



Report and Recommendation of the President to the Board of Directors

Project Number: 42439
October 2013

Proposed Loans Republic of Palau: Koror–Airai Sanitation Project

This document is being disclosed to the public prior to its consideration by ADB's Board of Directors in accordance with ADB's Public Communications Policy 2011.

Asian Development Bank

CURRENCY EQUIVALENTS

The currency unit of Palau is the United States dollar.

ABBREVIATIONS

| | | |
|-------|---|------------------------------------|
| ADB | – | Asian Development Bank |
| CIP | – | Capital Improvement Program Office |
| GDP | – | gross domestic product |
| IMF | – | International Monetary Fund |
| KASMP | – | Koror–Airai Sanitation Master Plan |
| LIBOR | – | London interbank offered rate |
| MOF | – | Ministry of Finance |
| OCR | – | ordinary capital resources |
| PIA | – | project implementation assistance |
| PMU | – | project management unit |
| PPUC | – | Palau Public Utilities Corporation |
| SDR | – | special drawing right |
| STP | – | sewage treatment plant |
| TA | – | technical assistance |
| WSIP | – | Water Sector Improvement Program |

NOTES

- (i) The fiscal year (FY) of the Government of Palau ends on 30 September. “FY” before a calendar year denotes the year in which the fiscal year ends, e.g., FY2010 ends on 30 September 2010.
- (ii) In this report, "\$" refers to US dollars.

| | |
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PROJECT AT A GLANCE

| | | | |
|--|--|--|----------------------------|
| 1. Project Name: Koror–Airai Sanitation Project | | 2. Project Number: 42439-013 | |
| 3. Country: Palau, Republic of | | 4. Department/Division: Pacific Department/Urban, Social Development & Public Management Division | |
| 5. Sector Classification: | | | |
| | | Sectors | Primary |
| | | Water supply and other municipal infrastructure and services | √ |
| | | Subsectors | |
| | | Water supply and sanitation | |
| 6. Thematic Classification: | | | |
| | | Themes | Primary |
| | | Economic growth | |
| | | Environmental sustainability | √ |
| | | Capacity development | |
| | | Subthemes | |
| | | Promoting economic efficiency and enabling business environment | |
| | | Urban environmental improvement | |
| | | Institutional development | |
| 6a. Climate Change Impact | | 6b. Gender Mainstreaming | |
| Adaptation | | Low | |
| | | Gender equity theme (GEN) | |
| | | Effective gender mainstreaming (EGM) | |
| | | Some gender benefits (SGB) | |
| | | No gender elements (NGE) | |
| | | | |
| 7. Targeting Classification: | | 8. Location Impact: | |
| | | National | |
| | | Rural | |
| | | Urban | |
| | | Low | |
| | | Low | |
| | | High | |
| | | | |
| 9. Project Risk Categorization: Low | | | |
| 10. Safeguards Categorization: | | | |
| | | Environment | |
| | | Involuntary resettlement | |
| | | Indigenous peoples | |
| | | B | |
| | | C | |
| | | C | |
| 11. ADB Financing: | | | |
| | | Sovereign/Nonsovereign | Modality |
| | | Sovereign | Project loan |
| | | Sovereign | Project loan |
| | | Total | |
| | | Source | |
| | | Asian Development Fund | |
| | | Ordinary capital resources | |
| | | | |
| | | Amount (\$ Million) | |
| | | 1.9 | |
| | | 26.9 | |
| | | 28.8 | |
| 12. Cofinancing: | | | |
| No Cofinancing available. | | | |
| 13. Counterpart Financing: | | | |
| | | Source | Amount (\$ Million) |
| | | Government | 1.2 |
| | | Total | |
| | | 1.2 | |
| 14. Aid Effectiveness: | | | |
| | | Parallel project implementation unit | |
| | | Program-based approach | |
| | | No | |
| | | No | |

I. THE PROPOSAL

1. I submit for your approval the following report and recommendation on the proposed loans to the Republic of Palau for the Koror–Airai Sanitation Project.¹ The project will provide priority sanitation infrastructure identified in the Koror–Airai Sanitation Master Plan (KASMP).²

