

Palau Water Policy 2025-2045



Presidential Endorsement

FOREWORD

Water resources and access to safe water for Pacific islands are under pressure because of climate change impacts, urbanization, development, health and economic shocks brought on by COVID and compounded by the crisis in opposing nations, and other pressures.

This is especially true for the Republic of Palau, where water demands are increasing with return of economic activity. Sustainable development is necessary to safeguard the environment while encouraging economic growth, ensuring protection of water resources, proper wastewater management, and increasing safe access to water so that community needs with economic development are met without threat to long term health and sustainability of watersheds and surrounding environments.

Degradation of existing watersheds continue to degraded through poor compliance to existing regulations, limited implementation of existing state master plans and enforcement of protected areas, resulting in increasing levels of turbidity in the water, causing increasing sedimentation of marine environments and increasing contamination of water supplies that in turn, increases costs to ensure that water is suitable for drinking.

Palau's water sources are facing these challenges, including threats from habitat encroachment, climate change and environmental degradation resulting n decreasing water quality ana a lack of resilience to increasing demand and climate change. The islands of Palau are also vulnerable to natural and manmade disasters. Potential disasters from human development and activities need to be identified and property mitigated for.

This policy aims to build on existing capacity within the sector, and address key issues and challenges, to achieve the policy objectives. This endeavor is an investment into building a stronger and more resilient Palau for our future, and for our children.



His Excellency Surangel Whipps Jr.
President of the Republic of Palau

Acronyms and Abbreviations

BoE	Bureau of Environment
BWA	Belau Watershed Alliance
CSO	Customer Service Obligation
DEH-BPH	Division of Environmental Health – Bureau of Public Health
EIA	Environmental Impact Assessment
EQPB	Environmental Quality Protection Board
GESI	Gender Equity and Social Inclusion
GoP	Government of Palau
IWRM	Integrated Water Resource Management
KPI	Key Performance Indicator
M&E	Monitoring and Evaluation
MAFE	Ministry of Agriculture, Fisheries, and Environment
MIS	Management Information System
MoU	Memorandum of Understanding
NEMO	National Emergency Management Office
NEPC	National Environmental Protection Council
NGO	Non-Governmental Organization
NRW	Non-Revenue Water
NWRM&D Plan	National Water Resource Management and Development Plan
O&M	Operation and Maintenance
OERC	Office of Environmental Response and Coordination
PALARIS	Palau Automated Land and Resource Information System
PAN	Protected Areas Network
PCS	Palau Conservation Society
PEWA	Palau Energy and Water Administration
PICRC	Palau International Coral Reef Centre
PPUC	Palau Public Utilities Corporation
PWWA	Pacific Water and Wastewater Association
RPPL	Republic of Palau Public Law
SDGs	Sustainable Development Goals
SLM	Sustainable Land Management
SOE	State-owned enterprise
UNDP	United Nations Development Programme
USD	US Dollar
WaSH	Water, Sanitation, and Hygiene
WHO	World Health Organisation
WMS	Watershed Management Strategies
WRM	Water Resource Management
WSS	Water Supply and Sanitation
WTP	Water Treatment Plant
WWTP	Waste Water Treatment Plant

Table of Contents

.....	1
Presidential Endorsement	2
Acronyms and Abbreviations	3
1. Introduction.....	6
2. Policy development process and acknowledgments	6
3. Scope of the Policy	7
4. Goal of the Water Policy	8
5. Chapter 1: Palau Water Resource Management Policy.....	8
5.1 Water Resource Management Sector Background.....	8
5.1.1 Palau Water Resource Management Sector	8
5.1.2 Key Issues to be addressed	12
5.2 Water Resource Management Policy Response.....	15
5.2.1 WRM Policy Objectives and indicators.....	15
5.2.2 WRM Policy Principles	16
5.2.3 WRM Strategies and Implementation	16
Strategy 1. Protect and restore existing watersheds and water quality. Allocate water appropriately and where needed develop water resources for future needs.	16
Strategy 2. Strengthen and/or establish participatory governance frameworks for water resource management	18
Strategy 3. Strengthen monitoring and data management systems.	19
Strategy 4. Develop and maintain a communication platform for raising public awareness and understanding	19
6. Chapter 2: Palau Water Supply and Sanitation Policy	20
6.1 Water Supply and Sanitation Sector Background.....	20
6.1.1 Palau Water and Sanitation Sector	20
6.1.2 Key Issues to be addressed	22
6.2 Water Supply and Sanitation Policy Response.....	24
6.2.1 Policy Objectives and indicators	24
6.2.2 WSS Policy Principles	24
6.2.3 Policy Strategies and Implementation	25
Strategy 1: Maintain an effective institutional and legal framework.....	25
Strategy 2: Provide high quality, sustainable and efficient WSS services.....	26
Strategy 3: Establish and implement a WSS monitoring system	27
Strategy 4: Safeguard and ensure access to water resources	28
Strategy 5: Wastewater Management and Public Health Education	29

7. Chapter 3 : Policy Implementation	31
7.1 Resourcing the Policy.....	31
7.1.1Lack of capacity and financial resources.....	31
7.1.2 Water Sector Policy Support Program.....	31
7.2 Capacity Development and Training	32
8. Chapter 4: Policy Implementation and Monitoring Plan	33
8.1 Water Resources Management.....	33
8.2 Water Supply and Sanitation	35
Annex 1: List of Institutions and Responsibilities.....	37
Annex 2: List of applicable regulations	40
Annex 3: Key Performance Indicators for WRM	42
Annex 4: Key Performance Indicators for WSS	43
Annex 5: Palau Water Sector Roadmap 2030	44

1. Introduction

The Palau Water Policy (2025-2045) aims to provide sustainable, accessible water and sanitation services for all Palau residents while ensuring resources are preserved for future generations and enhancing resilience against climate change. The policy is structured into two main components: Water Resource Management (WRM) and Water Supply and Sanitation (WSS), each focused on specific goals and strategies to meet Palau's water needs.

The Water Resource Management (WRM) section focuses on safeguarding Palau's water resources by restoring watersheds, improving water quality, and implementing climate resilience measures. Key strategies include the development of Watershed Management Strategies (WMS), promoting integrated water management, and establishing multi-stakeholder coordination frameworks for water governance. The policy also calls for enhanced monitoring systems to track water quality, availability, and usage patterns. Additionally, public outreach initiatives aim to raise awareness about sustainable water practices, and efforts will be made to ensure financial resources support effective water management.

The Water Supply and Sanitation (WSS) section addresses service provision through the Palau Public Utilities Corporation (PPUC), the nation's sole water and sewerage provider. Goals include improving PPUC's operational efficiency and financial sustainability, enhancing water and sanitation service standards, and addressing issues such as non-revenue water and safe sanitation practices. The policy also outlines measures to protect public water sources and prioritizes water allocation for essential needs, particularly in light of climate change and increasing water demand.

To ensure successful implementation, the policy provides a detailed action plan, including timelines, responsibilities, and Key Performance Indicators (KPIs). A Water Sector Policy Support Program identifies the needs for technical assistance, capacity building, and funding support to key stakeholders. This program will work in coordination with development partners to facilitate the efficient implementation of policy goals across WRM and WSS sectors.

Overall, the Palau Water Policy sets forth a comprehensive framework to secure high-quality water and sanitation services, manage resources effectively, and foster resilience against climate impacts, laying the groundwork for a sustainable future in Palau's water sector.

2. Policy development process and acknowledgments

This Water Policy was developed between April and September 2024 through the collaborative efforts of key stakeholders divided into two working groups, under the guidance of a Policy Steering Committee. The Water Resource Management Working Group was led by the Ministry of Agriculture, Fisheries, and the Environment – Bureau of Environment (MAFE-BOE), while the Water Supply and Sanitation Working Group was chaired by PPUC.

Key contributions were made by the following organizations: The Environmental Quality Protection Board (EQPB), the Palau Energy and Water Administration (PEWA), the Palau Conservation Society, the National Emergency Management Office (NEMO), the National Environmental Protection Council, State Governors and the Governors' Association, the Palau Automated Land and Resource Information System (PALARIS). Also, representatives of the Chamber of Commerce and the Palau International Coastal Resource Centre participated in the discussions.

The Government of Palau extends its gratitude to the World Bank for its valuable support in the development of this policy.

PALAU KEY DATA

Population: 17,600, 70% of whom live on Koror Island.

Currency: USD

Capital: Ngerulmud in Melekeok State. Babeldaob Island.

Politics: Democratic Presidential Republic in free association with the United States

Administrative Divisions: 16 States

Urban population: 82%

Total Land area: 188 sq.Mi.

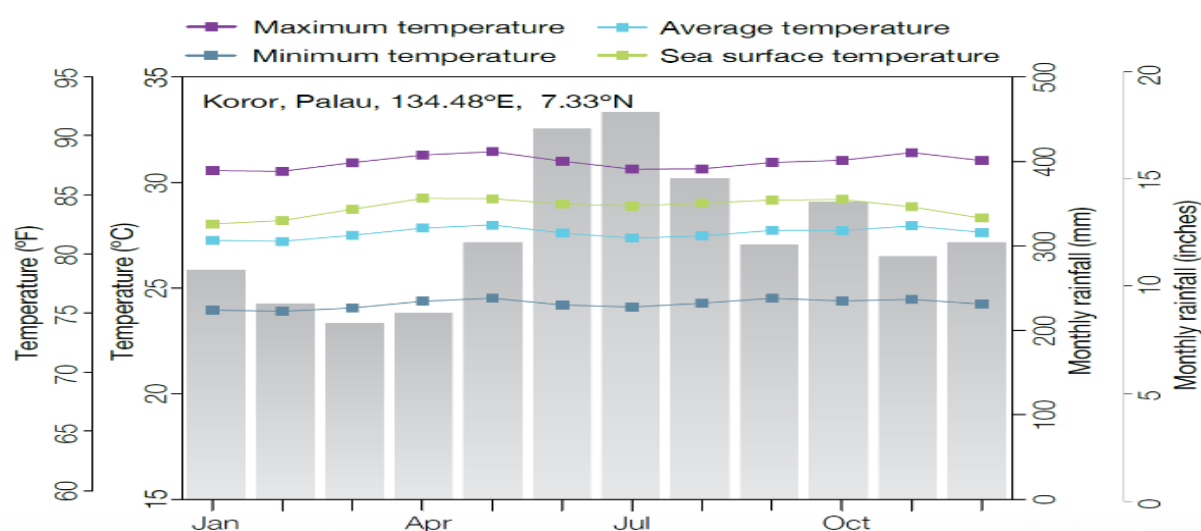
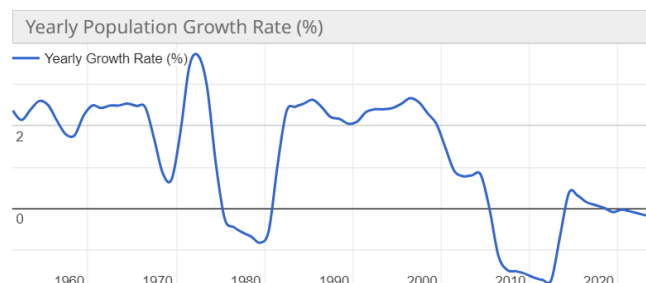
Average GDP: USD 17,440

Economy: Primarily tourism, subsistence agriculture, fisheries

Life expectancy at birth: (2005) 69

CO2 emissions: 8.8 tonnes/capita/year

Land area where elevation is below 5m: 16 %



3. Scope of the Policy

The scope of the Water Policy consists of two main components: Chapter 1: Water Resource Management (WRM) and Chapter 2: Water Supply and Sanitation (WSS).

Chapter 1: Water Resource Management (WRM) :

The WRM component of the Water Policy covers the following scope:

- The management and protection of Palau's freshwater resources.
- Allocation of water to various sectors, including drinking water, agriculture, industry, and the environment.

Chapter 2: Water Supply and Sanitation (WSS):

The WSS component addresses the provision of water supply and sanitation services, covering the following areas:

- Public piped water supply for all categories of users
- On site water supply, for those users without access to a public water supply system

- e. Public piped wastewater collection and treatment for all categories of users
- f. Onsite sanitation, for those users without access to a public sewerage system

With regard to stormwater, the sewerage system of PPUC is designed to be separate from stormwater. Occasionally, stormwater does enter PPUC's sewerage system, but this is not the intention. Therefore, stormwater is not part of the WSS component of the Water Policy and is being managed by the Department of Infrastructure.

