



# Technical Assistance Report

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Project Number: 48486-001  
Capacity Development Technical Assistance (CDTA)  
December 2015

## Republic of Palau: Water and Sanitation Sector Management

This document is being disclosed to the public in accordance with ADB's Public Communications Policy 2011.

**Asian Development Bank**

## CURRENCY

Palau uses the United States dollar as its currency.

## ABBREVIATIONS

ADB	–	Asian Development Bank
KASP	–	Koror–Airai Sanitation Project
KAWIP	–	Koror–Airai Water Supply Improvement Project
PPUC	–	Palau Public Utilities Corporation
PWSC	–	Palau Water and Sewer Corporation
TA	–	technical assistance
WWOD	–	Water and Wastewater Operations Division

## NOTES

- (i) The fiscal year (FY) of the Government of Palau and its agencies ends on 30 September. “FY” before a calendar year denotes the year in which the fiscal year ends, e.g., FY2015 ended on 30 September 2015.
- (ii) In this report, "\$" refers to US dollars.

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## CAPACITY DEVELOPMENT TECHNICAL ASSISTANCE AT A GLANCE

<b>1. Basic Data</b>		<b>Project Number: 48486-001</b>	
<b>Project Name</b>	Water and Sanitation Sector Management	<b>Department /Division</b>	PARD/PAUS
<b>Country</b>	Palau, Republic of	<b>Executing Agency</b>	Ministry of Finance
<b>2. Sector</b>	<b>Subsector(s)</b>	<b>ADB Financing (\$ million)</b>	
✓ Water and other urban infrastructure and services	Urban sanitation		0.25
	Urban water supply		0.25
		<b>Total</b>	<b>0.50</b>
<b>3. Strategic Agenda</b>	<b>Subcomponents</b>	<b>Climate Change Information</b>	
Inclusive economic growth (IEG)	Pillar 2: Access to economic opportunities, including jobs, made more inclusive	Climate Change impact on the Project	Low
Environmentally sustainable growth (ESG)	Disaster risk management Urban environmental improvement		
<b>4. Drivers of Change</b>	<b>Components</b>	<b>Gender Equity and Mainstreaming</b>	
Private sector development (PSD)	Conducive policy and institutional environment Public sector goods and services essential for private sector development	No gender elements (NGE)	✓
<b>5. Poverty Targeting</b>		<b>Location Impact</b>	
Project directly targets poverty	No	Rural Urban	Low High
<b>6. TA Category:</b>	B		
<b>7. Safeguard Categorization</b>	Not Applicable		
<b>8. Financing</b>			
<b>Modality and Sources</b>		<b>Amount (\$ million)</b>	
<b>ADB</b>		<b>0.50</b>	
Capacity development technical assistance: Technical Assistance Special Fund		0.50	
<b>Cofinancing</b>		<b>0.00</b>	
None		0.00	
<b>Counterpart</b>		<b>0.00</b>	
None		0.00	
<b>Total</b>		<b>0.50</b>	
<b>9. Effective Development Cooperation</b>			
Use of country procurement systems		No	
Use of country public financial management systems		No	

## I. INTRODUCTION

1. The Palau Public Utilities Corporation (PPUC) is mandated by the Government of Palau to deliver water supply and sewerage services throughout Palau. PPUC is currently implementing several major water supply and sanitation improvement projects, which have highlighted its limited capacity for strategic oversight of the sector and weak technical capacity in planning, delivering, and managing water and wastewater services. To solve this urgent problem, the government has requested technical assistance (TA) from the Asian Development Bank (ADB) to improve water and sanitation sector management.<sup>1</sup> The design and monitoring framework is in Appendix 1. The TA complements other ADB assistance to PPUC through TA for Strengthening Public Sector Management in the North Pacific, and the Koror–Airai Sanitation Project (KASP).<sup>2</sup>

## II. ISSUES

2. **Sector reform.** In 2010, the government began a program to reform Palau's water and sanitation sector, which would also help overcome public and environmental health issues, as well as constraints on tourism development, Palau's major economic driver. Palau has made substantial progress in the reform program and in addressing the drivers for the reforms. Before, Palau's water and sanitation sector was characterized by (i) an inadequate legal and regulatory framework; (ii) low water tariffs and high water consumption; (iii) fragmented responsibilities for managing and delivering sector services; (iv) inefficient operations and management; (v) insecure water supply systems, prompting projections of water shortage in Koror because of excessive demand growth and high system losses; and (vi) frequent uncontrolled overflows from the dilapidated Koror sewer system, and unsuitable soils in Arai for on-site wastewater treatment and disposal. These problems are causing environmental and public health issues with serious impacts on the economy. The limited capacity of the Koror sewer network also discourages investments in tourism, particularly proposed hotels in Malakal, because Palau's Environmental Quality Protection Board requires all new hotel developments in Koror to treat wastewater on site until Koror's sewerage system is rehabilitated and expanded.

