengthening food security in Palau as a priority climate change adaptation measure. 35pp.
3.4.2	Plan for and provide extension services to support expansion of aquaculture (species types and amount)	A 300% increase in aquaculture production for food	Locations for aquaculture identified and agreed		

3.4.3	Stabilize, diversify, and decentralize supply of aquaculture seedlings	300% increase in seedling production from an increasing number of suppliers	Increasing number of suppliers, number of species, and total number of seedlings produced per year; with decrease in loss due to climate or other risks; with collaboration between government and private sector		
3.4.4	Protect and enforce aquaculture property; Clarify farm ownership status and enforcement capacities in nearshore marine waters	Theft and poaching of aquaculture farms eliminated	Public sector policies and practices in place to deter and enforce poaching		
3.4.5	Identify and access increasing number and diversity of export markets for cultured clams	Increasing export of clams with increasing improvements of farmer livelihoods (in line with national food policy)	Capacity to profit from international markets increased		
3.4.6	Establish an institutionalized training and capacity building program for private sector participants	Training in aquaculture best practices, business skills, risk management, writing and capacity to access financial capital	Increasing number of trained participants actively engaged in aquaculture		
3.5.1	Continue regular monitoring, conduct another round of PAME, and consistently use data to assess targets and adapt management.	Updated PAN Status report feeds into annual PAN planning and strategies Annual monitoring reports for each site with recommendations for management	PAN Status Report Annual Reports/Management Plan updates for MPAs		
3.5.2	Finalize PAN Strategy, to include marine spatial planning and spatial targets	PAN Strategy includes spatial, habitat, and species targets	Strategy document adopted		
3.5.3	Increase number, size, and diversity of Marine Protected Areas	Micronesia Challenge 2030 target for sustainable management	Increased areas of channels, back and deeper reefs, reef flats, and sustainable use areas (e.g. to include aquaculture farms) and cultural sites protected as MPAs		
3.5.4	Enhance and stabilize PAN training programs and certification programs	Increase PAN Coordinator and Ranger capacity to manage sites, conduct surveys, adapt management enforce relevant	Increasing number of trained individuals Increasing number of skills with training programs		

		laws, write reports, and seek independent funds.			
3.6.1	Align forestry and marine programs on Mangrove Management	Mangroves systematically planned for, including for cumulative impact	Inclusion of mangroves in PAN, Land Use, and Marine Spatial Plans		
3.6.2	Determine financial and ecosystem values of mangroves (and coral reefs), including food production, carbon storage, reducing climate vulnerabilities, cultural ties, and ecosystem services	Increased study and scientific data of mangroves informs management	Mangrove socioeconomic and biophysical reports		
3.6.3	Establish Parameters and Standard Operating Practices (SOPs) for mangrove (and coral reef) management and restoration	Degraded mangroves and coral reefs restored to increase value	Scientifically-based documents with SOPs		
3.6.4	Improve public awareness and appreciation for mangroves	Mangrove awareness programs implemented	Increasing support for mangrove protection, fewer leases issued in mangroves		
3.6.5	Understand status of Unexploded Ordinances (UXOs) in mangroves and rivers	Estimates and recommendations developed (capture knowledge of older generation)	UXO Assessment		
3.7.1	Conduct coral monitoring and research	Research and monitoring guides sustainable reef management	Regular Coral Reef status reports published		
3.7.2	Improve coral reef management for long-term resiliency	Coral reef planning includes long-term climate risks and resilience	Resilient reefs identified and sustainably managed		
3.7.3	Establish Parameters and Standard Operating Practices (SOPs) for coral reef management and restoration	Degraded coral reefs restored to increase value	Scientifically-based documents with SOPs		
3.8.1	Develop and promote new and unique marine tourism products outside of Koror's nearshore reefs, including for diving, cultural history, whale watching, sportsfishing, kayaking, etc. to	Each state has at least one marine-based tourism product	Increasing number of visitors to states outside of Koror		

	an increasingly diversified customer base				
3.8.2	Update, enhance, and repeatedly offer Tour Guide Training Programs to maximize economic values, minimize environmental impacts, and correctly convey cultural and natural stories	Improve and standardize the delivery of Palau's marine tourism products Upgrade the experiences offered to more customers to generate high values per visitor	Increasing number of tour guides trained in an increasing number of skills and capacities "Certify the stories"		
3.9.1	Assist Koror State to maximize the potential of the Rock Islands Southern Lagoon as a World Heritage Site	World Heritage status promoted and mainstreamed Negative impacts on tourist sites minimized (e.g. Jellyfish lake)	Exit surveys indicate increased knowledge of World Heritage Status Increasing dollars due to World Heritage Status		
3.10.1	Marine water quality monitoring	Marine water quality routinely assessed against internationally recognised guidelines	Monthly nation-wide marine water quality samples collected, analysed and reported		
3.10.2	Marine water quality management	Marine pollution plan developed and adopted Leaking vessels and other pollutants cleaned up, removed, or minimized	Percent of marine pollution plan funded and implemented Sources of leaking oil removed		
3.11.1	Finalize and adopt updated Regulations for the Marine Protection Act	Regulations are comprehensive for multiple sectors	Regulations adopted		
3.11.2	Agree and adopt Marine endangered species regulations and list, in line with international agreements	Endangered species better understood and protected, in line with international commitments (e.g. CITES)	Scientifically-defensible List adopted		
3.11.3	Minimize and enforce poaching of protected species	Awareness, community buy-in, and enforcement of protected species improves	Improving Population and size status of endangered species		
3.11.4	Map and plan for high biodiversity sites	High Biodiversity Sites or High Value Marine Sites mapped and included in marine spatial plans with sustainable use or protection regimes	Increasing number of High Biodiversity areas protected via national or state plans		