4. Goal of the Water Policy

The goal of the water policy is to ensure that everyone in the Republic of Palau has access to the quality and quantity of water that is needed to thrive socially, economically and environmentally, whilst safeguarding resources for future generations and enhancing resilience against climate change.

This policy also aims to promote the safe and clean management and disposal of wastewater to ensure sanitation and protection of the environment in the Republic of Palau.

5. Chapter 1: Palau Water Resource Management Policy

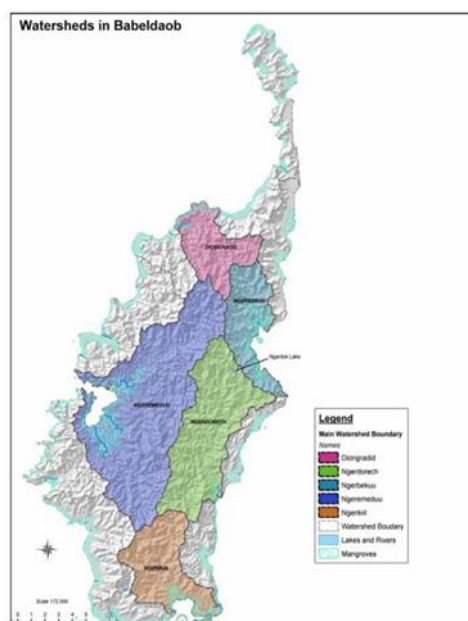
5.1 Water Resource Management Sector Background

5.1.1 Palau Water Resource Management Sector

Watersheds in Palau. The island of Babeldaob, Palau's largest island has 5 major watersheds: Ngeremeduu, Ngerdorch, Ngerikiil, Diongradid, and Ngerbekuu alongside 11 minor watersheds. Ngerikiil watershed, located on the southeast shore of Airai State, covers about 70,341 acres and supplies approximately four million gallons of water per day. It is the primary potable water supply area for Airai State and the city of Koror, supplying 75% of the population of Palau with freshwater.

Koror Island has its own watershed at Ngerbeched that supports Koror water supplies. Watersheds in Peleliu and Angur Islands in the South are less prominent but provide water for local supply. Kayangel in the North is a low-lying atoll which lacks a defined watershed

Palau experiences an annual rainfall of approximately 3700 mm/year, with the heaviest rains typically occurring during the monsoon months of June – August. This produces a total estimated 300 billion gallons (1.1 billion cubic meters) of water per year from surface water run-off.



Watershed management: Land ownership in Palau is divided between private owners and the States. The States have exclusive ownership of all living and non-living resources in their respective areas of jurisdiction (article 2 of the Constitution), and this would include water. However, the States are also bound to environmental laws and regulations, which require the

states to take into account the environmental and social effects of the use of water. Regulations regarding the use and quality of water are set and enforced by the Environmental Quality Protection Board (EQPB). Watershed management is the joint responsibility of the Ministry of Agriculture, Fisheries and Environment, Bureau of the Environment (MAFE-BoE) and the State Authorities. The issue of water ownership sometimes causes friction between states and other stakeholders, and this policy aims at resolving such issues.



Palau's Protected Areas Network Act (PAN) establishes the framework for a network of protected areas. The act empowers communities to designate and manage both marine and terrestrial protected areas. It provides standards, criteria, application process, technical and financial assistance for the management and monitoring of protected sites. State Assemblies work with MAFE-BoE to identify Protected Areas. Implementation of the act is supported through the PAN Fund, an independent not-for-profit organization which serves as a financial trustee. To date all 16 states have joined PAN. Each State has a PAN office, with Rangers to enforce regulations. Although they do not have powers to prosecute, Rangers can report violations to the relevant authorities, such as EQPB. There are challenges with high staff turnover at PAN and limited resources to support monitoring and reporting. The PAN network is supported by a PAN Coordinator and a PAN capacity Development officer at MAFE. There are a total of 39 protected areas, of which 10 are terrestrial sites, covering approximately 9% of the landmass.

The Land Planning Act mandates that each state develop a comprehensive Master Plan for land use planning, zoning, and protection and conservation of water resources. State Governors work with the legislated state Planning Commissions in each state to prepare the Master Plan. Despite all Master Plans now being prepared, only one has been formally adopted, in Ngarchelong. The Palau Governors Association supervised the collating of common themes across the Master

Plans for inclusion in the Palau National Master Plan 2023-2026. Whilst Master Plans describe intent, there are no associated implementation plans.

Palau's Sustainable Forest Management Policy, developed in September 2018 under the Ministry of Natural Resources, Environment and Tourism includes the objective of improving the quality of fresh water supply via forests. This is to be achieved by formally protecting watersheds and rehabilitating bare slopes. Implementation of these policy objectives compliment the Water resource management objectives detailed in this policy and BoE will work closely with the Ministry of Natural Resources, Environment and Tourism to support mutual objectives.

Palau's Ridge to Reef approach is a framework for integrated environmental management that focuses on the connections between terrestrial and marine ecosystems and aims to co-ordinate conservation efforts across various sectors. A primary objective of the approach includes protecting freshwater and marine resources, ensuring that water flowing from upland areas is free from pollutants, sediments, and excess nutrients, which can degrade downstream habitats. The connectivity between watersheds and their management is crucial for the health and resilience of the coastal zone, as activities upstream directly impact the quality of water, sediment flow, and nutrient levels reaching the coast. Effective watershed management can reduce soil erosion, control runoff, and maintain the natural filtration of pollutants, thereby preserving the integrity of coastal ecosystems such as coral reefs, seagrass beds, and mangroves, which are vital for biodiversity and coastal protection and contribute to Palau's Blue Economy¹. This interconnectedness is acknowledged through the **Palau Pledge**, which encourages sustainable practices to protect both terrestrial and marine environments for future generations. The Pledge recognizes that safeguarding the health of watersheds—through reforestation, erosion control, and sustainable land use—ensures that Palau's iconic marine ecosystems remain vibrant, supporting tourism, fisheries, and the cultural identity of the Palauan people.

Improved watershed management is pivotal for enhancing both local and national climate resilience. Supporting the restoration of watersheds enhances the environments capacity to regulate water supplies, especially during periods of drought or extreme weather events exacerbated by climate change. Ultimately, a robust water management strategy serves as a foundation for building resilience, enabling Palau to adapt to changing environmental conditions while preserving its natural resources for future generations.

Watershed management approaches have been addressed in the past on a largely project basis, for example through Palau's International Waters Ridge to Reef (IW R2R) national demonstration project 2016-2020 and these have identified valuable lessons which this Policy aims to build on. This includes re-energising multi agency partnerships such as the Belau Watershed Alliance (BWA)².

Current Challenges to Watersheds. Palau's watersheds face a number of current threats as well as future challenges. These threats are being felt most acutely in Airai state due to its proximity to Koror. Increasingly authorities are having to manage the allocation of water to support a

¹ the term "Blue Economy" refers to the sustainable use of ocean resources for economic growth, improved livelihoods and jobs while preserving the health of the ocean ecosystems.

² The BWA is a nation-wide collective of state governments, national agencies, NGOs, and the private sector with the mission of improving watershed management throughout Palau

growing economy and support the important tourist market. Whilst EQPB has the authority to issue water extraction permits, to date it has only issued one permit, for a bottled water company. Water is being withdrawn freely for various uses and extraction in most cases, other than for PPUC, is poorly monitored.



Increasingly fires are being set deliberately in order to clear bush, mainly due to an increasing demand in housing as well as an increase in commercial, nontraditional, farming, mainly vegetables. Disturbed, bare soils increase the risk of erosion due to poor erosion control methods including the loss of riparian buffers, causing an estimated loss of 325 tons/acre/year from agriculture, and an associated loss in soil fertility on Palau's already fragile soils. Water sources are protected by regulations that mandate 60-foot riparian buffers (on both sides). These are not always maintained, however. EQPB have banned all open burning permits as a result of degradation to watersheds, though this is difficult to enforce.

In addition, road construction, and unpaved roads also result in significant erosion (estimated at 488 tons/acre/year). The completion of the Compact Road around Babeldaob has increased pressure on the watersheds due to increased house building and agriculture.

Increased erosion results in significant sedimentation which affects water quality downstream, reduces soil fertility and the ability of watersheds to regenerate. In Palau, activities that involve the movement of soil require an Earth Moving Permits from EQPB. Research has shown that the river sediment yield increased significantly with increasing numbers of earth-moving permits, demonstrating the lack of adequate mitigating erosion controls.

Future Threats

Climate Change Impact: Palau has developed a Climate Change Policy (2015), identifying several potential impacts of climate change:

- A temperature increase of 0.4-1.0°C by 2030 and 0.8-3.2°C by the century's end.
- Increased rainfall during the wet season.
- More extreme rainfall events.
- Sea level rise of 3.0-6.3 inches by 2030.
- A decrease in mild droughts with extreme droughts remaining constant.
- Coral bleaching.

This Water Policy is aligned with Palau's Climate Change Policy and its Action Plan for utilities, including the preparation of water security plans and an integrated WRM plan.

Droughts: Projections suggest that while mild droughts may decrease, extreme droughts will persist. A severe drought in March 2016 highlighted Palau's vulnerability, with rainfall at its lowest in 65 years, leading to significant water shortages, poor sanitation, crop failures, and an increased risk of malnutrition.

Agriculture: The agriculture sector, though currently small, is expected to grow significantly, with government plans to significantly increase productivity. Land use for agriculture increased from 756 acres in 2014 to 1,342 hectares in 2017, and the government aims to double piglet and chicken production while increasing tilled land by 25% annually. This expansion could impact water and wastewater management and watershed protection, particularly through increased soil erosion and pesticide runoff.

Tourism: Although tourism has not yet returned to pre-COVID levels, it remains a key economic growth sector. Increased tourism will place additional demands on water resources, particularly if there is a focus on high-end tourism. Proposed developments, such as a golf course in Melekeok state, could strain existing water infrastructure and exacerbate environmental pressures on watersheds. Increased erosion and runoff of polluted water already results in deterioration of coastal ecosystems, which in turn threatens marine tourism.

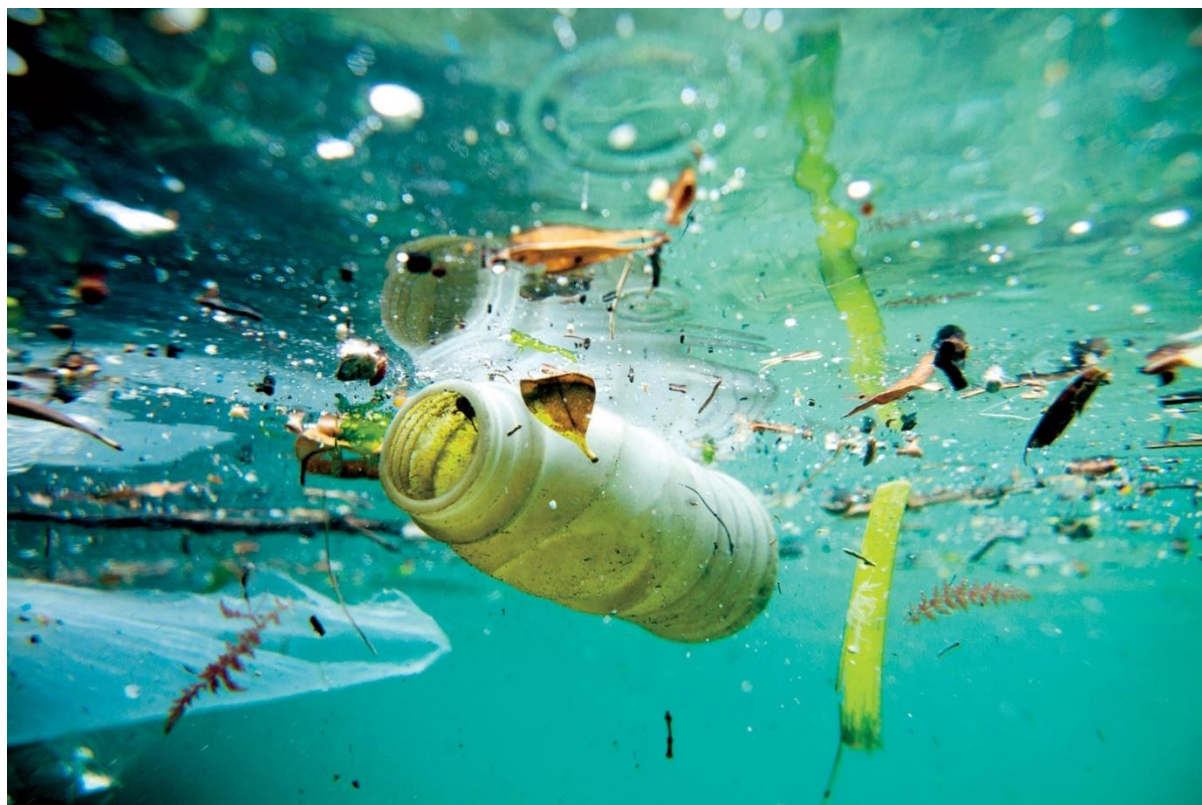
Conclusion: Palau's water resources are currently under manageable pressure due to its small population and limited industry. However, these water resources are vulnerable to increased pressures from housing, agriculture, and climate change, leading to heightened sedimentation and erosion. The development of State Master Plans is a positive step, but these plans need to be endorsed and implemented effectively to ensure sustainable land use and soil conservation. The PAN Act and Sustainable Land Management Policy provide guidance on watershed conservation, but enforcement is hindered by limited resources and staff turnover. Clarifying water resource ownership is essential to ensure accountability and effective watershed management.