II. THE PROJECT

A. Rationale

2. **Economic performance and prospects.** In 2012, about 80% of Palau's population of 20,966 lived in Koror and Airai, and 118,754 tourists visited Palau and visitor arrivals to Palau increased by 3.6% over the first half of fiscal year (FY) 2013. Tourism accounted for roughly half of the nation's gross domestic product (GDP) of \$231.9 million in FY2012.³ The average tourist stay is 4 nights, equivalent to a population increase of 6%.⁴ Palau's economy has overcome the effects of the global financial and economic crises, posting GDP growth of 6.3% in FY2012, with growth forecast at 3.0% in both FY2013 and FY2014. Longer-term growth prospects are positive given the country's appeal to tourists from Japan, the Republic of Korea, and Taipei, China. To support tourism growth, the country's basic public infrastructure must be upgraded and maintained. Improved water and sewerage infrastructure and an additional 500 hotel rooms are needed to accommodate current and projected visitors.

3. **Public finance and debt.** The government is in a strong position to undertake long-term investments to upgrade infrastructure needed to sustain economic growth. It recorded a current account surplus (including grants) equivalent to 5.9% of GDP in FY2012. The International Monetary Fund (IMF) projects Palau's current account surplus to remain at this level through to FY2017. Strong growth in tourist arrivals underpins Palau's economic growth and rising current account surpluses, and is expected to continue. The IMF estimates the country's external debt as 34.5% of GDP in FY2012, comprising 11.9% official government debt, 17.9% public enterprise debt, and 4.7% other.⁵ With planned Asian Development Bank (ADB) and other loans, the country's external debt to GDP ratio is expected to rise to 48.9% by the end of 2013 (7.7% official government debt and 41.2% public enterprise debt) in nominal terms. This is below the 50% threshold for debt sustainability applied by the IMF for countries with strong policy environments (based on the ADB and World Bank country performance assessment scores) if considered in terms of present value (i.e., discounting future payments).

4. **Sector management.** Palau's phased sanitation master plan, the KASMP, is based on extensive stakeholder consultation. The government has adopted a new water resource management policy to manage national and state water resources and Palau's Parliament, the Obiil Era Kelulau (OEK), has approved legislation to regulate the abstraction of water from the nation's fresh water sources.⁶ Through the creation of the Palau Water and Sewer Corporation (PWSC) in September 2011, the Government has integrated water and sewerage services into a single state-owned enterprise responsible for the delivery of water supply and sewerage services. The Utilities Consolidation Act 2013, aimed at optimizing efficiency in the management

¹ The design and monitoring framework is in Appendix 1.

² The KASMP was prepared under Asian Development Bank. 2009. *Technical Assistance to the Republic of Palau for Preparing the Sanitation Sector Development Project*.

³ International Monetary Fund (IMF). 2013. *2013 Staff Visit to the Republic of Palau: Concluding Statement of the IMF Mission*.

⁴ Government of Palau. 2009. *Medium-Term Development Strategy: A Plan for Action*. Koror.

⁵ Only official government debt is serviced through consolidated revenue, public enterprise and other debt is serviced by the enterprises themselves and is only a contingent liability of the government.

⁶ Government of Palau. 2012. *The Water Policy for the Republic of Palau*. Koror. Government of Palau. 2013. Republic of Palau Public Law 9-44. *The Water Abstraction Act*. Melekeok.

and delivery of power, water and sewerage services, has consolidated the PWSC and the Palau Public Utilities Corporation.⁷ PPUC is now mandated to deliver electricity, water and sewerage services and the PPUC water and wastewater operations division has been established to manage and operate Palau's water and sewerage services. The Water Sector Improvement Program (WSIP) is supporting establishment of the PPUC Water and Wastewater Operations division.⁸ Implementation of the WSIP has been delayed in some areas, but all policy actions are now complete. The creation of the PPUC Water and Wastewater Operations division and its development as a commercial enterprise is a first step toward possible private sector engagement in future.