3. The legal and regulatory frameworks to create an independent and autonomous water and sewerage authority operating on commercial principles and targeting full cost recovery have been established. Following the adoption of the Water and Sewer Corporation Act of 2010, the Palau Water and Sewer Corporation (PWSC) was established in September 2011 and started operations in August 2012. In June 2013, PWSC and PPUC were consolidated under the Utilities Consolidation Act (Republic of Palau Public Law No. 9-4, 2013) to form an independent and autonomous electricity, water, and sewerage corporation and thereby improve cost efficiencies in the delivery of such services. Within PPUC, the Water and Wastewater Operations Division (WWOD) was established to deliver public water and sanitation services. PPUC is governed by a board of directors comprising seven members who are appointed by the President of Palau, with the advice and consent of the Palau Senate.

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<sup>1</sup> The target impact, outcome, outputs, activities, and implementation arrangements were agreed during consultations with the Government of Palau and PPUC in August 2015 and are recorded in a memorandum of understanding dated 14 August 2014. The TA first appeared in the business opportunities section of ADB's website on 26 October 2015.

<sup>2</sup> ADB. 2013. *Technical Assistance for Strengthening Public Sector Management in the North Pacific*. Manila; ADB. 2011. *Report and Recommendations of the President to the Board of Directors: Proposed Loans to the Republic of Palau: Koror–Airai Sanitation Project*. Manila.

4. A new water and sewerage tariff structure was introduced on 7 February 2011. Water and sewerage tariffs have been incrementally increased each year, and PPUC is on track to fully recover the costs of water supply and sewerage operations and maintenance, debt servicing, and depreciation by fiscal year 2017.

5. **Sector investments.** Palau has embarked on an ambitious investment program to replace inadequate sanitation infrastructure and to improve the security and reliability of Palau's water supply systems, particularly those in Koror and Airai. ADB approved loans for KASP in the amount of \$28.8 million equivalent on 19 November 2013, targeting improved environmental and public health in Koror and Airai through better delivery of sanitation services by PPUC. KASP will implement high-priority components of the Koror–Airai Sanitation Master Plan, such as (i) rehabilitation of the sewerage network in Koror, (ii) provision of new sewage treatment facilities in Koror and Airai, and (iii) construction of a sewer network to service Kesabelau in Airai. On 28 May 2015, the Japan International Cooperation Agency signed a grant agreement with the Government of Palau in the amount of up to ¥1.843 billion (\$15.3 million equivalent) for the Koror–Airai Water Supply Improvement Project (KAWIP), which will improve the water transmission mains, reform water distribution zones, and replace water distribution pipelines in Koror and Airai.

6. **Water and wastewater service capacity of Palau Public Utilities Corporation.** Until the consolidation of the PWSC into PPUC in 2013, PPUC's core business was the supply of electricity. PPUC's technical capacity to deliver electricity services is well established and resourced, enabling it to provide reliable, accessible, and affordable electricity to most of Palau's population. However, PPUC's capacity to deliver reliable and sustainable water and wastewater services is limited. WWOD's qualified technical staff comprises two expatriate engineers, a graduate engineer who leads WWOD's capital works program, and several water and wastewater treatment plant operators. Given the large water supply and wastewater investments, the technical capacity of WWOD urgently needs to be strengthened. Although ADB is providing short-term capacity-building assistance to PPUC through the provision of a water and wastewater advisor,<sup>3</sup> such advisory services are required for a substantially longer period to enable effective and sustained knowledge transfer.

### III. THE CAPACITY DEVELOPMENT TECHNICAL ASSISTANCE

#### A. Impact and Outcome

7. The impact will be improved water supply and sanitation services in Palau through the delivery of robust and well-planned infrastructure, and is aligned with Palau's Medium-Term Development Strategy, 2009–2014 and the Palau's Management Action Plan goal to “continue to upgrade and develop Palau's infrastructure to act as a catalyst for strong private sector growth and foreign direct investment.”<sup>4</sup> The TA outcome will be improved operational performance of PPUC's water supply and sewerage systems.