5.1.2 Key Issues to be addressed

Palau's water sources are facing a growing threat from increased demand, habitat encroachment, climate change and environmental degradation resulting in decreasing water quality and a lack of resilience to climate change. This policy aims to build on existing capacity within the sector, and address key issues and challenges, to achieve the policy objectives.

Degradation of existing watersheds and increasing contamination of water resources. Significant steps have been taken to protect Palau's watersheds, this includes the Protected Areas Network

Act and the Sustainable Land Management Policy. In addition, EQPB has clear and established water quality standards for freshwater environments.



However, important watersheds continue to be degraded through poor compliance to existing regulations, limited implementation (including state master plans), a lack of enforcement of protected areas, and poor stormwater planning, resulting in increased sedimentation of marine environments and increased treatment costs to make water suitable for drinking. As a result, a significant number of PPUC's water supplies do not meet EQPB water quality standards. The threat is likely to increase with anticipated climate change and increased pressure caused by urbanisation, industrialisation, and increasing agriculture which threaten watershed integrity and increased pollution of freshwater.

Limited coordination in water resource management.

There are limited mechanisms for key stakeholders to share information and to plan comprehensively, resulting in a fragmentary approach to planning and enforcement. This is particularly true across sub-sectors such as agriculture, industry, drinking water and wastewater, environment and regulatory enforcement. Attempts have been made in the past to improve this situation, for example the establishment of the BWA, and these need to be re-visited and lessons learnt, in order to improve co-ordination. Many regulations as well as policies exist across various sectors such as Agriculture, Forestry, and Climate Change that all require a coordinated response for effective implementation in relation to water resource management. A more coordinated integrated water resource management approach will be required to successfully address current WRM issues and to meet the increasing demands of the future.

No clarity about the ownership of water:

There exists a lack of clarity with regard to water ownership. Ownership of the water is not clearly defined and according to the Constitution, it belongs to the State in which it is present, even

though it then flows into neighbouring states. Clarity of ownership would help define responsibilities and authority for water protection.

Water use and allocation.

The Environmental Quality Protection Act states that persons abstracting (larger volumes of) freshwater can do so only when they have a permit which is issued by EQPB based on an approved National Water Resources Management Plan. However, a National Water Resources Management Plan does not exist, and to date, EQPB has only issued one extraction permit. As a result, this common resource is vulnerable to overexploitation. Consistent and equitable access to water means that primary extractors know when they can extract water and that it is allocated and prioritised based on particular criteria. This requires being aware of the demands on the system, and the capacity of the watershed to absorb those demands and regulating water extraction accordingly.

Disaster risk and climate resilience.

Water is not currently a scarce resource in Palau, though the population remains vulnerable to a persistent threat of drought as a result of El Niño and La Niña. Climate predictions indicate that the threat of extreme droughts will remain largely unchanged over the years, but the threat of more frequent and severe storms will increase. Palau has a Climate Change Policy, and its strategies need to be adopted and applied. A more detailed understanding is required of the specific impact on watersheds. Already, poor stormwater management has been identified as a significant problem, and this is likely to increase as a result of climate change. Improved stormwater management therefore is important, both for watershed protection to prevent erosion, ecological damage and downstream marine ecosystems, as well as in urban areas, to safeguard populations and prevent economic damage to infrastructure. The Intergovernmental Panel on Climate Change (IPCC) in 2001 estimated a rise of between 0.2 and 0.9 m in sea level by 2100. A slight increase in sea level could mean a significant threat to thousands of acres of Palau's lands and will also threaten groundwater quality in some of the very small outer islands.



Public understanding and engagement.

Palau's per capita water consumption is high and awareness of this needs to be increased. Local participation has been a cornerstone of the development of the State Master Plans and in the designation of protected areas under PAN. Following an IWRM approach it will be essential that this participation continues into implementation and in water resource management itself, and that stakeholders are familiar with best practises and good governance and are active participants in the process. This will require an active outreach and extension programme to develop local capacities,

Data Monitoring

Currently, there is no significant or well-established process for water resource monitoring or data management in Palau. EQPB conducts Environmental Impact Assessments (EIAs) on a case-by-case basis as well as water quality monitoring for drinking water. The Palau Automated Land and Resources Information System (PALARIS) plays a crucial role in data handling and GIS mapping. However, there is a need to improve data monitoring in the watersheds to provide regular valuable information on the health of the watershed and to track any changes over time (from improvements in watershed management to the impacts of climate change). A more systematic and detailed WRM M&E framework could provide stakeholders with up-to-date information, not only on water quality, but also on estimated quantity in the ecosystem and demand, such that allocation can be prioritised in times of need.

Supportive environment.

Improved coordination between agencies is required to support an IWRM approach. In addition, states are generally under resourced, both financially and with regards to staff, to enforce regulations effectively and implement their State Master Plans

5.2 Water Resource Management Policy Response

5.2.1 WRM Policy Objectives and indicators

The Objectives of the Water Resource Management Policy are:

- 1) The effective management, protection and conservation of Palau's water resources, that is resilient to the anticipated impacts of climate change.
- 2) The sustainable allocation of fresh water to meet the demands for domestic, commercial and industrial water supply, agriculture and the environment.

Key Performance Indicators: Key Performance indicators have been attached in annex 3, summarised here as: i) Number of watershed management strategies developed, ii) Monthly water quality monitoring iii) Increase in the area of protected land and buffer zones protected by legislation, iv) Percentage of water resources meeting national water quality standards defined by EQPB Marine and Freshwater Quality Regulations, v) Percentage of users extracting water with EQPB permits, vi) WMS Funding strategy operational to support implementation of the WMS, vii) Percentage of days per year with uninterrupted water supply to domestic, commercial, and agricultural sectors, viii) Improved resilience to, and recovery from, drought, intense rainfall events and storm water management .

5.2.2 WRM Policy Principles

The following principles have been applied in preparing this WSS Policy Document and will also guide its implementation:

1. Water in Palau is considered a public good, which may be used by people and organizations for various purposes, but water bodies must be protected and kept clean, and the use of water should not harm others.
2. On behalf of the people of Palau, it is the responsibility of the National and State Governments to manage water resources for the benefit of the nation as a whole and in case of scarcity, allocate water to its best possible use.
3. The watershed or water basin defines the boundaries of a water resources system and as such is adopted as the entity of water resources analysis, planning and management. A watershed may cover (parts of) various states.
4. Every individual has the right to access sufficient, safe, acceptable, physically accessible, and affordable water for personal and domestic use.
5. Water resources can only sustain in a natural environment capable of regenerating (fresh) water of sufficient quality. Palau's water resources, and wastewater, will be managed in ways that incorporate environmental sustainability
6. Water resources have intrinsic economic, environmental, social and cultural values, essential to sustain life and these should be considered in all management and planning decisions.
7. This water policy adopts an integrated water resource management approach that encourages participation and collaborations from users, planners and policymakers at all levels.
8. Decisions on water resource management should be based on the best available knowledge and data collection approaches, including sound science, local knowledge, technical advice and best management practices. Water resource management approaches will take into account the specific requirements of disadvantaged and marginalized groups, including the very poor, women, infants and children, the elderly and people with disabilities.

5.2.3 WRM Strategies and Implementation

The Objectives of the WRM component of the Water Policy will be achieved by pursuing the following strategies:

Strategy 1. Protect and restore existing watersheds and water quality. Allocate water appropriately and where needed develop water resources for future needs.

1. MAFE-BoE, State Planning Offices and State Assemblies, working in close consultation with other relevant governmental bodies such as PPUC, other user organisations such as the BWA, non-governmental organizations (NGOs), and local communities will develop Watershed Management Strategies (WMS) aimed at environmental protection, enhancing climate resilience and ensuring the sustainability of clean water resources. The level of detail of the WMS will depend on the identified risks in the Watershed and on the availability of capacity and resources. WMS will include any ongoing watershed management activities/projects.
2. The development of the Watershed Management Strategies will be prioritised through an initial Risk assessment implemented by MAFE-BoE with support from PALARIS. These will identify watersheds that are most vulnerable and are of particular importance for

environmental or economic reasons, for example those along the Rael Kedam trail where joint watershed planning may also be required. Watersheds will be categorized as High, Medium, and Low Risk/Priority, and the preparation of WMS will start with High Risk or Priority watersheds.

3. The development of Watershed management strategies will include:
 - 3.1. *Comprehensive Hydrological Assessment.*
 - 3.2. *An assessment of current and future demands for water and preparation of a preliminary water balance model.*
 - 3.3. *Identification of additional as yet unutilised water resources in case of significant future demand.*
 - 3.4. *Water Allocation Planning:* Allocation of water for public WSS is a priority³ and takes precedence, following this, estimates and allocations will be made for availability to other sectors ensuring appropriate distribution for agriculture, commercial activities, and the maintenance of a healthy natural environment.
 - 3.5. *Identify Measures* to protect and enhance the watershed. These measures will address erosion control, water conservation, pollution prevention, and climate change adaptation. Approaches will focus on nature-based solutions and draw on the country's rich traditional ecological knowledge. They will include ongoing activities under PAN and the State Master Plans, including land zoning and identifying and establishing buffer zones around rivers, lakes, and reservoirs.
 - 3.6. *Prepare an Implementation Schedule:* a multi-stakeholder implementation plan that clearly defines roles and responsibilities for all involved parties.
 - 3.7. *Emergency Response Planning:* MAFE-BoE in collaboration NEMO, and PALARIS, will develop emergency response plans to address potential emergencies identified for the watershed, such as flash floods, reservoir breaches, extreme droughts, wildfires, hazardous spills, agricultural runoff, and landslides.
4. The expected result of this strategy is a WMS for each major watershed in Palau.

Depending on the complexity of the watershed and the available resources, a hydrological assessment may include:

- *Watershed characteristics:* Topography, terrain, geology, land use and vegetation cover
- *Details on the hydrological cycle:* precipitation, evapotranspiration, surface runoff, infiltration and ground water recharge, water balance modelling.
- *Streamflow and river discharge.* Baseflow and stormflow stream measurements,
- *Water quality analysis.* Sediment load, nutrient contamination, pH, dissolved oxygen and temperature
- *Groundwater assessment;* aquifer characteristics, groundwater surface interactions
- *Flood risks and water storage capacity.* Flood plain mapping, reservoir and dam assessment
- *Climate and weather patterns.* Climate data analysis, climate change projections.
- *Human impact and land use changes.* Impacts of urbanisation, agriculture, water extraction quantities and use
- *Hydrological modelling* simulation and scenario modelling
- *Recommendations* and management strategies

³ Environmental Quality Protection Act, section 129-1

5. A WMS MoU between MAFE-BoE, State government(s) and any additional stakeholders as required will be prepared and include the Implementation Plan for activities associated with implementing the WMS and clarify roles and responsibilities.
6. The MAFE-BoE will support State Planning Commissions involved to pass legislation that provides additional protection to buffer zones and conservation areas as required.
7. MAFE-BoE will identify funding opportunities to support the preparation and adoption of WMS and prepare a WMS Funding strategy.
8. MAFE-BoE will support monitoring and the enforcement of protection measures through additional training of State authorities and State Rangers and reviewing /improving current reporting approaches.
9. Once WMS for the High and Medium priority watersheds have been completed, BoE will take the lead in preparing a National Water Resources Management and Development Plan (NWRM&D) as required by the Environmental Quality Protection Act, in consultation with the State Governors and State Assemblies. This NWRM&D Plan will build on the WMS produced and act as an overarching document for National IWRM. One chapter in the plan will be devoted to the development and allocation of additional water resources for public water supply, focussing on areas where demand is high, or expected to increase significantly relative to existing supply.
10. EPQB will prepare thresholds for the requirement of water extraction permits and will base the issuing of permits on analysis and possible EIAs conducted based on the watershed management strategies and/or the NWRM Plan as defined in the Palau Environmental Quality Protection Act⁴.
11. When issuing licenses for water extraction, EPQB will include arrangements for the monitoring of the quantity of water extracted under those licenses as well as the quality of surface and sub surface water.