5. **Sector financial stability.** The government is implementing its policy to achieve full cost recovery for water supply and sewer services by the end of FY2015. The Water and Sewer Corporation Act 2010 and the Utilities Consolidation Act 2013 specify that tariffs must be set so that they recover all operation and maintenance costs, depreciation, and indebtedness. The tariff structure became effective in April 2011 and includes volumetric water and sewer tariffs for domestic and nondomestic connections. Tariff increases also improve demand side management to reduce an unsustainably high level of per capita water consumption. Lifeline blocks to protect the poor and vulnerable are set below the cost of delivery. By 2015, the monthly water bill for households in the 5th income quintile is estimated at 4.1% of monthly income. In 2011, the government spent \$3.8 million for water and sewerage services. The government aims to achieve the following targets by the end of FY2015: (i) government subsidies reduced from 74% (2011) to zero (ii) tariff collection efficiency improves from 92% (2011) to 95%, and (iii) nonrevenue treated water reduced from 43% (2010) to 25%.

6. **Sewer system condition and capability.** Koror's centralized sewerage system services more than 80% of the population. The sewerage network comprises 40 kilometers of gravity mains, 13 kilometers of force (pumped) mains, 48 pump stations, and a sewage treatment plant (STP) located on the island of Malakal. For the most part, the commercial sector of the city is located at the crest of the ridge and the residential hamlets stretch down to the coast. Sewage is pumped up to the ridge and flows to the STP. Two other islands, connected by causeways, are part of the network. The sewer network and STP is over 30 years old. While the STP and some pump stations have been refurbished in the last 10 years, these have not been maintained or operated as designed.

7. The current sewerage flow exceeds the design capacity of the network and the STP. This causes overflows at the low-lying pump stations and subsequent discharge of effluent to the natural and built-up environment, including through people's homes, taro patches, and into the lagoon. There are an increasing number of overflows as the network deteriorates. The problem is exacerbated by: (i) poor maintenance, (ii) inadequate emergency response capability, (iii) groundwater infiltration, and (iv) illegal storm-water connections.

8. The state of Airai, adjacent to Koror, does not have a sewerage system. Kesebelau is a growing new residential division in Airai responding to lack of available land for new housing in Koror. Currently it has 300 homes; this is expected to double by 2036. The soil types and allotment sizes are unsuitable for septic tanks, which frequently overflow discharging effluent through properties and into nearby water courses.

9. **Adverse effects of insufficient sewer capacity.** The degraded condition, limited capacity of the Koror sewerage network, and rapid development and unsuitable soils for septic tanks in Arai are causing environmental and health issues with serious impacts on the economy:

⁷ Republic of Palau Public Law 9-4: The Utilities Consolidation Act 2013.

⁸ ADB. 2010. *Report and Recommendation of the President to the Board of Directors: Proposed Loans to the Republic of Palau for the Water Sector Improvement Program*. Manila.

- (i) **Environmental issues.** With limited flushing within Palau's lagoons, sewage overflows result in a buildup of waste, which damages the fragile marine and mangrove ecosystem. The government has placed swimming bans in some areas near tourist hotels and local swimming spots.
- (ii) **Health issues.** The failure of the sewer system is placing the health of Palau's citizens at risk. From 1 April 2011 to 31 March 2012, Koror had 862 cases of gastroenteritis.⁹ Fifty percent of these occurred in the last quarter of 2011 when sewerage overflows were the greatest. Development of a much more serious waterborne disease, such as cholera, is a risk.
- (iii) **Impact on the economy.** The potential economic costs of the failures in the sewerage system include (i) direct and indirect health cost; (ii) overflow clean-up costs; and (iii) potential loss of tourism revenue associated with the impact of a serious disease outbreak. The long-term reputational risk to Palau's tourism industry from a major disease outbreak could be significant.