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<sup>3</sup> The water and wastewater advisor has been recruited to provide urgently required technical guidance to PPUC for a period of 3 months from October 2015 under the Technical Assistance for Sector and Thematic Assessment for Policy Development. ADB. 2014. *Technical Assistance for Sector and Thematic Analyses in Policy Development*. Manila.

<sup>4</sup> Government of Palau. 2008. *Medium-Term Development Strategy, 2009–2014*. Melekeok; Government of Palau. 2013. *Management Action Plan*. Melekeok.

## **B. Methodology and Key Activities**

8. The TA will strengthen PPUC's capacity to (i) plan, deliver, manage, and operate the upgraded water supply and sewerage services; and (ii) provide strategic oversight on both specific and general sector issues through the provision of a highly experienced water and wastewater advisor who will provide on-the-job training and mentoring over a period of 24 months.<sup>5</sup> The advisor will help strengthen PPUC's water and wastewater operations with strategic oversight, guidance, and quality assurance for (i) the KASP and KAWIP project steering committees, and (ii) PPUC's project management unit. At the strategic level, the water and wastewater advisor will provide policy and planning advice on the development and operation of Palau's public water supplies and wastewater systems. At the operational level, the same advisor will provide technical advice for the sustainable operation and maintenance of PPUC's water supply and wastewater systems and provide technical oversight and quality review (on behalf of the government and PPUC) of PPUC's investment projects. The draft terms of reference for the water and wastewater advisor are in Appendix 3.

## **C. Cost and Financing**

9. The TA is estimated to cost \$550,000, of which \$500,000 will be financed on a grant basis by ADB's Technical Assistance Special Fund (TASF-V). The government will provide counterpart support in the form of counterpart staff, office space, furniture, and other in-kind contributions.

## **D. Implementation Arrangements**

10. The TA executing and implementing agency will be the Ministry of Finance. An individual international consultant (the water and wastewater advisor) will be engaged to provide 22.5 person-months of inputs over a period of 24 months from March 2016, and will be recruited in accordance with ADB's Guidelines on the Use of Consultants (2013, as amended from time to time). The government has requested that the water and wastewater advisor report to the Minister of Finance to enable close oversight by the Ministry of Finance of PPUC's water and wastewater operations until PPUC's delivery of water and wastewater services improves. It is anticipated to progressively improve as PPUC's current water supply and wastewater investments are commissioned. The water and wastewater advisor will, however, work on a daily basis with (i) the PPUC chief executive officer, (ii) the PPUC Water and Sanitation Project Management Unit, and (iii) the PPUC water operations manager. TA funds shall be disbursed in line with the *Technical Assistance Disbursement Handbook* (2010, as amended from time to time).

## **IV. THE PRESIDENT'S DECISION**

11. The President, acting under the authority delegated by the Board, has approved the provision of technical assistance not exceeding the equivalent of \$500,000 on a grant basis to the Government of Palau for Water and Sanitation Sector Management, and hereby reports this action to the Board.

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<sup>5</sup> Although PPUC is a state-owned enterprise, it is unusual for companies to be TA beneficiaries, and ADB's Office of Anticorruption and Integrity assisted with integrity due diligence of PPUC. The Office of Anticorruption and Integrity concluded that the potential integrity and reputational risk arising from ADB's association with PPUC and its related entities is low.

## DESIGN AND MONITORING FRAMEWORK

<b>Impact the Technical Assistance is Aligned with</b>			
The impact of the TA will be improved water supply and sanitation services in Palau through the delivery of robust and well-planned infrastructure, and is aligned with Palau's Medium-Term Development Strategy, 2009–2014 and the Management Action Plan goal to “continue to upgrade and develop Palau's infrastructure to act as a catalyst for a strong private sector growth and foreign direct investment.” <sup>a</sup>			
<b>Results Chain</b>	<b>Performance Indicators with Targets and Baselines</b>	<b>Data Sources and Reporting</b>	<b>Risks</b>
<b>Outcome</b>  Improved operational performance of PPUC's water supply and sewerage systems.	<p>a. Operational subsidies to PPUC's water from the government and wastewater services are no longer required by FY2017. (FY2014 baseline: \$1.7 million)</p> <p>b. The continuity of water supply to the residents of Koror and Airai increases to 99.9% by 2018. (2015 baseline: 95%)</p> <p>c. The number of uncontrolled sewage overflows is reduced by more than 20% by FY2018. (2015 baseline: more than 50 uncontrolled overflow events)</p>	<p>a. FY2017 PPUC audit report, PPUC annual reports</p> <p>b. PPUC annual reports</p> <p>c. PPUC annual reports</p>	<p>The PPUC board does not support proposed incremental water and sewer tariff increases for FY2016.</p> <p>Implementation of KAWIP is delayed.</p> <p>Implementation of KASP is delayed.</p>
<b>Outputs</b>  1. PPUC's capacity to plan and deliver water supply and sewerage services is strengthened.	<p>1a. PPUC–WWOD asset management and development plan—e.g., asset register, personnel plan, budget, and performance targets—prepared by 30 June 2017. (2015 baseline: not prepared)</p> <p>1b. PPUC–WWOD Disaster Response Plan prepared by 31 December 2016. (2015 baseline: not prepared)</p>	<p>1a. PPUC Asset Management and Development Plan; PPUC annual reports</p> <p>1b. PPUC Asset Management and Development Plan; PPUC annual reports</p>	<p>PPUC–WWOD technical and project managerial resources are not retained.</p>