Strategy 2. Strengthen and/or establish participatory governance frameworks for water resource management

1. For each WMS, MAFE-BoE and the States will be responsible for establishing a multi-stakeholder coordination body to support implementation, monitor progress and make recommendations as required. The WMS coordination body will involve state planners of the state(s) that are located within the watershed, representatives of local communities, PPUC, other user groups, NGOs, women's groups and others as the situation requires. ToRs for this body will be developed by MAFE-BoE.
2. MAFE-BoE will at its discretion establish joint Watershed management coordination bodies, such as the BWA, where this is considered appropriate as well as a National Watershed Management multi-stakeholder Steering Committee to oversee overall implementation.
3. This policy acknowledges the critical role of State Planning Commissions, traditional leaders, and local communities with regards WRM. MAFE-BoE will review current training and capacity-building programs at the state level and introduce additional communication and training for the development of WMS – creating a unified communication and training plan for all stakeholders. This plan will coordinate ongoing initiatives to promote best practices in water resource management and introduce guidance on the development of WMSs. Activities must be fully participatory and inclusive, addressing the needs of men, women, children, people with disabilities, and marginalized groups, and should be implemented with

⁴ Environmental Quality Protection Act, Section 129-3

the support of existing community organizations such as schools, the Rural Operators Association, Rotary Clubs, and women's groups.

4. MAFE-BoE, in collaboration with key sector organizations, will host a biennial Integrated Water Resource Management (IWRM) Conference. The conference will serve as a platform for stakeholders to monitor and report on major developments in IWRM and related sectors, foster collaboration and partnerships among government agencies, NGOs, the private sector, and civil society, and promote the exchange of innovative solutions, best practices, and research in water resource management. Additionally, the event will identify gaps and opportunities for new initiatives, funding, and policy development. Each conference may identify a specific theme, such as climate resilience or technological innovation, to spotlight emerging challenges and opportunities. Participants will include a diverse range of stakeholders, including representatives from national and state governments, NGOs, the private sector, local communities, and civil society organizations (CSOs).
5. MAFE-BoE will improve strategic linkages with international agencies to enhance its technical capacity, identify capacity-building opportunities, and access global expertise in environmental management. By partnering with organizations such as UNDP, the World Bank, and regional development banks, MAFE-BoE can collaborate on joint initiatives, leverage international funding for projects like climate resilience and water resource management, and align national policies with global standards. These partnerships will not only strengthen MAFE-BoE's ability to implement innovative solutions but also increase its influence in international environmental policy discussions, ensuring long-term sustainable development outcomes.

Strategy 3. Strengthen monitoring and data management systems.

1. Where and if necessary, EQPB, in collaboration with State Governments, will take the measures to ensure that the permits that have been issued and the conservation and protective measures defined in the WMS are adhered to.
2. Access to accurate and timely data is essential for transparency, promoting good governance, and enabling stakeholders to make informed, timely decisions. MAFE-BoE, with the support of EQPB and PALARIS will develop an effective WMS monitoring system, making maximum use and building on existing monitoring activities where possible. The monitoring system should be able to monitor the implementation and impact of the WMS as identified in the KPIs
3. As part of this monitoring system, MAFE -BoE with EQPB and NEMO will procure and install a system for recording Base flow and Peak flow rates in significant rivers to support monitoring of the impact of the WMS and resilience to climate change
4. A WRM Data Management and Reporting Strategy will be developed by EPQB with support from MAFE-BoE. This will clearly identify how data is recorded and made available to the broader public. Monitoring data will be made open access to promote transparency, accountability, and public engagement in water resource management, and will enable communities, researchers, and policymakers to make well-informed decisions based on up-to-date information.

Strategy 4. Develop and maintain a communication platform for raising public awareness and understanding.

1. MAFE-BoE will develop a Communication Strategy to improve the dissemination of information to its stakeholders. The strategy will outline clear objectives, identify target audiences, and define the key messages and types of information to be communicated. It

will incorporate a variety of communication approaches and channels to ensure broad reach and engagement. The plan will include guidelines for effective public service announcements and a crisis communication protocol for handling emergencies or significant WRM-related events. Additionally, it will raise awareness about the Policy’s contents and implementation strategies.

6. Chapter 2: Palau Water Supply and Sanitation Policy

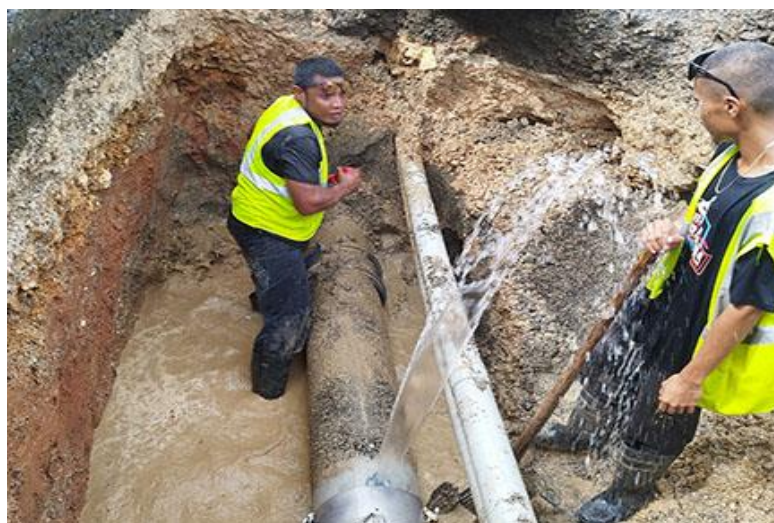
6.1 Water Supply and Sanitation Sector Background

6.1.1 Palau Water and Sanitation Sector

Since 2015, the total population of Palau has stabilized at around 17,600 people because of relatively low birthrates, emigration, and controlled immigration. 78% of the population lives in Koror and Airai. The watersheds in Palau primarily support communities in Koror and Babeldaob. Most irrigation in Palau is small-scale and supporting small farms. For many years fresh water has been in short supply on the outlying islands.

Effective WRM is at the basis of establishing a sustainable and resilient WSS system. A well-managed WRM system addresses critical aspects such as watershed protection, pollution control, and the equitable distribution of water, all of which are vital for maintaining the integrity of the WSS system. By implementing strategies such as integrated watershed management, communities can mitigate the impacts of climate change, reduce vulnerability to extreme weather events, and enhance the capacity of water systems to respond to fluctuations in demand and supply. A robust WRM framework serves as the foundation for a reliable WSS system, ultimately reinforcing the goals outlined in both parts of the policy.

Water Supply More than 98% of Palau’s population have access to piped treated water, which is often supplemented by household rainwater tanks. PPUC reports an average consumption of about 250 litres per capita per day, which is quite high. The remaining households mostly rely on rainwater catchments and are mostly located on the sparsely populated, remote atolls of Kayangel, Sonsorol, and Hatohobei⁵.



⁵ Palau Voluntary Review of Sustainable Development Goals 2019

Fifteen of PPUC's seventeen water treatment plants treat surface water, and two plants treat groundwater from shallow wells. By far the largest source for drinking water is the Ngerikiil River, which feeds water to the Koror-Airai Water Treatment Plant, which in turn supplies water to Koror and parts of Airai and serves about 80% of the population. The other 15 water supply systems supply small villages mostly spread across the island of Babeldaob and some small systems on islands south of Koror. Continuous water supply is the standard and per capita consumption is high. Water quality in the Koror Airai area is good, but the small WTPs serving villages in the rural areas of Palau often face high turbidity, especially after heavy rains and sometimes E-coli and coliform are found in the water. A combination of groundwater, desalination plants and rainwater is used to supply the population of some small outer islands.

Sanitation About 95% of the population of Koror is serviced by a sewerage system, of which the rehabilitation was completed in FY2020. The Melekeok area, in which Palau's capital is situated, also has a (much smaller) sewer system. Onsite sanitation systems are commonly used in the outlying states and most households there have a septic tank, pit latrine or similar system. According to Palau's first Voluntary National Review on the SDGs of 2019, all households have a toilet facility of some type; Approximately 92% use flush toilets and 8% use "benjos" (or Type III toilets).

The WSS Service Provider PPUC The Palau Public Utilities Corporation (PPUC) was established in 2013 by Law RPPL No 9-4 and is the sole provider of electricity, water and sewerage services. Water and wastewater operations (WWO) is treated as a separate business unit and has its own organizational chart and financial accounts. PPUC operates 17 water supply systems and 2 sewerage systems. PPUC mostly uses surface water (15 intakes diverted from rivers) and groundwater in Ngiwal, Peleliu, and Angaur extracted from ground water wells. Water is treated in 17 water treatment plants.

Key data on PPUC efficiency are available from the PWWA benchmarking system and are presented in the table below.

Performance Area	Key Performance Indicators	Unit	2016	2019	2020	2022
Commercial	Collection Rate of bills	%	81	88	96	105 ⁶
	Water sold that is metered	%	100	100	100	100
Technical	Non-Revenue Water	%	59	34	34	56
	Energy as % of operational costs	%	30	38	31	50 ⁷
Financial	Operating Cost Recovery Ratio (including depreciation)	%	59	51	48	45
HRM	Staff per 1000 connections	FTE	n.a	16.4	19.8	16

Source: PWWA Benchmarking

PPUC Performance Indicators

Based on PPUC's financial statements for the period 2016 -2023, PPUC's accumulated operational losses from Water Operations as per April 2024, inclusive of depreciation, amounted to USD 34.9 million. Unpaid power bills add up to USD 15.2 million. The value of outstanding debts from water operations by far exceeds the value of its assets. In 2023, PPUC increased its water rates, but after 6 months it had to again decrease tariffs. Over 2024, PPUC is again

⁶ PPUC conducted a special campaign collecting outstanding bills.

⁷ The effect of increasing costs of energy since 2021.

expecting a loss of more than USD 4 million. PPUC customers continue to rely on subsidies from the government to pay their bills and PPUC must rely on internal cross subsidies from its power division and support from development partners to continue operations and make some of the necessary investments.

After having analysed the various data, the key internal Strengths and Weaknesses and the key external Opportunities and Threats in relation with enhancing access to safe WSS services of the WSS sub sector in Palau are presented in the SWOT (Strengths, Weaknesses, Opportunities and Threats) table below.

Strengths (internal) • PPUC maintains over 90% water supply coverage and some 80% sewerage coverage in its service areas with relatively high service standards • Almost 100% of the population of Palau has access to safe sanitation • Plentiful rain throughout the year and good water resources	Weaknesses/constraints (internal) • Continued inability of PPUC to recover its cost • PPUC's ability to borrow is extremely limited and there is a lack of capital for investment • Poor water quality in small water supply systems, especially in Babeldeob. • Poor efficiency of PPUC: high NRW, low energy efficiency, low labor productivity. • Lack of consistent capacity building programs
Opportunities (external) • Improved water quality has been put as a condition to raise water rates and revenue. • Normally there is a lot of tourism in Palau, which may be an attractive market segment with a high demand for water. • Merger of Power and Water Utilities in 2013 to improve efficiency (but financially separate) • Potential partnerships between PPUC and community and private businesses	Threats (external) • Continued GoP interference in water and sewerage tariffs PPUC without sufficient compensation • Occasional and temporary droughts and flooding • Poor quality of private septic tanks may cause pollution to (shallow) groundwater in some areas

SWOT Analysis Palau WSS Sector

6.1.2 Key Issues to be addressed

The need to improve WSS service levels and operational efficiency

PPUC faces a number of challenges related to its service levels and operational efficiency that the new policy will need to address. These include i) poor drinking water quality, especially in the smaller WS systems in Babeldaob, ii) a high rate of Non-Revenue Water, iii) low energy efficiency and iv) low labour productivity. Improving efficiency and service levels will simultaneously improve resilience against climate change.