10. **Government policy and strategy.** The country's development plans are encapsulated in the Medium-Term Development Strategy (footnote 4). Two of the five priority actions are to (i) position Palau as the island of choice for environmentally conscious visitors and realize higher income from tourism; and (ii) make critical investments in sanitation, water, and power and prioritize maintenance. The ADB country partnership strategy 2009–2013 for Palau¹⁰ directly supports these priority actions, which are also consistent with priorities set in ADB's Strategy 2020¹¹ and the Pacific Approach.¹² The project is identified in the country partnership strategy and responds to the ADB sector assessment.¹³

11. **Sustainability of sector reforms.** ADB is supporting an integrated response to improving water and sanitation services in Palau. The WSIP has been supporting institution building and PPUC water and wastewater operations, especially in the areas of board operations, utility management, utility operation management, and financial management.¹⁴ Regional technical assistance (TA) has been complementing capacity building support through the Pacific Private Sector Development Initiative and the Pacific regional twinning program.¹⁵ The project will share a common steering committee and implementing agency with the WSIP, providing mutually reinforcing support for organizational and capacity development, technical advice, infrastructure improvements, and community participation. To ensure sustainability of sewage treatment operations, a design, build, and operate contract will be tendered with operations to continue for 5 years after infrastructure commissioning, as well as for training existing staff in operation and maintenance.

B. Impact and Outcome

12. The impact of the project will be improved environment and public health in Koror and Airai. The outcome of the project will be improved delivery of sanitation services by PPUC.

⁹ Initial Environmental Examination (accessible from the list of linked documents in Appendix 2).

¹⁰ ADB. 2009. *Country Partnership Strategy: Palau, 2009–2013*. Manila.

¹¹ ADB. 2008. *Strategy 2020: The Long-Term Strategic Framework of the Asian Development Bank 2008–2020*. Manila.

¹² ADB. 2009. *ADB's Pacific Approach 2010–2014*. Manila.

¹³ Sector Assessment (Summary): Water Supply and Other Municipal Infrastructure and Services (Water Supply and Sanitation) (accessible from the list of linked documents in Appendix 2).

¹⁴ ADB. 2009. *Regional Technical Assistance for Pacific Private Sector Development Initiative, Phase II*. Manila. Water Sector Improvement Program Progress (accessible from the list of linked documents in Appendix 2).

¹⁵ ADB. 2012. *Technical Assistance for Knowledge and Innovation Support for ADB's Water Financing Program*. Manila.

C. Outputs

13. **Output 1: Effective, efficient, and sustainable sewage collection systems in Koror and Airai.** The sewerage network in Koror will be rehabilitated and augmented to (i) minimize the frequency and severity of uncontrolled sewage overflows; (ii) reduce the energy requirement to operate the network; (iii) improve the operation of the network through real-time system monitoring; and (iv) enable rapid response to disruptions in sewerage services resulting from system failures. A sewerage network will be constructed at Kesebelau (Airai) connecting the residential and commercial dwellings to an STP.

14. **Output 2: Sewage treatment and disposal meets Palau's environmental standards.** Sewage collected in the Koror and Airai sewerage networks will be treated at new STPs to be constructed at Koror and Airai. Effluent from the new STPs will meet Palau's environmental discharge quality standards. The STP in Koror will be consolidated on a much smaller footprint further from the coast than the existing STP, protecting the infrastructure from future storm-surge damage and releasing land for tourism development. The new STPs will be procured under design, build, and operate contracts.

15. **Output 3: Safe and hygienic public toilet facilities in Koror are available.** Six public toilet facilities will be refurbished or built in key locations in the major tourist precincts, which lack modern public toilet facilities for tourists and female residents. PPUC will manage the existing and new facilities.

16. **Output 4: Effective project management.** The project management unit (PMU), supported by project implementation assistance (PIA) consultants, will provide project design and supervision, monitoring, reporting, quality and cost control, and contract administration.

D. Investment and Financing Plans

17. The project is estimated to cost \$30.0 million and will be implemented over 8 years. The investment plan is summarized in Table 1.