Results Chain	Performance Indicators with Targets and Baselines	Data Sources and Reporting	Risks
2. PPUC capacity to use technical planning and management systems strengthened.	<p>1c. Numerical network models of the Koror and Airai water supply and sewerage systems are fully established and calibrated by 31 August 2016. (2015 baseline: models being developed)</p> <p>2a. PPUC–WWOD personnel can competently develop, update, calibrate, and fully utilize water supply and sewerage numerical network models by 31 August 2016. (2015 baseline: 0)</p> <p>2b. By 31 December 2017, PPUC–WWOD personnel can competently plan and manage PPUC–WWOD strategic operations and maintenance and capital works programs. (2015 baseline: 0)</p>	<p>1c. PPUC Asset Management and Development Plan; PPUC annual reports</p> <p>2a. PPUC personnel reports</p> <p>2b. PPUC personnel reports</p>	

### Key Activities with Milestones

#### Output 1: PPUC's capacity to plan and deliver water supply and sewerage services is strengthened

- 1.1 Water supply demand projections for all PPUC water supply systems, and the sewer load projections for the Koror and proposed Airai sewerage systems updated by 30 June 2016.
- 1.2 Numerical network models of the Koror and Airai water supply and sewerage systems are fully established and calibrated by 31 August 2016.
- 1.3 Preventative maintenance programs for PPUC water supply and sewerage assets endorsed by the PPUC board by 30 September 2016 and operationalized by 1 January 2017.
- 1.4 Standard operating procedures and checklists prepared for all PPUC water supply and sewerage systems by 31 December 2016.
- 1.5 PPUC–WWOD Disaster Response Plan prepared by 31 March 2017.
- 1.6 PPUC–WWOD asset management and development plan—e.g., asset register, personnel plan, budget, and performance targets—prepared by 30 June 2017.

#### Output 2: PPUC capacity to utilize and operationalize current technical planning and management tools is strengthened

- 2.1 PPUC–WWOD personnel (two minimum) undergo training and coaching in the development and calibration of water supply and sewerage numerical network models by 31 August 2016.
- 2.2 PPUC–WWOD personnel (two minimum) undergo training and coaching in the preparation, updating, and implementation of the asset management and development plan by 31 December 2017.

<b>Key Activities with Milestones</b>
<p><b>Inputs</b>            ADB: \$500,000 (grant)</p> <p>Note: The government will provide counterpart support in the form of counterpart staff, office space, furniture, and other in-kind contributions.</p>
<p><b>Assumptions for Partner Financing</b>            Not applicable.</p>

ADB = Asian Development Bank, KASP = Koror–Airai Sanitation Project, KAWIP = Koror–Airai Water Improvement Project, PPUC = Palau Public Utilities Board, WWOD = Water and Wastewater Operations Division.

<sup>a</sup> Government of Palau. 2008. *Medium-Term Development Strategy, 2009–2014*. Melekeok; Government of Palau. 2013. *Management Action Plan*. Melekeok.

Source: Asian Development Bank.

**COST ESTIMATES AND FINANCING PLAN**

(\$)

<b>Item<sup>a</sup></b>	<b>Amount</b>
<b>Asian Development Bank</b>	
1. International consultant	
a. Remuneration and per diem	366,000
b. International and local travel	56,000
c. Housing allowance	46,000
2. Workshops	10,000
3. Contingencies	22,000
<b>Total</b>	<b>500,000</b>

Note: The technical assistance (TA) is estimated to cost \$550,000, of which contributions from the Asian Development Bank are presented in the table above. The government will provide counterpart support in the form of counterpart staff, office space, office furniture, and other in-kind contributions. The value of government contribution is estimated to account for 9.1% of the total TA cost.