Poor financial sustainability of PPUC

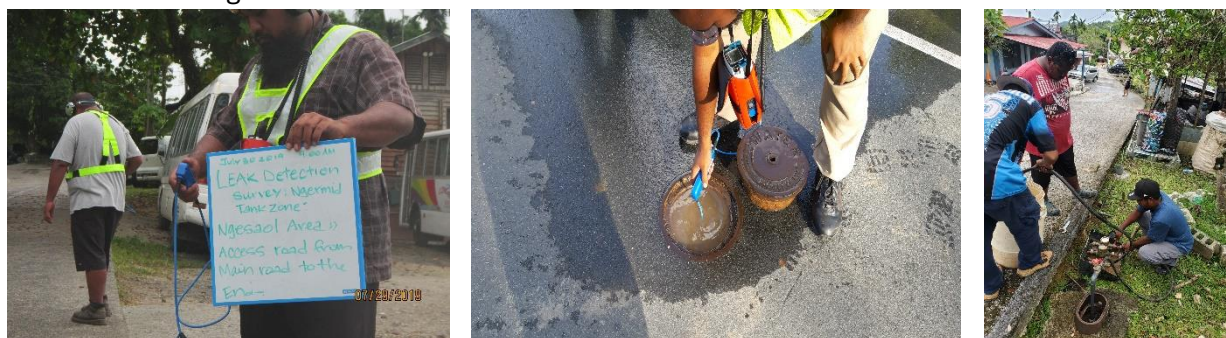
For many years, the approved water rates of PPUC are way too low to cover the costs of operation and depreciation, and technically PPUC's water operations are insolvent. The lack of financial resources makes it impossible to improve water quality in the smaller WS Systems, and based on this PPUC is not allowed to increase its tariffs. As a result, water and wastewater operations during the past decade have operated at a financial loss and the continuation of operations relies on government subsidies (via customers), non-payment of power bills and financial support from development partners.

Safeguarding access to water resources for domestic and industrial purposes

Issues related to land management and strong erosion result in high levels of turbidity. Agricultural production and use of fertilizer cause water contamination, particularly after heavy rains. Many small water systems lack the necessary infrastructure for water storage, treatment, and distribution, which exacerbates their vulnerability to water shortages, causing some households to rely on bottled water during periods of drought. Water sources which are used during periods of drought are not always well maintained. Climate change causes more extremes in weather. This can lead to a reduction in the quality of water and presents the risk of disruption to services through damage to physical infrastructure caused by flooding as identified in the Palau Climate Change Policy 2015. Resilient WSS systems are designed to cope with the challenges posed by extreme weather events such as prolonged droughts or heavy rainfall.

A lack of relevant and timely data.

EQPB performs monthly microbiological quality testing, monitoring e-coli, coliform, turbidity and chlorine levels in all water supplies. However, significant gaps and inefficiencies remain, particularly in the areas of comprehensive water quality monitoring and NRW management. PPUC needs to develop a comprehensive Management Information System and enhance its testing of water quality to ensure regulatory compliance throughout the various reaches of the distribution systems⁸ to improve water quality standards. Data for NRW is also incomplete, despite recent technical assistance supporting the installation of equipment and training for water leak investigation.



More support is required for on-site sanitation

On-site sanitation systems, primarily septic tanks, are commonly used in areas not served by centralized sewer systems. There is a significant challenge related to the maintenance of septic tanks. Many are not regularly emptied or properly managed, leading to environmental contamination and health risks. Inadequate design and construction standards for on-site sanitation systems can result in failures, especially in areas with high groundwater levels or poor soil conditions. Public awareness and education on the importance of maintaining septic systems are lacking, contributing to improper use and maintenance practices.

Problems with operation sewerage systems

Palau has two centralized wastewater collection and treatment systems. The existing sewer facilities are regularly overwhelmed, especially during periods of heavy rainfall, leading to overflow and untreated discharges. This is, among others, caused by leaks and blockages in the sewer network which poses a significant risk to marine and freshwater ecosystems, which are vital to Palau's biodiversity and tourism industry. There is a need for stricter regulatory

⁸ US Dept. of Interior 2020: Palau Water Treatment Plants Preliminary Assessment

enforcement and regular monitoring to ensure compliance with environmental standards, but EQPB lacks the capacity to monitor wastewater.

Improving staff skills

PPUC staff have benefitted from training programs aimed at improving technical skills and operational efficiency, in most cases supported by Technical Assistance programs. Despite these efforts, there still is a recognized need for ongoing training and capacity building to ensure that staff are equipped to handle the evolving demands of water and wastewater operations. There is no systematic approach to staff development or accessing information on new technologies.

Lack of sector coordination and sharing of knowledge

Across the sector there is a requirement for greater coordination and sharing of knowledge and information. Currently there are no systems in place to effectively tackle this issue.

Fill Key Positions and Strengthen PEWA

The Palau Energy and Water Administration (PEWA) was established in late 2022 to oversee and regulate the WSS sector. Capacity of PEWA is still weak and needs to be strengthened, in terms of staffing⁹ and financial resources.

6.2 Water Supply and Sanitation Policy Response

6.2.1 Policy Objectives and indicators

The objective of the WSS component of the water policy is to achieve:

1. Access to safe, affordable and sustainable water supply and wastewater services for all Palau's population
2. Effective, efficient and sustainable planning, management and operation of water supply and wastewater services.

Key performance indicators: Service levels and utility performance are based on standards set by the Government of Palau and with Pacific Benchmarks for WSS as established by the Pacific Water and Wastewater Association. A list of current KPIs is attached as annex 1 to this Policy.

KPIs will be reviewed from time to time by PEWA, in consultation with WSS stakeholders. If any KPIs change, PEWA will incorporate the revisions in annex 1 of the Policy.

6.2.2 WSS Policy Principles

The following principles have been applied in preparing this WSS Policy Document and will also guide its implementation:

1. Access to sufficient safe water and sanitation facilities is a human right. As such, the GoP will make every possible effort to make basic water and sanitation facilities available for the benefit of all.

⁹ Only the position of Director is currently filled which puts a heavy burden on one person and risks the sustainability and continuity of the regulator. While PEWA is supported by donor partners, key positions are not filled, including a water engineer, tariff expert, and support staff.

2. The right to a basic safe water supply and sanitation does not imply a right to free services. With the exception of emergency situations, users will be expected to contribute in part or full to the cost of providing and maintaining WSS services.
3. Water supply should not be considered in isolation from improved sanitation and long-term hygiene behaviour change as these are recognized as the most important factors in human health
4. Policy implementation will take into account the specific requirements of disadvantaged and marginalized groups, including the very poor, women, infants and children, the elderly and people with disabilities.
5. The delivery of services will adhere to strict minimum standards.
6. All existing laws, policies and regulations relating to water quality and quantity and sanitation will be adhered to.
7. The significant role that women and girls play in the provision and management of household water and in promoting improved hygiene and sanitation practices is recognized. The different gender roles and needs of men and women must be considered when planning, implementing and monitoring WaSH strategies, programmes and projects.
8. Having reliable, regularly updated data is important to inform the planning, management and monitoring of water utility performance. Regular data collection and monitoring are key to the monitoring and improvement of performance.

6.2.3 Policy Strategies and Implementation

The Objectives of the WSS component of the Water Policy will be achieved by pursuing the following strategies :

Strategy 1: Maintain an effective institutional and legal framework

1.1 Institutional and legal framework

To achieve the objectives for WSS, it is important that

1. The key actors in the WSS Sector have a clear mandate and understanding of their tasks and responsibilities,
There is effective sector coordination between the key actors and active consultation with and participation of stakeholders, and
2. An adequate legal and regulatory framework is in place

The current institutional and regulatory framework is adequate with the following key players and roles:

1. PEWA as the WSS Sector Policy Maker and Regulator of Tariffs
2. The Environmental Quality Protection Board (EQPB) as the “technical” regulator
3. The PPUC as the water and wastewater operator
4. The Environmental Health and Sanitation Division with responsibilities for on-site water supply and sanitation and public health education and communication
5. The Bureau of Environment and the States to oversee the conservation and protection of water resources for (among others) public WSS.

Detailed tasks and responsibilities of each organization are provided in Annex 1 of this Policy.

1.2 Sector Coordination

Coordination will be improved between organizations, across the sector and internationally:

1. To achieve effective coordination within the sector, the PEWA and PPUC, with support of the main sector organizations, will organize a bi-annual WSS Conference, with the purpose of monitoring and reporting on major developments, issues and progress in the WSS Sector and to exchange and share knowledge and information. All stakeholders in the sector, including NGOs and CSOs, will be invited to participate in the WSS Conference.
2. Internationally, PPUC is a member of the Pacific Water Supply and Wastewater Association (PWWA), and in this way support WSS sector representation and have access to technology and knowledge at the international level. PPUC will also maintain relations with other relevant organizations such as the American Water and Wastewater Association to keep up to date with the latest sector developments and knowledge.
3. For day-to-day coordination, sector organizations will make bilateral arrangements.

Strategy 2: Provide high quality, sustainable and efficient WSS services.

2.1 WSS service delivery and performance standards

1. In order to achieve efficient, sustainable and high-quality service delivery, PEWA and EQPB will set clear WSS service level and performance standards to be realized by PPUC.
2. In setting the service delivery standards, PEWA will make use of the standards and WSS regulations developed by the EQPB.
3. To ensure the efficiency of operations, PPUC will meet internationally accepted benchmarks on key performance indicators for WSS operators of similar size and under conditions comparable to Palau, for example a set of relevant Pacific Benchmarks as developed by the Pacific Water and Wastewater Association.
4. PEWA will develop a WSS Sector Monitoring Plan to ensure that both service standards as well as key performance indicators are regularly measured and monitored and if necessary enforced.

Clarification:

EQPB sets water quality standards for public drinking water supply and wastewater discharge. According to RPPL No 9-04 of 2013, section 411.8, PPUC also has the right to adopt WSS regulations and to set water and wastewater standards. This may create confusion. This Water Policy clarifies that in setting service delivery standards and regulations for public WSS in Palau, the EQPB standards and regulations prevail. However, PPUC may set standards and guidelines for materials and equipment used in public WSS.

2.2 Setting Water Supply and Sewerage tariffs

1. To cover the costs of providing the services, PPUC will charge fair WSS tariffs. Such tariffs will meet the following criteria:
 - a. Tariffs will cover the costs of providing the WSS services in accordance with the standards set by PEWA. PPUC will endeavor to provide such services in a reasonable and efficient manner.
 - b. Domestic tariffs will be structured in such a way that a basic quantity of water will be affordable for all groups of society, including low-income groups

- c. Water tariffs will be structured in such a way as to discourage wastage of water
- 2. PPUC will every year prepare an annual plan and budget. The annual plan and budget will include
 - a. An annual Business Plan and budget for providing WSS services
 - b. A multi year Investment Plan and budget covering the necessary investments needed to maintain the prescribed service levels, including the cost related to the servicing of debt. In case PPUC is not able to meet certain service level standards, the Investment Plan will include proposals and approaches on how and when PPUC intends to achieve compliance.
 - c. A detailed tariff proposal for covering both the operational and capital costs of PPUC.

The Annual Plan and the proposed water tariffs will be reviewed and approved by the PEWA. These documents will form the basis for an agreement between PEWA and PPUC, which will be signed by both parties, after which PPUC will be allowed to implement the approved tariffs.

2.3 Deviating from approved Water Supply and Sewerage tariffs

- 1. If the Government of Palau decides to request changes to the approved annual plans and/or WSS tariffs, it shall compensate PPUC for any additional costs or losses in revenues by means of a Community Service Obligation (CSO), in line with the Executive Orders of the President of Palau no 373 and no 465.
- 2. If GoP requests PPUC to charge different WSS tariffs, PPUC will prepare a proposal for compensation to be submitted for approval to the Regulator, and the Government will subsequently transfer the approved amount to PPUC in accordance with the CSO.