Table 1: Project Investment Plan
(\$ million)

| Item | Amount |
|---|-------------|
| A. Base Cost^{a, b} | |
| Output 1: Effective, efficient, and sustainable sewage collection | 8.5 |
| Output 2: Sewage treatment and disposal meets environmental standards | 12.9 |
| Output 3: Safe and hygienic public toilet facilities are available | 0.1 |
| Output 4: Effective project management | 2.7 |
| Subtotal (A) | 24.2 |
| B. Contingencies^c | 4.6 |
| C. Financing Charges during Implementation^d | 1.2 |
| Total Project Cost (A+B+C) | 30.0 |

^a Including taxes and duties of \$1.2 million.

^b In mid-2012 prices.

^c Physical contingencies are 15%. Price contingencies average 2.7% for local currency costs and 0.5% for foreign costs during project implementation (using Asian Development Bank price escalation factors).

^d Includes interest and commitment charges. Interest during construction was computed for 2012–2020 at the 5-year forward London interbank offered rate (LIBOR) plus a spread of 0.5% inclusive of a maturity premium of 0.1%. Annual commitment charges are estimated at 0.15% on undisbursed loan balances. The Asian Development Bank has waived front-end fees.

Source: Asian Development Bank.

18. The government has requested (i) a loan of \$26.9 million from ADB's ordinary capital resources; and (ii) a loan in various currencies equivalent to SDR1.258 million from ADB's

Special Funds resources to help finance the project. The ordinary capital resources loan will have a 25-year term, including a grace period of 5 years, straight-line method, an annual interest rate determined in accordance with ADB's London interbank offered rate (LIBOR)-based lending facility, a commitment charge of 0.15% per year, and such other terms and conditions as set forth in the loan and project agreements.¹⁶ Based on this, the average loan maturity is 15.25 years and the maturity premium payable to ADB is 0.10% per annum. The loan from ADB's Special Funds resources will have a 32-year term, including a grace period of 8 years, an interest rate of 1.0% per annum during the grace period and 1.5% per annum thereafter, and such other terms and conditions set forth in the draft loan agreement. The financing plan is in Table 2.

Table 2: Financing Plan

| Source | Amount (\$ million) | Share of Total (%) |
|----------------------------|---------------------|--------------------|
| Asian Development Bank | | |
| Special Funds resources | 1.9 | 6.3 |
| Ordinary capital resources | 26.9 | 89.7 |
| Government of Palau | 1.2 | 4.0 |
| Total | 30.0 | 100.0 |

Source: Asian Development Bank estimates.

E. Implementation Arrangements

19. The Ministry of Finance (MOF) will be the executing agency. PPUC will be the implementing agency. The PMU will be created in the PPUC Water and Wastewater division comprising PPUC personnel and staff seconded from the Environmental Quality Protection Board, and MOF. PPUC will be responsible for project implementation, including all procurement. The implementation arrangements are summarized in Table 3 and described in detail in the project administration manual (PAM).¹⁷

Table 3: Implementation Arrangements

| Aspects | Arrangements |
|---------------------------------|---|
| Implementation period | January 2014–February 2022 |
| Estimated completion date | February 2022 |
| Management | |
| (i) Oversight body | Program Steering Committee. Minister of Finance (chair); and representatives from Ministry of Public Infrastructure, Industries and Commerce; Office of the President; and the Palau Public Utility Corporation Board. |
| (ii) Executing agency | Ministry of Finance |
| (iii) Key implementing agencies | Palau Public Utilities Corporation |
| (iv) Implementation unit | Consisting of 7 staff (5 from PPUC and 2 government employees) supported by project implementation assistance consultants. |
| Procurement | International competitive bidding 2 contracts \$19.8 million |
| Consulting services | Quality- and cost-based selection 250 person-months \$3.173 million |
| Advance contracting | Consulting services contract for project implementation assistance for design, procurement, and supervision |
| Disbursement | The loan proceeds will be disbursed in accordance with Asian Development Bank's Loan Disbursement Handbook (2012, as amended from time to time) and detailed arrangements agreed upon by the government and the Asian Development Bank. |

Source: Asian Development Bank.

¹⁶ The interest includes a maturity premium of 10 basis points.