				19,076,484.00	https://www.thegef.org/project/strengthening-palau-national-marine-sanctuary-conservation-and-management-global-marine
5.1.1	Water Catchment land use planning, zoning, and protection	Upper catchments and watersheds zoned, protected, or rehabilitated	Maintained or increased forest cover in watersheds above water sources		
5.1.2	Water quality and quantity protection	Development minimizes impact on water supply	Permitted activities avoid adverse water resource impacts and point (especially dumps) and non-point source pollution sources minimized and rehabilitated		
5.2.1	Water Conservation	Potable and treated water sources used efficiently	Pre- and post-consumer actions minimize waste and loss of treated water		
5.2.2	Adequate provision of safe and resilient water, particularly vulnerable people	Clean potable water available to 100% of the population, including in the outer islands, even during natural disasters and times of stress	100% of homes, including new homes and subdivisions, have access to multiple sources of treated water		
5.2.3	Irrigation supply planning and management	Irrigation water supplies available as needed to the agricultural sector	Irrigation demand modelled and managed to ensure delivery of adequate agricultural water supplies		
5.2.4	Decreased coliform counts	Reduction in coliform contamination in potable water	Increasing conversion of septic tanks to sewer systems, and conventional piggeries to dry litter systems		
5.3.1	Freshwater quality monitoring	Freshwater quality routinely assessed against internationally recognised guidelines	Monthly river and lake water quality samples collected, analysed and reported		
5.3.2	Freshwater hydrological research and monitoring	Freshwater supplies extracted sustainably	Baseline research and ongoing hydrological monitoring undertaken and reported; conservation systems triggered by water monitoring thresholds		
5.4.1	Wetland habitat protection	Estuarine habitats, swamp forests, *mesei* (taro patches), and wetlands maintained (no	Regulations protect wetlands, with maintained wetland coverage		

		net loss) and populations of indicator wetland species maintained or increased (crocodile, purple swamphen, invertebrates, reptiles)			
5.5.1	Freshwater lake habitat protection	Palau's two freshwater lakes (Ngardok Lake and Ngerkall Pond) are protected and managed in the PAN	Management Plans completed for Ngardok Lake and Ngerkall Pond		
5.5.2	Ngerimel Reservoir rehabilitated	Ngerimel Dam functions as a resilient source of water during droughts	Water storage in the dam increased		
6.1.1	Endangered species regulations and agreements	Endangered Species Regulations completed, implemented, and enforced	Regulations Governing Endangered Species passed and CITES list agreed		
6.1.2	Regulatory framework for endangered and endemic species	Protected Life Act updated, Biosecurity Regulations, Marine Protected Act Regulations, and PAN Act Regulations updated to include new understandings of endangered and endemic species	Exemptions for endemic and endangered species removed from regulatory framework		
6.1.3	Species Management Plans for threatened biodiversity completed and implemented, in line with national laws and international agreements	Viable populations of threatened species live in Palau	Species management plans developed for endangered and other priority species in line with Ramsar, CMS, CBD, Ramsar, and other commitments		
6.1.4	Comprehensive biological inventory and assessment of all island ecosystems	Collected data utilised in an adaptive management framework to protect biodiversity	National BIORAP undertaken regularly		
6.1.5	Increased understanding of genetic biodiversity, and Access and Benefit Sharing systems established	Agrobiodiversity maintained and benefits from marine and coral genetic diversity accrued in Palau	ABS system agreed		
6.1.6	Biodiversity priorities established for each island, with increased local and national awareness	Government and non-government organizations consulted on biodiversity priorities	Appropriate policies and legislation on ecosystems services formulated		
6.2.1	Prevention of the introduction and establishment of invasive species	Introduction or internal spread of invasive species prevented	Early detection of, and rapid action against new introductions of potentially invasive species	1,350,000	Republic of Palau (2022). NISSAP: Palau National Invasive Species