Strategy 3: Establish and implement a WSS monitoring system

- 1. The PEWA, as regulator of the WSS sector, will be responsible for coordinating and overseeing a comprehensive overall and transparent WSS Sector Monitoring Plan. The WSS Sector Monitoring Plan will
 - a. Define key performance indicators (KPI's) to be monitored and the minimum values in accordance with existing regulations and service level agreements.
 - b. Define the monitoring roles and responsibilities of all sector institutions, in line with their regulatory mandates and responsibilities.
 - c. Define the frequency and time periods over which the data are to be collected.
 - d. Define how and how often sector institutions will report the results of the monitoring activities and who will be able to access the data, with a view of providing transparency for all stakeholders.
- 2. The EQPB will independently monitor the performance of PPUC in line with its regulatory mandate and responsibilities. This will be done in accordance with the regulations that are already in place. The results of this monitoring will be presented in regular reports, that will be accessible to all stakeholders in the sector. If necessary, the above organizations will take adequate measures to ensure that PPUC meets the approved service delivery standards and KPIs. EQPB's capacity to monitor wastewater quality needs to be strengthened.

3. PPUC, as the service provider, will monitor its own performance against the service standards and performance indicators set by PEWA. For that purpose, it will develop and implement a Management Information System (MIS), in consultation with PEWA, including a baseline of key performance indicators, against which it will measure its performance on a regular basis, in line with the guidelines developed in the Monitoring Plan.
4. In addition to monitoring the service level standards set by PEWA and EQPB, PPUC will also ascertain that the services are provided in an efficient manner in accordance with internationally accepted benchmarks in the water sector. For this purpose, relevant performance indicators will be included in its MIS which can be used to measure its efficiency against (among others) the Pacific Benchmarks set by the Pacific Water and Wastewater Association (PWWA).
5. In case service levels and performance standards are below the standards set or endorsed by PEWA, PEWA will instruct the service provider to take mitigation measures to correct the shortfall(s) within a reasonable period of time. If the reasonable period of time has expired and the shortfall has not been corrected, PEWA will take enforcement measures, as follows:
 - a. With regard to shortcomings regarding service levels, PEWA will initiate the measures as per existing regulations.
 - b. With regard to shortcomings in efficiency, PEWA may charge the service provider in accordance with the extra costs caused to its customers.

Strategy 4: Safeguard and ensure access to water resources

4.1 Allocating water resources for Public Water Supply

1. Any organization or person in Palau wishing to use water resources for public water supply, needs to apply for a permit from EQPB (EQPB Public Water Supply and Drinking Water Regulations 2401-51-08).
2. As far as this has not yet been done, PPUC will apply for permits from EQPB for the use of water resources for public water supply for all its water supply systems. This may include groundwater, surface water or, when no alternatives exist, seawater.
3. In accordance with article 129 of the Environmental Quality Protection Act, water resources for public water and sanitation shall receive priority in the allocation of water.

4.2 Protecting and conserving water resources for public WSS

The protection and conservation of water resources, including those of public WSS, is the responsibility of MAFE-BoE and the State Governments, and the approach for this is described in chapter 1 of this Policy. In those areas where the quality of water sources is at risk, other potentially harmful developments should be avoided.



In areas where no clear strategy or plan for the protection of water resources for public WSS facilities exists, PPUC will consult with MAFE-BoE and the State Governments to assess which measures are necessary to adequately protect and maintain the water resources that have been allocated for public water supply. This can e.g. be done by applying buffer zones, by prohibiting certain land uses in the vicinity of the water resources used for public water supply and by declaring water conservation areas. For those sources actively used by PPUC for public water supply, PPUC will be responsible for maintenance.

4.3 Explore the potential of groundwater as a future water resource

The use of groundwater as a potential source for drinking water has certain distinct advantages, including lesser turbidity and a higher resilience to droughts. There are also some disadvantages in terms of high reported levels of iron and manganese which lead to high costs of maintenance. The availability of groundwater appears to be limited, but little is known and there are only limited data from past investigations.

Groundwater has so far only been used on a limited scale in a few locations. GoP is eager to learn more about this and plans to explore the potential of groundwater as an alternative source of water supply.

Therefore, the further exploration of the potential of groundwater as a source for water supply has been identified as an activity in the implementation plan of this Water Policy and PPUC will seek support from development partners and institutions for this purpose.

4.4 Prepare water security plans for each separate water supply system in Palau

1. PPUC will prepare a water security plan for each individual water supply system in Palau. Water security plans are strategic plans for an individual water supply scheme that aim at safeguarding the availability, quality, and equitable distribution of water and address current and future challenges and risks such as pollution, climate change and natural disasters.
2. The water security plan will, as a minimum, include i) a risk assessment identifying potential threats to water resources, ii) strategies to maintain a reliable supply of water, iii) demand management measures, iv) plans for infrastructure development, v) the need for (additional) regulations, vi) measures needed to adapt for climate change and vii) ways to involve communities and stakeholder. Water security plans are essential for ensuring that water resources are managed sustainably, meeting the needs of present and future generations while protecting the environment. The investments required to implement the water security plans will be included in PPUC's multi-year investment plan.

Strategy 5: Wastewater Management and Public Health Education

5.1 Public Sewerage Systems

1. In accordance with EQPB regulations, each property within the service area of the public sewerage system shall be connected to that system and will have sanitary facilities as prescribed in EQPB regulation 2401 – 13.
2. PPUC is in the process of improving the performance of its sewerage system and new trunk pipes are expected to become operational in 2025. PPUC will continue to invest in improving the operations of secondary and tertiary sewer pipes in the system.
3. The EQPB has established and is administering a permit system whereby a permit shall be required for the discharge by any person or organization of any pollutant in water.

4. PPUC, being the operator of public sewerage and wastewater treatment systems, will obtain permits for its sewerage systems and operate these in accordance with EQPB regulations and meet the wastewater discharge standards as set by the EQPB.
5. Both PPUC and EQPB will monitor the quality and quantity of wastewater discharged into the environment based on the EQPB standards and regulations. To realize this, the capacity of EQPB for wastewater monitoring will need to be upgraded.

5.2 On-site Water Supply and Sanitation Systems

1. In accordance with EQPB regulations, those households and industries not connected to a public sewerage system, will make their own arrangements and construct facilities to safely manage the discharge of wastewater. For this they need a permit from EQPB. Detailed guidelines for this are provided in EQPB regulation 2401-13.
2. The owner of the property not connected to a public sewerage system shall be responsible for adequate maintenance of the sanitary facilities, including the regular cleaning and emptying of septic tanks and similar facilities by an operator certified by EQPB.
3. Private operators for emptying of septic tanks can be approached by the owners. Those private operators normally discharge the sludge at the PPUC Wastewater Treatment Plants for further processing. PPUC will co-ordinate with the operators and DEH-BP to control and monitor the quality of the sludge and fluids brought to the WWTP, to ensure this will not disturb the regular treatment processes. EQPB will ensure that operators obtain a certificate for this purpose in accordance with article 2401-13-33 of the Wastewater treatment and discharge regulations.
4. The DEH-BPH shall carry out annual monitoring and inspection of on-site sanitation facilities and shall advise the owners in case of malfunction or shortcomings in the system. This will also include rainwater collection systems. Where necessary, DEH-BPH will advise EQPB to enforce the necessary repairs or modifications.
5. The DEH-BPH will carry out annual monitoring and inspection of sanitation facilities and installations in all primary and secondary schools.

5.3 Public Health Education and Communication

1. The DEH-BPH will carry out WaSH education programs in all primary (and secondary?) schools in Palau. DEH-BPH will work with the educational authorities in Palau to integrate public health and sanitation in the regular curricula of schools as appropriate.
2. The DEH-BPH will oversee and implement the communication with the public in case of public health emergencies, including those related to the quality of drinking water or wastewater spills and overflows. PPUC will establish clear communication lines and protocols with DEH-BPH for this purpose.
3. The Office of Epidemics monitors and reports on a weekly basis on the status of water borne diseases. These reports will be shared with EQPB, PPUC and DEH-BPH and where necessary DEH-BPH will oversee that adequate action is taken by the appropriate authorities.

7. Chapter 3 : Policy Implementation

7.1 Resourcing the Policy

7.1.1 Lack of capacity and financial resources

Palau is a very small country with very limited human and financial resources.

- In the water supply and sanitation sector, organizations like PPUC, EQPB and DEH-BPH D have limited capacity to carry out the policy, and, as explained earlier in this document, PPUC currently lacks the means to finance the significant investments necessary to improve its performance. In addition, PPUC will also need technical assistance in specific areas such as NRW reduction and energy efficiency improvement.
- In the WRM sub sector, no major investments are foreseen, but MAFE BoE and the States lack the human resources capacity and know how to implement large parts of the Water Policy. Especially in the preparation and implementation of the Watershed Management Strategy and the National Water Resources Management Plan, technical assistance will be needed.

Because of this, the Water Policy includes a proposal for technical and financial assistance to water sector organizations, and it recommends that the Government of Palau approaches its development parties to request support for its implementation. The main components of such a support program are outlined below.

7.1.2 Water Sector Policy Support Program

WSS

There are several areas in which PPUC will need to improve its performance, including improvement in service levels and efficiency. To achieve these improvements, investments and technical assistance are needed to achieve the targets set in this policy, including the following activities:

1. Assess water quality issues in small WSS systems and prepare and support an investment program to bring Water Quality up to standard
2. Assess PPUCs performance problems and ongoing TA programs (such as the NRW program with JICA) and formulate a Performance Improvement Program to improve efficiency in terms of reduced NRW, improved energy efficiency and labour productivity.
3. Assess the performance of PPUCs sewerage system, after the main trunks have become operational, and implement sewerage enhancement action plan.
4. Assist PPUC in developing and implementing a Management Information System
5. Support in organising and implementing the biennial WSS conference (in conjunction with the WRM conference)

WRM

Similarly, for BAFE-MoE and EQPB

6. Assist in preparing and implementing Watershed Management Strategies to ensure the protection and conservation of water resources for various PPUC WS systems
7. Assist in preparing a National Water Resources Management Plan based on the strategies and plans prepared for the various Watersheds, including a water resource monitoring plan.
8. Establishment of streamflow recording.

9. Support in organising and implementing the biennial IWRM conference (in conjunction with the WSS conference)
10. Assist in the preparation of a WMS Funding strategy
11. Assist in the preparation and implementation of a Training and a Communication Plan
12. Strengthen the capacity of EQPB to measure wastewater quality in line with its own standards and regulations.

7.2 Capacity Development and Training

1. Water Sector Organizations, including PEWA, PPUC, EQPB, MAFE-BoE and DEH-BPH, will every five years, identify the technical, and non-technical knowledge and skill requirements, alongside the types of expertise needed to provide the required WSS and WRM services.
2. Each organization will determine the most effective and efficient manner of obtaining access to state-of-the-art knowledge and know-how to address these requirements: either by recruiting and/or training of staff (“in house”) or by obtaining the knowledge through third parties (consultants, contractors, water utilities, universities, etc.).
3. Based on the above inventory, the organizations will develop and implement a capacity development program for staff to ensure that the required areas of knowledge and expertise in WSS and WRM are available with (multiple) staff members in the respective organizations and embedded in the organizations’ systems, procedures and approaches.
4. Every year the organizations will include a capacity building and training plan in their annual plans and budgets.
5. In addition to the above, water sector organizations will identify international networks, partnerships, vendors and other third parties which can be utilized to obtain access to or purchase the knowledge and expertise which cannot be accessed in Palau.
6. This Water Policy and the Water Sector Regulations put a heavy burden on EQPB in terms of monitoring water quality and the issuing of permits and enforcement. EQPB’s capacity is limited, and therefore the development of its capacity will require special attention and support.
7. PEWA, being the sector regulator, will monitor and coordinate the development and implementation of capacity development plans for the water sector.