¹⁷ Project Administration Manual (accessible from the list of linked documents in Appendix 2).

20. **Development partner programs.** No development partners are currently providing infrastructure support for water and sewerage networks in Koror and Airai. Japan's technical cooperation program provides a laboratory technician to support sewage monitoring.¹⁸

III. DUE DILIGENCE

A. Technical

21. To address the public health and environmental concerns in Koror and Airai, an integrated approach addressing both sewage collection and treatment is required. Three alternative approaches were considered in developing the project. They reflect the options identified through public consultation and were considered technically feasible. The project adopted the least-cost approach that (i) minimized operation management risks, (ii) was the lowest environmental risk, and (iii) offered the greatest flexibility for future growth.

22. In the Koror sewerage network, dilapidated and undersized sewers will be replaced using high-density polyethylene pipes, already used in Palau's water distribution network. Rebuilding and refurbishing the pump stations will address the poor condition of these assets and rationalize the mechanical infrastructure thereby reducing spares and facilitating equipment specialization. The Koror STP will employ sequencing batch reactor technology, while the Kesebelau STP will use extended aeration technology, both considered appropriate for the capabilities of PPUC.

B. Economic and Financial

23. **Financial analysis.** The financial analysis of the project was undertaken in accordance with ADB requirements and considered commitments under the WSIP.¹⁹ For the calculation of the financial internal rate of return, incremental revenues and costs were estimated by comparing the with- and without-project conditions. Costs were estimated at 2012 prices taking into account foreign and domestic inflation. The real weighted average cost of capital for the project is 1.63% per annum. The financial internal rate of return is 5.86% and is between 3.47% and 5.08% under sensitivity analysis of increasing capital costs, operations and maintenance by 20% and decreasing revenue by 20% or a project delay by one year.²⁰

24. In Palau, tourists use 2.5 times more water than residents. An equivalent population measure is used to assess the sewage loadings by type of system user. In Koror, the equivalent population in 2013 is estimated to be 17,147, of which the contribution by hotels, restaurants, and other commercial activities is estimated at 41%. Table 4 summarizes the expected tariffs to achieve full cost recovery by 2015.²¹ By setting a much higher increase in nondomestic rates, the projected revenue collection from the commercial sector is estimated to be 73% in 2013 and 80% and above from 2015 onward. For hotels, this additional weighting is expected to result in an increase of room night costs of only \$1 to \$2, considered to be insignificant.

¹⁸ Development Coordination (accessible from the list of linked documents in Appendix 2).

¹⁹ ADB. 2005. *Financial Management and Analysis of Projects*. Manila, and ADB. 2009. *Financial Due Diligence A Methodology Note*. Manila.

²⁰ Details of the sensitivity analysis are in the Financial Analysis (accessible from the list of linked documents in Appendix 2).

²¹ The Water Sector Improvement Program provides subsidies for water supply and sewerage services to enable the gradual increase of water and sewage tariffs and achieve full cost recovery by 2015, at which point the government will no longer provide budget to support the delivery of water and sewage services.

Table 4: Proposed Tariffs (\$)

| Item | FY2013 | FY2014 | FY2015 | FY2016 | FY2017 | FY2018 | FY2019 |
|--|--------|--------|--------|--------|--------|--------|--------|
| Water: Lifeline ^a | 1.29 | 1.41 | 1.47 | 1.53 | 1.59 | 1.65 | 1.72 |
| Nondomestic ^b | 2.54 | 3.38 | 4.51 | 5.41 | 6.49 | 6.75 | 7.02 |
| Sewer: ^c Domestic | 0.33 | 0.35 | 0.36 | 0.38 | 0.39 | 0.41 | 0.43 |
| Nondomestic | 2.87 | 3.44 | 4.13 | 4.95 | 5.94 | 6.18 | 6.43 |
| PPUC revenue, commercial sector (%) | 73.00 | 76.00 | 80.00 | 81.00 | 82.00 | 82.00 | 82.00 |

FY = fiscal year, PPUC = Palau Public Utilities Corporation .