					Strategic Action Plan (2022–2027). 12pp
6.2.2	Impacts of existing invasive species minimised	Prioritised invasive species are controlled or removed	IAS management actions are identified and implemented through inventory, assessment, and prioritization activities	5,750,000	Republic of Palau (2022). NISSAP: Palau National Invasive Species Strategic Action Plan (2022–2027). 12pp.
6.3.1	Protected Area Network (PAN)	PAN system expanded to include missing key habitats, enforcement improved at the National and State levels, and private conservation lands supported under PAN	National PAN Management Strategy and Action Plan implemented		
6.3.2	High conservation sites protected	High Conservation Sites have improved biodiversity conservation and ecosystem health status	Under- represented ecosystems (mangroves, swamp forests are identified and protected in the PAN		
6.4.1	State of the Environment Reporting	Regular review of national environmental status	SoE Report updated every five years		
6.4.1	Adaptive management	Monitoring systems feed into adaptive management systems	Increasing percent of monitoring data analysed, reported, and acted upon to continually revise biodiversity priorities		
6.5.1	Biodiversity conservation mainstreamed, including into tourism, cultural site protection, food production, and development	Coral reef and forest disturbances minimised at local scales	Sustainable carrying capacity ranges are established, determining acceptable levels of environmental, cultural, and community impacts	50,000,000	Republic of Palau (2015). Palau Climate Change Policy for Climate and Disaster Resilient Low Emissions Development. 56pp.
6.5.2	Sustainable tourism	Sustainable tourism achieved through accreditation and audit	Eco-friendly tourism certification system implemented		
7.1.1	Comprehensive waste minimisation and management	Palau Integrated Waste Policy and Action Plan (2017-2026) is fully implemented	Waste is prevented, reduced, and managed to minimise environmental and human health impacts		
7.1.2	Improved waste management (collection, segregation, transfer, recovery and disposal) services provided in Koror and the Outer Islands	Palau Integrated Waste Policy and Action Plan (2017-2026) is fully implemented	All wastes are collected and managed to minimise environmental and human health impacts by 2025	6,300,000	Republic of Palau (2019). National Solid Waste Management Strategy: The Roadmap towards a Clean and Safe Palau (2017 to 2026). 62pp.
7.1.3	Improved international and national regulatory framework to prevent waste	Reduced importation of plastics and glass	Rules and financial mechanisms to reduce volume of plastic and glass that becomes waste		

7.2.1	National landfill continues to operate to international standards	Palau Integrated Waste Policy and Action Plan (2017-2026) is fully implemented	National landfill is climate proofed and 8 waste transfer stations in operation		
7.2.2	Babeldaob State landfills closed and rehabilitated	Old landfills have negligible environmental impacts	Increasing number of old landfills closed, capped, rehabilitated and monitored		
7.2.3	Outer island landfills managed	Outer island landfills meet sanitary standards, include segregation and pathways for recycling and hazmat disposal, are rehabilitated to reduce environmental and health impacts, or are compacted	Outer island landfill plans developed and agreed and an increasing number of actions implemented		
7.3.1	National recycling programmes for plastic, metal, ULABs, paper, and E-waste	Palau Integrated Waste Policy and Action Plan (2017-2026) is fully implemented	All exportable recyclable waste is collected, separated, and sent offshore for recycling by 2025 Increasing waste-to-energy conversion		
7.3.2	Household segregation	Homes on Koror and Babeldaob recycle	100% of beverage containers, glass, paper, and recyclable metals used in the home are recycled		
7.3.3	Scrap metal recycling	Pathways for scrap metal recycling determined and pursued	Agreements in place for scrap metal recycling		
7.4.1	Organic waste composted	Organic wastes are separated and composted	Reduced organic waste entering landfills Increasing compost and biogas availability		
7.4.2	Food waste reduced	Less food wasted, and food that is wasted is composted	Reduced food waste entering the landfill		
7.5.1	Dedicated landfill storage areas for different waste types including hazardous wastes	Hazardous wastes, metals, tires, large plastics, etc. are separated and stored securely at the landfill prior to export	Segregated storage areas are in operation		
7.5.2	Medical and biological waste disposal	Biohazard wastes treated by high temperature incineration	High temperature two chamber waste incinerator operational		

7.6.1	Disaster waste management	Disaster waste management equipment and sites available for emergency use	Disaster Waste Plan incorporated in the National Disaster Response Plan		
7.7.1	Plastic management	Waste plastic generation minimised	Executive Orders and laws on limiting single-use plastics enforced nationally		
7.7.2	Continued national visibility in international marine plastic negotiation fora	Key information concerning the impacts of marine plastic is made obvious to international delegates	Palau continues to have an impact in international marine litter negotiations and outcomes		
8.1.1	National Implementation Plan (NIP)	NIP in line with international agreements and conventions, and endorsed by Government	NIP is updated in 2022 to meet UNEP requirements		
8.1.2	Chemical inventory and import tracking system established	Types and quantities of hazardous materials in Palau established and tracked and aligned with international databases	All Import Logs backtracked, cross-referenced with Harmonized Codes, and database continually updated		
8.1.3	National chemical management strategy includes procedures and pathways for entry, stockpiling, and disposal	All chemicals imported into Palau are managed to protect the environment and human health, alert system working and effective, and capacity to manage chemicals increased	Legislation, regulations and protocols to control importation of all priority chemicals reviewed, updated and enforced Border alerts system established		
8.1.4	Mainstream chemicals management into national policies	Risks from chemicals minimized during disasters	Chemicals management mainstreamed into Climate Change and Disaster Risk plans		
8.1.5	Capacity building to manage chemicals	Palau has local expertise in safely managing chemicals	Increasing number of trained individuals retained in Palau		
8.2.1	Illegal pesticides eliminated and used pesticide container management	Incidental pesticide loss to the environment minimised	Illegal pesticides no longer used and removed, and Used (empty) pesticide containers are safely recycled at the landfill		
8.2.2	Polychlorinated biphenyl (PCB) management	All PCBs found, safely stockpiled, and removed from Palau	National inventory of PCBs completed		
8.2.3	Perfluorooctane sulfonic acid (PFOS) management	Expired AFFF stocks found, safely stockpiled, and removed from Palau	National inventory of AFFFs completed		