8. Chapter 4: Policy Implementation and Monitoring Plan

8.1 Water Resources Management

Objective 1 The effective management, protection and conservation of Palau's water resources.	1. 100% of High and Medium risk watersheds identified in the risk assessment are implementing Watershed Management Strategies by 2031. 1. Notwithstanding unprecedented emergencies identified in the WMS emergency response plans Water quality in rivers, lakes, and reservoirs meet EQPM minimum standards 100% of the time within 5 years of preparing a WMS. 2. Overarching National Water Resources Management Plan prepared and approved based on the various Watershed Management Strategies.		
Objective 2 Sustainable access to a safe water supply to meet the demands for domestic, commercial and industrial water supply, agriculture and the environment that is resilient to anticipated impacts of climate change	3. All water users can access water at least 90% of the time. 4. All users above a defined threshold have EQPB permits. 5. Stream flow measurements and water quality testing demonstrate improved resilience and recovery to periods of drought and high intensity rainfall events.		
Strategy 1: Protect and restore existing watersheds and Protect water quality to meet environmental standards.			
Key milestones	Responsibility	Time Frame	Indicators
Risk assessments to prioritise watersheds completed	MAFE-BoE	By end of Year 2	National risk assessment available that categorises watersheds in High, Medium and Low risk
Hydrological surveys conducted according to prioritised need.	MAFE-BoE	100% of High priority watersheds surveyed by end of year 3. 100% medium risk Watersheds surveyed by year 5	Hydrological surveys conducted according to TOR and available
Watershed Management Strategies prepared	MAFE-BoE	100% of High priority WMS prepared by year 4 100% of Medium risk WMS prepared by year 6	WMS completed and available, complete with management strategies, water allocation plans, and relevant emergency response plans and supporting legislation.
Training plans developed and training provided on monitoring and enforcement to State authorities and State Rangers	MAFE-BoE	Training completed in all States during the preparation of the WMS	Training courses completed

National Water Resources Management Plan prepared and approved by Administration	MAFE-BoE	End of year 6	NRWM plan approved by Parliament and being implemented.
WMS Fund feasibility report produced	MAFE-BOE	End of year 1	
Strategy 2: Strengthen Participatory Governance Frameworks			
Key milestones	Responsibility	Time Frame	Indicators
Training plan prepared and implemented to support the implementation of the WMS and NWRM Plan	MAFE-BoE	Rolled out alongside preparation of WMSs	Consolidated training plan available that coordinates existing with proposed new activities.
Biennial Water Resource Management Conference	MAFE-BoE	First conference to be held in Year 3 with delegates from National and State governments, NGOs and civil society.	Conference held
Strategy 3: Strengthen Monitoring and Evaluation Data Management System			
WRM monitoring system developed	EQPB	By end of year 1	WRM Monitoring approaches documented .
Stream flow meters installed in key rivers	MAFE-BoE	In all High-risk watersheds by year 5	Availability of flow data
Data management and reporting framework developed and operational	MAFE-BoE	By end of year 3	Documented procedures for monitoring and reporting available. Monitoring reports available .
Strategy 4: Develop Communication Platform			
Key milestones	Responsibility	Time Frame	Indicators
Communication strategy written and implementation schedule developed	MAFE-BoE	By end of year 2	Communication strategy developed along with a scheduled implementation strategy

8.2 Water Supply and Sanitation

Objective 1 Access to safe, affordable and sustainable water supply and wastewater services for all Palau’s population	1. Overall Access of the population of Palau to safe water supply 100% 2. Overall Access of the population of Palau to safe sanitation 100%			
Objective 2 Effective, efficient and sustainable planning, management and operation of water supply and wastewater services.	1. PPUC service level indicators as listed in Annex..... (coverage, continuity, quality and quantity) 2. PPUC performance Indicators as listed in Annex.... (NRW, Energy efficiency, Cost Recovery, Collection, metering, staffing, training) 3. PPUC Maturity of Systems indicators as listed in Annex (% of capacity used, % of EPA certified plants, power supply reliability)			
Strategy 1: Maintain an effective institutional and legal framework				
Key milestones	Responsibility	Time Frame	Indicators	
1. PPUC Annual Operational and Investment Plans and tariff proposals prepared	PPUC	Annual	Plan	
2. PPUC Operational and Investment Plans and tariff proposals approved and implemented	PEWA/PPUC	Annual	Agreement signed	
3. EQPB monitors (waste) water quality of PPUC and (with support of DEH-BPH) of on-site WSS facilities and enforces as required	EQPB/DEH-BPH	Monthly	EQPB water quality indicators	
4. PPUC obtains permit for Water Supply and Sewerage operations from EQPB	PPUC/EQPB	Year 1	WSS permits PPUC granted	
5. PPUC and EQPB to clarify regulations regarding setting of standards and guidelines for WSS	PPUC/EQPB	Year 1	PPUC Act/EQPB regulations clarified	
Strategy 2: Provide high quality, sustainable and efficient WSS services				
Key milestones	Responsibility	Time Frame	Indicators	
1. Improve Water Quality in small Water Supply Schemes	PPUC	5 years	EQPB water quality indicators	
2. Reduce Non-Revenue Water Levels in Koror-Airai system	PPUC	5 years	Achieve PWWA benchmark	
3. Improve energy efficiency of water supply and wastewater operations	PPUC	5 years	Achieve PWWA benchmark	
4. Improve Labour Productivity	PPUC	5 years	Achieve PWWA benchmark	
5. Improve Cost Recovery Ratio	PPUC	5 years	Achieve 100% full cost recovery	
6. Improve operation of the sewerage system to avoid blockages and storm water intrusion	PPUC	5 years	Improved operation of the sewerage system measured in PPUC MIS	
Strategy 3. Establish a WSS sector monitoring system				

Key milestones	Responsibility	Time Frame	Indicators
1. PPUC to develop Management information System in consultation with PEWA and EQPB	PPUC	Year 2	PPUC-MIS operational
2. DEH-BPH to develop monitoring system on site WSS in consultation with EQPB	DEH-BPH	Year 1	DEH-BPH Monitoring system operational
3. EQPB to design and publish its own WSS sector monitoring schedule	EQPB	Year 1	EQPB WSS Monitoring Schedule
4. EQPB to enhance its capacity for monitoring of wastewater quality	EQPB	Year 1	EQPB able to measure wastewater quality in line with its own standards
Strategy 4: Safeguard access to water resources for public water supply			
Key milestones	Responsibility	Time Frame	Indicators
1. PPUC to apply for water allocation permit from EQPB to use water sources for public water supply	PPUC/EQPB	Year 2	Water allocation permit obtained
2. PPUC to work with BoE on protection of water resources for public water supply based on Watershed Management Strategies	BOE	As per WRM plan	As per WRM plan
Strategy 5: Improve Wastewater Management and Public Health Education			
Key milestones	Responsibility	Time Frame	Indicators
1. Maximize number of connections to the sewerage system	PPUC	2 years	Coverage sewerage system in service area
2. DEH-BPH to monitor designs and state of maintenance of on-site sanitation systems (septic tanks, etc.) and water supply facilities (rainwater tanks) in houses and schools	DEH-BPH	Continuous	DEH-BPH reports
3. PPUC to establish procedures with certified operators for emptying of septic tanks	PPUC, operators	1 year	Procedures approved and implemented
4. DEH-BPH to provide public health education to the public and in schools and communicate on health emergencies	DEH-BPH	Continuous	DEH-BPH reports

Annex 1: List of Institutions and Responsibilities

The table below identifies the key actors in the sector and summarizes the mandates and key tasks and responsibilities and their legal basis. The PEWA and MAFE-BoE will regularly review if the institutional and legal framework of the sector is adequate, and where necessary, action will be taken by the appropriate authority to correct or mitigate any issues.

Organization	Key tasks and responsibilities in Water and Sanitation and legal basis
Palau Energy and Water Administration (PEWA)	PEWA is the regulatory authority for Energy and Water and operates under the Ministry of Finance. It was established and is guided by RPPL 11-18 of November 2021. Its main tasks are to - Develop the national water and sewerage policy - Develop a regulatory framework for the water and wastewater sector - Regulate the power and wastewater sector. - Develop an accountable and transparent process for the setting of electricity and water rates - Review and approve electricity, water and wastewater tariffs - Review and approve major business contracts of PPUC
Ministry of Agriculture Fisheries and Environment (MAFE)	The MAFE-BoE within MAFE is responsible for the protection of Palau's natural environment, conservation of precious resources including land and water, and promotion of sustainable development through regulatory oversight and enforcement. Main tasks and responsibilities include: - Develop policies including the National Water Policy of 2012 and the National Environmental Management Strategy 2022-2030 - Develop and implement the Protected Areas Network and support states in this area - Undertake conservation activities in protected areas - Declare and regulate surface and groundwater conservation areas - Monitoring of surface water and groundwater resources
The Environmental Quality Protection Board (EQPB)	EQPB is an autonomous agency reporting to the President and was created by the 1981 Environmental Qualities Protection Act. Its key tasks and responsibilities are as follows: - To promulgate and enforce regulations for (among others) public water supply, marine and freshwater quality, and wastewater disposal - Set criteria for the classification of land and water resources in accordance to their future uses - Develop standards and guidelines in support of the above tasks - Maintain a system of permits for the allocation of water to users based on an approved Water Resources Management Plan. - Develop and maintain a permit system and issue permits for wastewater discharge and monitor water quality. - Prepare monthly reports on water quality for all PPUC water supply systems.

	- Prepare an annual report on the state of the environment.
The Palau Public Utilities Corporation (PPUC)	PPUC is a public corporation guided by the 2013 Utilities Consolidation Act (RPPL 9-4). PPUC is overseen by a Board of Directors, which in turn reports to the President. Key tasks and responsibilities include: - The efficient supply of piped drinking water and the collection through public sewerage and discharge of wastewater in accordance with accepted management practices - To develop, maintain and operate water supply and sewerage systems and installations - To charge and collect adequate tariffs to cover the costs of the above tasks, subject to approval of PEWA - To develop policies, procedures, and plans that enable and support the above tasks and responsibilities
Ministry of Health – Bureau of Public Health – Division of Environmental Health (DEH-BPH).	DEH-BPH is guided by the Regulation on Environmental Health and Sanitation. Its main tasks include: - Issue and monitor food and water quality permits for restaurants. - monitor the quality of rainwater in rainwater tanks, especially in outlying states. - Issue warnings to the public when water is polluted. - carry out annual environmental assessments of houses outside of Koror/Airai area, including septic tanks, which have to be built according to building regulations. - implement WaSH education programs in schools - inspection of school sanitary facilities.
State Governments	Palau has 16 states, which are responsible for - work with BoE in the management of the water resources in their areas of jurisdiction, including the preparation and implementation of Watershed Management Plans - designating protected areas under the Protected Areas Network - Develop land use zoning and masterplans for the Protected Areas - Monitor protected and conservation areas and water resources and enforce as necessary
National Emergency Monitoring Organization (NEMO)	NEMO is responsible for all aspects of Disaster Management and works with the National Emergency Committee. Key tasks include: - Maintains the National Disaster Plan. - Assist in the development of Agency Support Plans - Coordinate development of public education programs. - Coordinate and assist in the training of disaster related skills. - Support the Emergency Operation Centre. - Coordinate state and national disaster management planning. - Periodically review state and national regulations.
Palau Automated Land and Resource	Under the Bureau of Planning, Ministry of Finance. Key tasks include: - Developing and maintaining a GIS for mapping

Information System (PALARIS)	-	assist States in preparation of Land use zone maps.
Palau Conservation Society		Civil society organization formed in 1994. Has supported State Governors in the preparation of Land Use zones. Responsibilities include to represent various parts of society in issues related to WSS and WRM.
Chamber of Commerce	of	Established in 1992. Core objectives to create jobs and grow the economy . Interested in the economic impact of water quality and supply. Responsibilities include to represent the Palau business community in issues related to WSS and WRM.
National Environmental Protection Council (NEPC)		Ensures all stakeholders are coordinated in the application of environmental and sustainable development responses and programs. Sets annual National priorities, prepares NEPC strategic Plan.