Source: Asian Development Bank estimates.

## OUTLINE TERMS OF REFERENCE FOR CONSULTANTS

### A. Scope of Work

1. The water and wastewater advisor will assist Palau Public Utilities Corporation (PPUC) in strengthening its water and wastewater operations by providing strategic oversight, guidance, and quality assurance to the (i) steering committee of the Koror–Airai Sanitation Project (KASP) and (ii) PPUC’s project management unit (PMU). The water and wastewater advisor will assist PPUC in building capacity to plan, design, implement, and deliver sustainable water supply and sewerage systems.

### B. Detailed Tasks

2. Specific tasks and responsibilities of the water and wastewater advisor are:
- (i) Provide strategic advice to the Ministry of Finance, the KASP steering committee, and the PMU on policies and policy development for the delivery of sustainable water supply and wastewater services and infrastructure in Palau.
  - (ii) Assist the PPUC board and management to strengthen its Water and Wastewater Operations Division (WOOD) with personnel plans, budgets, asset register, asset management and development plans, and policies relating to PPUC—water customer obligations, operational performance targets and benchmarks, tariffs, and charges.
  - (iii) Help PPUC strengthen emergency procedures and disaster management plans to ensure that its water supply and wastewater services are maintained during emergencies and disasters, and that WOOD personnel are trained in emergency procedures. Ensure that proper communication channels are maintained to alert the public and the officials concerned of actions and issues relating to any emergency.
  - (iv) Undertake technical reviews and provide assessments of water and wastewater engineering designs, strategies, and reports prepared for PPUC.
  - (v) Where appropriate, undertake an analysis of PPUC’s water supply and wastewater networks, and design and implement programs to optimize network performance cost-effectively; to minimize technical and nontechnical losses (water supply networks), inflow, and infiltration (wastewater networks); and to minimize the energy required to effectively operate the water supply and wastewater networks at the agreed level of service.
  - (vi) Advise management of current and impending technical issues in providing water supply and wastewater services to PPUC customers, and propose technically and financially appropriate options for consideration by management.
  - (vii) Update water supply demand and sewer loading projections for the PPUC water supply and wastewater.
  - (viii) Assist PPUC in estimating the cost of delivering its water supply and wastewater services, including operations and maintenance costs, depreciation, and debt servicing. Identify and assess suitable water supply and wastewater tariff structures, for consideration by PPUC management and the PPUC board, for various levels of cost recovery, including (a) recovery of water supply and wastewater operations and maintenance costs; (b) recovery of water supply and wastewater operations and maintenance costs and water supply and wastewater asset depreciation; and (c) recovery of water supply and wastewater operations and maintenance costs, water supply and wastewater asset depreciation, and debt servicing.

- (ix) Design and implement operational procedures for the PPUC water supply and wastewater networks.
- (x) Assist PPUC design and implement preventative maintenance programs and ensure that PPUC's water supply and wastewater assets remain in serviceable condition at all times.
- (xi) Mentor and coach PPUC–WOOD technical personnel to strengthen PPUC's capacity to plan, implement, operate, and maintain its water and wastewater systems.

### **C. Required Qualifications, Experience, and Attributes**

3. The water and wastewater advisor will have a degree in civil engineering, with a minimum of 20 years of water utility experience. The last 10 years of work experience must be in a senior leadership capacity, including demonstrated experience in the development of water supply and sanitation policies, and provision of strategic policy advice at a senior management level. The advisor will report to the chair of the KASP steering committee. The advisor must have demonstrated knowledge in the following areas: (i) contract management of water supply projects, (ii) planning and design of water supply schemes, (iii) quality assurance and quality control systems, (iv) environmental requirements for civil infrastructure development, (iv) organizational change management and capacity building in water supply utilities, (v) electronic project scheduling, and (vi) health and safety in the workplace.

### **D. Output and Reporting Requirements**

4. The specific outputs and reporting requirements of the water and wastewater advisor will include

- (i) monthly progress reports; and
- (ii) other outputs required from time to time, as mandated by the KASP steering committee, the PPUC chief executive, and the PMU team leader.

### **E. Place of Assignment and Timeframe**

The advisor will be assigned in Palau for 22.5 person-months total, from 14 March 2016 to 13 March 2018 on an intermittent basis.