8.3.1	National management of contaminated sites	All potentially contaminated sites investigated and where necessary, remediated	Contaminated sites assessed, prioritised and remediated		
8.3.2	Smaller rural landfills and contaminated sites remediated	Hazardous materials safely separated and removed, and contaminated soil removed from Palau	Increasing number of rural landfills (Babeldaob and outer islands) closed and rehabilitated		
8.3.3	Airfield contaminated sites remediated	AFFF contaminated soil removed from Palau	Contaminated soil removed and shipped offshore for destruction		
8.3.4	Efficient use of the M-Dock landfill	M-Dock site safely capped and managed	M-Dock closed in 5 years (or when full) and capped		
8.3.5	Airai Landfill managed to reduce chemical runoff	Airai Landfill drainage and ventilation rehabilitated to minimize drainage of chemicals into Airai Bay	Airai Landfill capped and engineering solutions employed around margins		
8.4.1	Illegal oil disposal and Oil spills managed and contained	Environmental damage caused by accidental or deliberate oil releases minimised	Finalize National Oil Spill Response Plan Increasing capacity to respond to oil spills		
8.4.2	Existing oil spills and releases cleaned	Amount of oil in the environment reduced	Increasing number of leaking ships and old cars remedied		
8.5.1	Mercury management	National mercury management priorities identified, including mercury in the environment and from food sources, and existing mercury found, safely stockpiled, and removed	Minimata Convention Initial Assessment (MIA) completed		
8.5.2	Used battery management	Basil Convention Protocols implemented with prior consent	Increasing number of batteries removed from Palau		
8.5.3	Fertilizer stockpiles managed	Fertilizer use minimizes damage to downstream environments	Decreasing fertilizer use		
8.5.4	Chemical sunscreen ban compliance and enforcement	No illegal sunscreens imported into Palau	Monitoring does not detect presence of illegal chemicals from sunscreens		
8.5.5	Other chemicals, including lead and asbestos, tracked and managed	Reduced environmental and health impact from chemicals	Decreasing sources of lead and asbestos		

8.6.1	Participation in the Global (Chemical) Monitoring Plan (GMP)	Inventory Data available on POPs and chemical concentrations in Palau in an accessible and updated database	Samples from priority national environmental matrices collected and analysed annually under the GMP		
8.6.2	Public health monitoring	Public health protected	Routine national monitoring of sewer and septic outflows, and pollution point sources (including landfills)		
8.6.3	Unintentional Persistent Organic Chemical (uPOPs) monitoring	Palau meets Stockholm Convention uPOPs reporting requirements	uPOPs data collected and analysed every five years (2023 and 2028), feeds into database, and leads to adaptive management		
8.6.4	National progress reports to the Stockholm Convention Secretariat	Palau meets Stockholm Convention reporting requirements	Stockholm reports submitted every four years		
9.1.1	Land use planning	National information-based land use planning	Maintained, updated and improved PALARIS database used to ensure fact-based land use planning		
9.1.2	Climate-resilient Building Codes	Environmental standards and climate resilience maintained or improved by built infrastructure	Building codes consistent with land use planning and zoning schemes enforced		
9.2.1	Water supply planning	Babeldoab residents have access to adequate supplies of safe potable water	Feasibility of a consolidated water system for Babeldaob investigated		
9.2.2	Dam and infrastructure maintenance	Water storage infrastructure maintained and protected from saltwater intrusion	Routine maintenance of dams & infrastructure for ground water sources		
9.2.4	Rainwater harvesting and storage	Best practice harvesting and storage of rainwater	Water tanks available for vulnerable people, including training and maintenance to raise water quality		
9.2.5	Water supply security	New pipes and new water storages for urban subdivisions	Water supply infrastructure outside of Koror expanded and upgrade water to meet demand		
9.2.6	Disaster water supplies	Safe potable water supplies maintained during disasters and other emergencies	Back-up climate proof water sources (e.g. desalinization &/or water tanks) for vulnerable people and communities		

9.3.1	Improved home sanitation	Sewage does not contaminate waterways, ground or lagoon water quality	Improve home sanitation (including garbage, disease vectors, invasive species vectors, leaking sewage systems, un serviced septics)		
9.3.2	Improved sewage management	Sewage systems upgraded to minimise environmental impacts	Improve legislative and policy environment to enable and streamline enforcement requirements for home/household sanitation		
9.3.3	Water and effluent monitoring	Trained technicians operate in certified local laboratories to detect chemicals and advise managers	Local laboratories have capacity to detect an increasing number of chemicals and biological parameters		
9.4.1	Urban pollution	Non-point source urban pollution minimised	Implemented standards, best practices, remedial works and education programmes reduce pollution from urban/built areas		
9.4.2	Environmental Impact Assessment	All permitted developments are routinely monitored and compliance enforced	All development activities must undergo an EA/EIA and permitting process		
9.4.3	Cumulative impact management	All approved developments do not compromise local and historic environments	Acceptable cumulative impacts determined for locations and habitats (e.g. for mangrove filling)		
9.5.1	Climate proof food delivery infrastructure	Food delivery infrastructure is climate-proof and secured against disaster risks	Climate resilient food supply infrastructure developed (including Central Market/Pelagic Fish Processing & Landing, Food distribution and Storage)		
9.5.2	Climate proof urban infrastructure	Sustainable accessibility on Babeldaob	Roads, drainage, utility services on Babeldoab climate resilient		
9.5.3	Urban amenity	Urban liveability for all residents improved	Urban infrastructure, sidewalks, native tree planting & beautification programmes implemented		
9.6.1	Sustainable tourism	An expanded tourism industry (including Babeldaob) has no net impact on Palau's natural environment	Determine carrying capacities/target visitation numbers for sensitive habitats and locations		