Annex 2: List of applicable regulations

Legislation/Policy /Plan	Key features
Constitution of Palau	Gives the State Government oversight of fresh and marine water resources out to 12 miles at sea. The states have the right to change classification of waters within their boundaries.
National Water Policy 2012	Original Water policy prepared by MAFE. Used to inform this update.
Utilities Consolidation Act 2013	Establishes the PPUC. Provides it with the powers to acquire, store, treat, market water and wastewater and to earn sufficient revenue to fund its operating costs. Also to establish a structure of rates calculated to ensure adequate and equitable charges are imposed for its services
Environmental Quality Protection Act 1981	Developed to ensure greater protection of the environment while promoting economic and social growth. Created the Environmental Quality Protection Board (EQPB) with regulatory authority over: Earthmoving, Marine and Fresh Water quality, Wastewater Disposal, Solid waste management, Pesticides, Public Water Supply system, EIAs, Air pollution control and Ozone depleting substances. Also regulates the allocation of water between different users, with priority for water for public WSS.
Palau Energy and Water Administration Act (last updated in 2021)	Extends the powers of the regulatory authority PEWA to include water. Operates under the Min. of Finance. Has sole regulatory authority for the energy and the water and wastewater sectors.
National Disaster Risk Management Framework 2010 (amended 2016)	Focuses on enhancing the country's resilience to natural and human-induced disasters. It emphasizes preparedness, response, recovery, and mitigation strategies, ensuring that government agencies, communities, and stakeholders work together effectively. The framework promotes the integration of risk reduction into national planning and sustainable development initiatives. Additionally, it advocates for strengthening infrastructure, capacity-building, and community engagement to minimize vulnerabilities and improve disaster response mechanisms.
Land Planning Act Title 31	The Act mandates that each state government develop a comprehensive master plan. Gives the States the responsibility of land Use planning and zoning for the entire state (public land and private land). Lists the types of zoning codes that can be applied. Includes the establishment of planning commissions. It also emphasizes sustainable development, ensuring that land use planning supports both economic growth and environmental conservation.
Palau Protected Areas Network Act 2003	Establishes a nationwide framework that empowers communities to designate and manage marine and terrestrial protected areas. It provides standards, criteria, application

Legislation/Policy /Plan	Key features
	processes, technical and sustainable financial assistance for management and monitoring of sites.
Palau Climate Change Policy 2015	Developed to build the resilience of Palau to climate change and disasters.
Palau's Sustainable Forest Management Policy 2018	Prepared by the Forestry division MAFE with the goal of supporting forest resource management and biodiversity. Has three focus areas: Conserve Working Forest Landscapes, Protect Forests from Harm, and Enhance Public Benefits from trees and forests to be implemented through 6 objectives. Identifies Palau's different forest types, locations and threats .
Palau Development Plan 2023-2026	The Palau Master Development Plan is the roadmap by which Palau achieves sustainable development. It articulates development priorities for Palau. Includes priorities expressed in the State Master Plans
Sustainable Land Management Policy, April 2012	Develops a vision for sustainable land management and integrated land use and management. Emphasises the use of Land planning and zoning.
Palau National Infrastructure and Investment Plan 2021-2030	Outlines the government's plans for major infrastructure investments in order to meet the governments development goals. Includes investments for water production facilities, pumping stations and distribution lines as well as wastewater collection and treatment facilities.
Palau First Voluntary National Report on the Sustainable Development Goals June 2019	A comprehensive analysis of Palau's progress towards the SDGs
Protected Areas Network (PAN) Strategic Plan 2016-2020	Identifies PANs priority challenges. • Alignment between National and site level conservation goals . • Capacity of agencies and states to service the network and high staff turnover • Funding Identifies 4 goals of increasing: Governance, Capacity of the PAN network, Community Engagement and Funding
EPQB Regulations (related to water)	Relevant regulations include: - Earthmoving, - Marine and Fresh water quality, - Waste treatment and disposal, - Solid waste, - Pesticides, - Public water supply and drinking water, - Environmental Assessment and Environmental Impact Statement

Annex 3: Key Performance Indicators for WRM

The KPIs identified below monitor the implementation of the WRM policy and identifies targets for 4 key indicators over the next 5 years over the next 5 years.

		KPI	Responsibility
1	No. of WMS developed.	100% of High and Medium risk watersheds completed by 2032	MAFE-BoE
2	Water in the WMS monitored monthly for quality.	100% WMS water tested	EQPB
3	Increase in the area of protected land and buffer zones protected by legislation	% increase	MAFE-BoE
4	Percentage of water resources (rivers, lakes, groundwater) meeting national water quality standards defined by EQPB Marine and Freshwater Quality Regulations.	100% by 2032	EQPB
5	Percentage of users extracting water with EQPB permits	100% by 2032	
6	WMS Funding strategy operational to support implementation of the WMS	BY 2026	
7	Percentage of days per year with uninterrupted water supply to domestic, commercial, and agricultural sectors.	90%	MAFE-BoE
8	Improved resilience to, and recovery from, drought, intense rainfall events and storm water management	% Increase in Base flow measurements during periods of drought. ¹⁰ % reduction in Peak flow events % increase in time to peak flow	MOE-BoE

¹⁰ For this KPI to be measured, flowmeters need to be installed in major rivers and this will require financial and technical assistance.

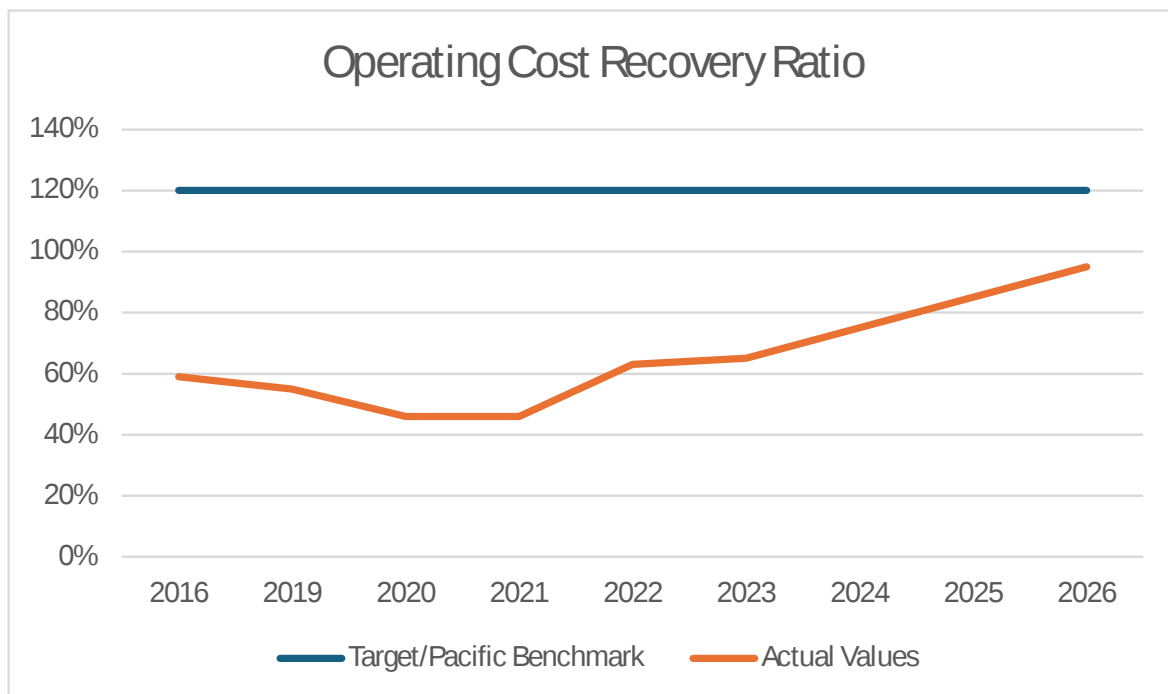
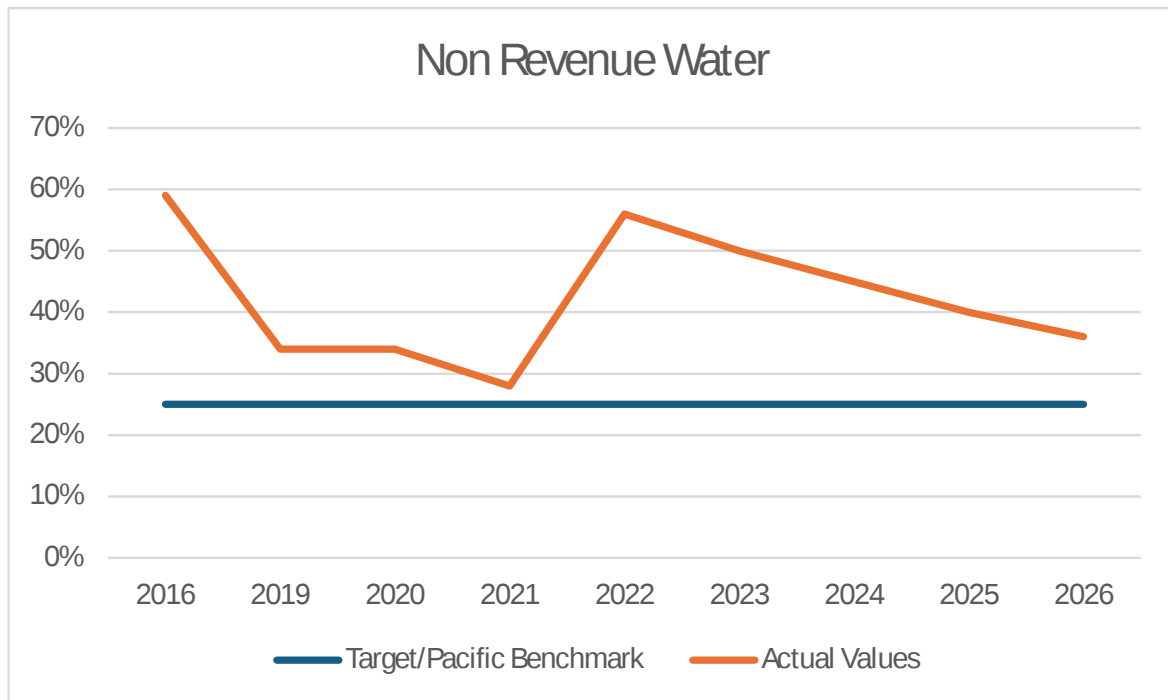
Annex 4: Key Performance Indicators for WSS

A list of Key Performance Indicators for Water Supply and Sanitation is presented in the table below.

Overall WSS Sector Performance					
Type of indicator	Key Performance Indicator	Agency responsible	Unit	Target	
Water Supply	Overall Access to safe water	DEH-BPH /PPUC	%	100%	100%
	Quality of drinking water	DEH-BPH /PPUC/EQPB		EQPB standards	
	Overall Access to safe sanitation	DEH-BPH /PPUC	%	100%	100%
Sanitation	Quality of wastewater discharged	DEH-BPH /PPUC/EQPB		EQPB standards	
PPUC Service Levels					
Inclusiveness	Drinking Water Coverage in service area	PPUC	%	100%	100%
Water Supply	Sewerage Coverage in service area	PPUC	%	100%	100%
	Continuity of service	PPUC	hours/day	24/7	24/7
	Quantity (average residential consumption)	PPUC	Gallons per day	TBD	TBD
Wastewater	Water Quality parameters	PPUC/EQPB	Various	EQPB standards	EQPB standards
	Continuity of service	PPUC	descriptive	24/7	24/7
	Wastewater quality parameters	PPUC/EQPB	various	EQPB standards	EQPB standards
PPUC Performance					
Technical	Non-Revenue Water	PPUC	%	Pacific Benchmarks	
	Energy Efficiency	PPUC	%	< 25%	< 25%
Financial	Operating Cost Recovery Ratio (excl depreciation)	PPUC/PEWA	%	TBD	TBD
	Billing efficiency (collection of bills)	PPUC	%	120%	120%
HRM	Staff per 1000 connections	PPUC	Number FTE	95%	95%
	% of EPA certified treatment operators	PPUC	%	8	8
Metering	Metering Ratio (Including government institutions)	PPUC	%	TBD	TBD
	Collection Ratio	PPUC	%	100%	100%
		PPUC	%	95%	95%
Maturity of PPUC Systems					
Technical Systems	% Water production capacity used	PPUC	%	75%	75%
	% Sewerage capacity used	PPUC	%	75%	75%
	% of EPA certified treatment plants	PPUC	%	TBD	TBD
	Power Supply Reliability	PPUC	%	100%	100%

It is recommended that with regard to efficiency, PEWA and PPUC consult to develop a realistic set of KPIs and agree on a time path to achieve the targets, as indicated in the examples below:

Annex 5: Palau Water Sector Roadmap 2030



PPUC Service & Efficiency Levels		
	Measures	Target
	Water	By 2030, Non-Revenue Water to reduce to 45%
	Waste water	By 2030, waste-water flow meters installation at INLET SITES at all PPUC major waste water treatment plants.
	Financial	By 2030, Operating Cost Recovery Ratio (excluding depreciation) improved by 3%
		By 2030, Billing efficiency (collection of bills) measures and improvement efforts implemented.



THE WORLD BANK