^a The billing cycle for water and sewerage tariffs is monthly. The lifeline tariff is the domestic tariff for 5,000 gallons/household/month. 5,000 gallons is 18,925 liters (1 gallon = 3.785 liters).

^b The nondomestic tariff applies for domestic consumption in excess of 5,000 gallons/month.

^c Domestic and nondomestic sewer rates are \$/1,000 gallons of water used.

Source: Asian Development Bank estimates.

25. **Economic analysis.** Economic analysis for the project compared the with- and without-project scenarios to calculate the benefits and incremental costs over the planning time frame of 25 years. The economic costs are based on the with-project scenario and include (i) project implementation costs, (ii) ongoing operating costs, and (iii) residual value of assets at the end of 25 years. Economic benefits of the project include (i) improved asset management, (ii) avoided health costs and production losses from waterborne disease, (iii) avoided costs from sewerage overflows, and (iv) avoided loss of national income from a disease outbreak resulting in a sharp and sustained downturn in tourist arrivals in Palau.

26. The economic internal rate of return is estimated at 18.4% with a net present value of \$14.3 million. The sensitivity analysis examined the impacts of (i) a 20% increase in costs; (ii) a 20% decrease in benefits; and (iii) a 20% increase in costs and a 20% decrease in benefits. Under these scenarios, the economic internal rate of return remains above 12%.²²

C. Governance

27. **Financial management.** The financial management assessment includes a review of the accounting and reporting system, internal and external auditing, fund disbursement, and information systems.²³ The financial control risk is rated moderate and mitigating measures are incorporated in the project. MOF's financial management systems are considered adequate. The financial officer on the PMU is an MOF officer. The PIA consultants will support MOF and PPUC in preparing financial documentation relating to the project for direct payment by ADB.

28. **Procurement capacity.** The procurement capacity of the government was assessed in 2010 when preparing the WSIP.²⁴ The assessment indicates the government has sufficient infrastructure procurement experience, including for the preparation of bidding documents, evaluation of technical proposals, and monitoring of contract performance. However, PPUC has no experience with multilateral development bank procurement procedures. Targeted procurement training for PPUC will be conducted soon after project approval. The PIA consultants will support the PMU's procurement activities.

29. **Anticorruption.** ADB's Anticorruption Policy (1998, as amended to date) was explained to, and discussed with the government. The specific policy requirements and supplementary measures are described in the project administration manual.

²² Details of the sensitivity analysis are in the Economic Analysis and Supplementary Economic Analysis (accessible from the list of linked documents in Appendix 2).

²³ Financial Management Assessment (accessible from the list of linked documents in Appendix 2).

²⁴ Procurement Assessment. (accessible from the list of linked documents in Appendix 2).

D. Poverty and Social²⁵

30. The causes of hardship for the population include (i) low income; (ii) limited access to basic social services, such as sanitation facilities; and (iii) limited opportunities for paid employment. An estimated 25% of the population and 20% of households are living under the basic needs poverty line.²⁶ The government and PPUC will continue to maintain water and sewerage lifeline rates for the poor and vulnerable, well below the cost of providing the service with the effective subsidies being funded by users charged above the lifeline tariff block.

31. The project is classified under effective gender mainstreaming.²⁷ Project design elements that ensure women's participation and access to project benefits include requirements for (i) gender equality of participation in the project design and implementation; (ii) equality in employment opportunities in PPUC; (iii) public infrastructure, particularly targeted to the needs of women and children; and (iv) public health and awareness programs on water and sanitation issues.

E. Safeguards

32. **Environment.** The project is classified under category B for environment. An initial environmental examination was prepared in accordance with ADB's Safeguard Policy Statement (2009). The project provides positive environmental benefits through improving the environmentally safe collection and treatment of sewage in Koror and Airai. Sewage overflows within the collection network will be reduced significantly. The quality of sewage treatment will meet appropriate standards for the sensitive marine environment. Sludge disposal will go to landfill complying with international standards. No significant environmental impacts will result from project implementation. The environmental management plan outlines the risks and mitigating actions to be undertaken during project implementation.²⁸ The major risk during implementation is maintaining the quality of treated sewage effluent discharged as the STP is built. Measures to mitigate these risks will be included in the design specifications.