9.6.2	Tourism industry expansion managed to protect Palau's natural environment	Sustainable tourism carrying capacity ranges are determined and enforced	Encourage, promote, regulate tourism facility development (e.g. hotels) that are in line with RTPF (eco-tourism, low environmental impact, high-end, niche)		
9.6.3	Biodiversity conservation prioritised in planning and development on each island	Island developments do not compromise national biodiversity	Biodiversity conservation mainstreamed in all aspects of National and State planning and development		
10.1.1	Traditional knowledge and practices captured	Traditional knowledge and practices around agriculture, fisheries, agroforestry, forestry, biodiversity, and conservation compiled and disseminated	"Calendars" based on traditional timing methods for aquaculture, harvesting of marine and forest products and agriculture available		
10.1.2	Traditional knowledge rights protected	Fair and equitable sharing of benefits arising from the utilization of traditional knowledge and genetic resources	National obligations under the Nagoya Protocol enforced		
10.1.3	Traditional agriculture techniques and promotion	Sediment loads to marine environments reduced[62]	Increasing crop production using traditional practices, linked with increasing consumption of traditional foods		
10.1.4	Traditional fisheries practices	Traditional fishing grounds (for men and women) recognized and zoned for fishing, and increasing use of traditional fishery practices	Food security linked to traditional fishing practices		
10.1.5	Traditional knowledge and Traditional values celebrated and perpetuated	Traditional knowledge valued equitably as a source of data and information for managing Palau's environment and resources	Increased awareness and understanding of traditional knowledge and mainstreaming of traditional knowledge processes into plans and decision making		
10.2.1	Protection of Palauan heritage	Palau's natural and cultural heritage and cultural sites are documented, managed, and protected	The cultural management sector has adequate human and financial resources		

[62]https://oceanservice.noaa.gov/news/jul14/palau.html

10.2.2	A Rights-based approach is incorporated into land use planning and marine planning	Access to traditional fishing grounds, *mesei*, and traditional medicinal plants is protected	Plans increasingly incorporate a rights-based approach and a holistic viewpoint that considers genders and social groups		
10.2.3	Gender and social mainstreamed into planning and practices	Policies and practices that impact different genders and social unfairly are reduced	A cultural gender lens is incorporated into national and state plans		
10.2.4	Sustainable Cultural Industries perpetuated and expanded	Arts and Creative Industries that rely on locally sourced materials thriving and growing	Increasing availability of sustainably sourced and meaningful respresentative local products		
10.2.5	Cultural tourism	Growing Cultural Tourism industry benefits local communities (financially, socially, culturally)	Increasing number of sustainably used tourism sites and tourism products that feature cultural artifacts or practices		
10.3.1	Intangible heritage protected and perpetuated	Community organizations with a historic responsibility for sustainable resource use are supported and strengthened	Increasing number of active *Cheldebechel* (mens, womens, youth, elderly groups)		
10.3.2	Community awareness and training	Conservation capacity of residents and communities in Palau strengthened	Public awareness of, and active participation in the environmental decision-making process		
10.3.3	Environmental education connects youth and communities to their cultural identity and builds on the concept of *Omengull* (Respect)	Environmental education integrated into curriculum at all levels through the Ministry of Education, which values and balances modern science with traditional knowledge	School curriculum revised to incorporate climate change, environment, waste minimisation and disaster management modules, with respect for traditional knowledge and values		
10.3.4	Standardize and translate modern scientific and environmental terminology	Improved understanding of modern environmental concepts such as climate change	Priority terms translated		
10.4.1	Professional awareness and training	Public and government employees engaged in environmental management	Professionals incorporate environment protection principles in work activities		
10.4.2	PAN training programmes	Trained Officers manage PAN sites and other protected areas (including cultural sites)	PAN Coordinator and Ranger professional capacity increased to allow long-term PA management goals to be met		

10.4.3	Cultural Statistics	Monitoring and Evaluation and Feedback systems are responsive to cultural context and needs	A set of Cultural Statistics is developed and mainstreamed into environmental plans		
10.4.4	Capacity to test for chemicals	Trained technicians operate certified local laboratories	Water quality and chemical analysis training and certification course institutionalized at PCC		
11.1.1	Increase or at least maintain the national annual budget and increase grant financing to support national environmental priorities	Increased achievement of national environmental objectives and obligations	Increasing total and diversity of national budget % of Micronesia Sustainable Finance Plan funded		
11.1.2	Increase the availability and diversity of grant opportunities and increase the capacity and eligibility of government agencies and non-government partners to access grants	Increasing number of agencies and partners are able to apply for, receive, and manage grants, including climate financing	Increasing number of grantees Increasing number of grant types Increasing amount of grants		
11.1.3	States are adequately resourced to undertake environmental management[63]	Land and catchment management undertaken within a funded environmental management framework	Percentage of state master plans that are funded		
11.2.1	Improve delivery of MEA, National, and State commitments through coordinated action	MEA commitments mainstreamed into agency and sector plans and implemented through strong coordination through the NEPC (National) and Regional Planning Body (State)	Regular meetings of the NEPC and Regional Planning Body, with transparency in decision making		
11.2.2	Align MEA, SDG, GEF, GCF, Regional, and National indicators and streamline reporting processes and data management as part of a National Monitoring & Evaluation system	Core indicators housed at specific agencies and updated regularly	Increasing number of MEA targets reached		
11.3.1	Review and update Republic of Palau Environmental laws and regulations:	Improved regulatory environment and enabling conditions	Number of laws and regulations adopted by 2025		

[63] Townsend (2007). *Environmental Review and Stock-take Report*. ADB. 86pp. (page 46)

	• Biosecurity Regulations • Marine Protected Act Regulations • Endangered Species Regulations Marine Mammal Act Regulations				
11.3.2	Develop or amend and pass and implement Republic of Palau Environmental laws and regulations: • National Planning Act Building Codes (in line with National Planning Act)	Improved regulatory environment and enabling conditions	Number of laws and regulations adopted by 2025		
11.4.1	Review and update Republic of Palau Environmental Policies and Strategies: • Energy Policy • Sustainable Land Management Policy • Resilient Agriculture and Aquaculture Policy (e.g. Food Policy) (in line with NDC Policy) • PAN Act (especially section on enforcement) PAME (PA Mgmt Effectiveness) assessment tool) for PAN	Informed policies and strategies guide best practice national environmental protection and management	All relevant policies, Acts and strategies reviewed and amended as necessary by 2025		
11.4.2	Encourage updates and mainstream environmental objectives into other and Republic of Palau Policies and Strategies: • Cultural Policy • Gender Mainstreaming Policy • Tourism Policy	National policies are aligned across policies	Number of environmental sections included in other national policies		

	• NDC Policy (in line with Food Policy) Project Management Manual (Office of Project Management (OPM))				
11.5.1	Provide extension services to State Governments to improve their capacity to implement environmental projects and programs, including: • Personnel Policy (to keep capacity after election turnover; including for PAN office and Land Planner) • Master Planning and Zoning, and implementation • Public Finance management (including PAN finance) • Grantwriting and management Use of data in decisionmaking	Environmental conditions in the field conserved	Number of trained State personnel in skilled positions increases		
11.6.1	Improve awareness of and compliance with environmental laws	Community buy-in for environmental laws	Decreasing number of infractions		
11.6.2	Improve enforcement of environmental laws, especially PAN, Endangered species, Protected species, EQPB regulations	Conflicts in national and state enforcement capacities resolved	Increasing number of trained and certified Rangers able to enforce an increasing number of environmental laws		
11.7.1	Improve public participation in State and National environmental governance and sustainable development through public hearings and volunteerism	Processes for public participation defined and implemented consistently State permitting processes have a public hearing requirement that is implemented	Increasing participation in public hearings Increasing diversity of participants on Commissions, Boards, and other advisory groups		
11.8.1	Mainstream gender and social inclusion into environmental decisions and activities	Women and men participate equally in environmental and	Gender and social inclusion perspectives are integrated into		

		risk management decision making	all national environmental policy, legislation, and programs		
11.8.2	Define vulnerable groups and mainstream vulnerable groups into environmental decision making, based on collection of gendered, social, and cultural statistics	Improved service delivery	Number and demographics of vulnerable groups defined by 2024		
11.9.1	Modernize environmental communications and improve knowledge management (access to laws, policies, plans, best practices, lessons, etc.)	Websites with relevant information consistently updated	Existence of a national library		
11.9.2	Standardize spatial data and increase public access and use of spatial data in decision making	PALARIS becomes repository for up-to- date spatial data	Website enables controlled access and use of spatial data		

7. REFERENCES

Climate Change

- Miles, W., Z. Grecni, E. Matsutaro, P. Colin, V. Keener, Y. Golbuu, et al., (2020): *Climate Change in Palau: Indicators and Considerations for Key Sectors.* Report for the Pacific Islands Regional Climate Assessment. Honolulu, HI: East-West Center, https://www.eastwestcenter.org/PIRCA-Palau.
- Republic of Palau (2009). *Strategic Action Plan Energy Sector. A Framework for the Implementation of Palau's National Energy Policy*. Palau Energy Policy Development Working Group Koror, Republic of Palau. 51pp.
- Republic of Palau (2010). *National Energy Policy*. Palau Energy Policy Development Working Group, Koror, Republic of Palau.13 pp.
- Republic of Palau (2010). *National disaster and risk management framework 2010 (amended 2016).* 67pp.
- Republic of Palau (2013). *Second National Communication to the United Nations Framework Convention on Climate Change,* September 2013. 98pp.
- Republic of Palau (2015). *Palau Climate Change Policy for Climate and Disaster Resilient Low Emissions Development.* 56pp.
- Republic of Palau (2015). *Intended Nationally Determined Contribution.* November 2015. Office of the President. 5pp.
- UNEP (2016). *The Kigali Amendment (2016): The amendment to the Montreal Protocol agreed by the Twenty-Eighth Meeting of the Parties (Kigali, 10-15 October 2016).* 10pp.

Land Management and Food Security

- ADB (2017). *Private sector assessment for Palau: Policies for sustainable growth revisited.* Asian Development Bank. 69 pp.
- Kitalong & Sengebau (2015). *Achieving Resilient Agriculture and Aquaculture: A national policy for strengthening food security in Palau as a priority climate change adaptation measure*. 35pp.
- Palau Agriculture and Forestry (2021). *State and Private Forestry Fact Sheet*, Palau 2021. 3pp. https://apps.fs.usda.gov/nicportal/temppdf/sfs/naweb/PW_std.pdf
- Republic of Palau (2000) *The Palau Mangrove Management Plan* (Volume 1). W.D. Metz. Bureau of Natural Resources and Development. 130pp.
- Republic of Palau (2000). *National report to the United Nations Convention to Combat Desertification*. 4pp
- Republic of Palau (2004). *National Action Program to Combat Land Degradation*. 36pp.
- Republic of Palau Republic of Palau (2010). *Statewide Assessment of Forest Resources and Resource Strategy: A comprehensive analysis of forest-related conditions, trends, threats and opportunities.* Bureau of Agriculture. 106pp.
- Republic of Palau (2012). *The Sustainable Land Management Policy of the Republic of Palau.* 13pp.
- Republic of Palau (2012). *The Water Policy for the Republic of Palau. 7pp.*
- Republic of Palau (2016). *Protected Area Network (PAN) Status Report 2003-2015*. 29pp.
- Republic of Palau (2016). *Protected Area Network (PAN) Status Report 2003-2015*. Appendix. 17pp.
- Republic of Palau (2017). *Palau Trade and Investment Policy Framework, 2017-2020.* 72pp.
- Republic of Palau (2018). *Sustainable Forest Management Policy*. 32pp.

- Republic of Palau (2021). *The 2021-2030 Republic of Palau Statewide Assessment of Forest Resources and Resource Strategy (SWARS) (Palau Forest Action Plan).* 174pp.
- Republic of Palau (2021). *Pathways to Sustainable Food Systems in Palau #KeledaNgercheled (Our food is our responsibility).* 26pp.
- Stuart Raetz (2017). *Survey and Clearance of Explosive Remnants of War (ERW) Final Evaluation (Final Report).* Cleared Ground Demining (CGD). 44pp.

Marine Management

- Friedlander AM, Golbuu Y, Caselle JE, Ballesteros E, Letessier TB, Meeuwig JJ, Gouezo M, Olsudong D, Turchik A, Sala E. (2014). *Marine biodiversity and protected areas in Palau: Scientific report to the government of the Republic of Palau*. 47pp.
- Friedlander *et al.* (2017). *Size, age, and habitat determine effectiveness of Palau's Marine Protected Areas*. https://doi.org/10.1371/journal.pone.0174787
- Gouezo *et al.* (2021). *Koror Southern Lagoon Coastal Fisheries Management Plan 2021*. Palau Conservation Society. 109pp.
- *Johannes et al. (1999). Spawning aggregations of groupers (*Serranidae*) in Palau* The Nature Conservancy Marine Research Series Publication No. 1.156pp.
- Republic of Palau (2000) *The Palau Mangrove Management Plan* (Volume 1). W.D. Metz. Bureau of Natural Resources and Development. 130pp.
- Republic of Palau (2009). *National Aquaculture Strategy Draft-28 July 2009.*
- Republic of Palau (2015). *Achieving Resilient Agriculture and Aquaculture: A national policy for strengthening food security in Palau as a priority climate change adaptation measure.* 35pp.
- Republic of Palau (2016). *Exclusive Economic Zone Monitoring, Control, and Surveillance: The Next Five Years 2016–2021*. 60pp.
- Republic of Palau (2017). *Tuna Fisheries Strategic Plan 2017–2021*. 16pp.
- Republic of Palau (2019). *Strategic Plan to Ensure a Pristine Paradise Destination 2019-2023. 74pp.*

Freshwater Management

- Golbuu *et al*. (2011). Effects of Land-Use Change on Characteristics and Dynamics of Watershed Discharges in Babeldaob, Palau, Micronesia. *Journal of Marine Sciences*. https://doi.org/10.1155/2011/981273
- Mesebeluu, L. (2021) *Melekeok Conservation Network In Situ Water Quality Monitoring Report Palau*. Suva, Fiji SPC, 33pp.
- Michael and Jaensch (2014). *Directory of Wetlands of Palau*. SPREP. 91pp.
- Republic of Palau (2012). *The Water Policy for the Republic of Palau. 7pp.*
- SOPAC (2007). *National Integrated Water Resource Management Diagnostic Report Palau*. SOPAC Miscellaneous Report 642. 64 pp.

Biodiversity

- NEPC (2019). *2019 State of the Environment Report, Republic of Palau*. National Environmental Protection Council (NEPC), Government of Palau: Koror, Palau. 100 pp.
- NEPC (2004). *Palau National Invasive Species Strategy (2004).* National Environmental Protection Council (NEPC), Government of Palau: Koror, Palau. 34pp.
- Republic of Palau (2016). *Revised National Biodiversity Strategy and Action Plan 2015-2025: Promoting Wise Development to Achieve Conservation and Sustainable Use of Biodiversity.* 183pp.

- Republic of Palau (2019). *Republic of Palau's 6th National Report to the Convention on Biological Diversity.* 66pp.
- Republic of Palau (2022). *NISSAP: Palau National Invasive Species Strategic Action Plan (2022–2027).* 12pp.

Waste and Chemical Management

- APWC (2020). *Palau – Waste Audit Report Analysis of waste generation, recycling and disposal data collected in November 2019.* 165pp.
- GHD (2017). *Pesticide Container Management in the Pacific Palau Baseline Survey Report.* SPREP. 30pp.
- Republic of Palau (2010*). National spill contingency plan " Natplan " for the Republic of Palau. 83pp.*
- Republic of Palau (2016). *Standard operating procedure for EQPB responses to land-based hazardous material releases in Palau. 25pp.*
- Republic of Palau (2019). *National Solid Waste Management Strategy: The Roadmap towards a Clean and Safe Palau (2017 to 2026). 62pp.*
- Republic of Palau (2021). *National Implementation Plan for Persistent Organic Pollutants. 75pp.*
- SPREP (2014). *Baseline Study for the Pacific Hazardous Waste Management Project - Healthcare Waste The collection, collation, and review of data on the management of healthcare waste and best-practice options for its disposal in participating Pacific Island Countries: Palau*. 64pp.
- United Nations (2015). *Global monitoring Plan for persistent organic pollutants under the Stockholm Convention Article 16 on effectiveness evaluation. Second regional monitoring report Annex Asia-pacific region. 134pp.*

Built Environment

- ADB (2020). *Proposed Programmatic Approach and Policy-Based Loan for Subprogram 1 and Technical Assistance Grant Republic of Palau: Palau Public Utilities Corporation Reform Program*. 14pp.
- Barr *et al*. (2016). *Sustainable tourism pathways for Palau: findings and recommendations from a cross-sectoral workshop.* Discussion Paper No 16, Conservation Strategy Fund. 26pp.
- Republic of Palau (2004). *Palau National Environmental Health Action Plan (NEHAP)* 2004-2007. 28pp.
- Republic of Palau (2010). *National Energy Policy*. Palau Energy Policy Development Working Group, Koror, Republic of Palau.13 pp.
- Republic of Palau (2012). *Sanitation Master Plan Report.* GHD. 112pp.
- Republic of Palau (2012). *The Water Policy for the Republic of Palau. 7pp.*
- Republic of Palau (2015). *Palau Climate Change Policy for Climate and Disaster Resilient Low Emissions Development.* 56pp.
- Republic of Palau (2019). *Strategic Plan to Ensure a Pristine Paradise Destination 2019-2023. 74pp.*
- Republic of Palau (2020). *Koror-Babeldoab Island Resilient Urban Development Strategy and Action Plan*. Voume I: Main Report. 78pp.
- Republic of Palau (2021). *Palau National Infrastructure Investment Plan (2021-2030)*. 103pp.

Culture, Heritage and Awareness

- Republic of Palau (2010). *Mauritius +5 Status Report: Republic of Palau.* ESCAP. 144pp.

- Republic of Palau (2011). *Cultural Mapping.* 38pp.
- Republic of Palau (undated). *Cultural Policy: Palau National Policy on Culture 2012-2021*. 26pp.

Environmental Governance

- Republic of Palau (1996). *2020: National Master Development Plan: Issues, options and strategies for Palau's development*.
- Republic of Palau (2008). *Actions for Palau's Future: The Medium-Term Development Strategy 2009 to 2014*. 303pp.
- Republic of Palau (2015). *Palau Climate Change Policy for Climate and Disaster Resilient Low Emissions Development.* 56pp.
- Republic of Palau (2016). *Revised National Biodiversity Strategy and Action Plan 2015-2025: Promoting Wise Development to Achieve Conservation and Sustainable Use of Biodiversity.* 183pp.
- Republic of Palau (2018). *National Gender Mainstreaming Policy.* 12pp.
- Republic of Palau (2019). *Pathway to 2030: Progressing with our past towards a resilient, sustainable, and equitable future*. 107pp.
- Republic of Palau (2020). *KOROR-BABELDAOB ISLAND Resilient Urban Development Strategy and Action Plan.* 78pp.
- Republic of Palau (2020*). Gender and Natural Resources Report 2020.* 59pp.
- Republic of Palau (2020). *Gender and Natural Resources: Marine resources. https://drive.google.com/file/d/15_ixFXqmyNcCtrxGgb0bONCANdjr1LCG/view*
- Republic of Palau (2021). *Safeguarding our Environment to Ensure our Wellbeing.* Environmental Quality Protection Board Strategic Plan. 25pp.
- SPREP (2018). *Palau: Review of natural resource and environment related legislation.* 16pp.
- Townsend (2007). *Environmental Review and Stock-take Report*. ADB. 86pp.