33. **Involuntary resettlement and indigenous peoples.** The project is classified under category C for both involuntary resettlement and indigenous peoples. It has no resettlement issues. All civil works will be constructed on public land, within public easements, or on long-term leased land without settlers. The people of Palau consider themselves indigenous in terms of ethnic origin. The project is not expected to have a negative impact on any distinct or vulnerable group of indigenous peoples as defined under ADB's Safeguard Policy Statement. All project safeguard documents will be disclosed on ADB's website. The project will support capacity development within MOF and PPUC to manage safeguards.

F. Risks and Mitigating Measures

34. Major risks and mitigating measures are summarized in Table 5 and described in detail in the risk assessment and risk management plan.²⁹

²⁵ Summary Poverty Reduction and Social Strategy (accessible from the list of linked documents in Appendix 2).

²⁶ United Nations Development Programme. 2008. *2006 Palau Household Income and Expenditure Survey*. Fiji.

²⁷ This includes implementation of a Gender Action Plan (accessible from the list of linked documents in Appendix 2).

²⁸ Initial Environmental Evaluation (accessible from the list of linked documents in Appendix 2).

²⁹ Risk Assessment and Risk Management Plan (accessible from the list of linked documents in Appendix 2).

Table 5: Summary of Risks and Mitigating Measures

| Risks | Mitigating Measures |
|--|--|
| PPUC does not earn sufficient revenue from its water and wastewater operations to permit full cost recovery by the end of FY2015 | (i) The legal framework for full cost recovery is appropriate; (ii) tariffs are affordable; (iii) fees for service policies, disconnection policies, and tariff collection targets improve fiscal sustainability; (iv) 100% metering, bulk supply management, and leak detection and repair will halve non-revenue-generating water treated to 25%, improving efficiency; and (v) the improved sewage network will substantially reduce operating costs. |
| PPUC does not maintain new infrastructure | (i) PPUC has developed and is implementing water and wastewater asset maintenance and asset replacement policies; (ii) STPs will be maintained through a project-funded design, build, and operate contract; (iii) tariffs have been set to support a tripling in maintenance expenditure by FY2015. |
| PPUC does not develop the necessary institutional capacity in a timely manner to deliver services effectively | (i) The Water Sector Improvement Program provides 35 person-months of consultant support for core management positions; (ii) the project provides 250 person-months of consultant inputs to help PPUC design and implement the project works; and (iii) a twinning arrangement to support focused capacity building in areas of identified weakness. |

PPUC = Palau Public Utilities Corporation; STP = sewage treatment plant,
Source: Asian Development Bank.

IV. ASSURANCES AND CONDITIONS

35. The government and MOF have assured ADB that implementation of the project will conform to all applicable ADB policies including those concerning anticorruption measures, safeguards, gender, procurement, consulting services, and disbursement as described in detail in the PAM and loan documents.

36. The government and MOF have agreed with ADB on certain covenants for the project, which are set forth in the loan and project agreements.

V. RECOMMENDATION

37. I am satisfied that the proposed loans would comply with the Articles of Agreement of the Asian Development Bank (ADB) and recommend that the Board approve:

- (i) the loan of \$26,900,000 to the Republic of Palau for the Koror–Airai Sanitation Project, from ADB’s ordinary capital resources, with interest to be determined in accordance with ADB’s London interbank offered rate (LIBOR)-based lending facility; for a term of 25 years, including a grace period of 5 years; and such other terms and conditions as are substantially in accordance with those set forth in the draft loan and project agreements presented to the Board; and
- (ii) the loan in various currencies equivalent to SDR1,258,000 to the Republic of Palau for the Koror–Airai Sanitation Project, from ADB’s Special Funds resources, with an interest charge at the rate of 1.0% per annum during the grace period and 1.5% per annum thereafter; for a term of 32 years, including a grace period of 8 years; and such other terms and conditions as are substantially in accordance with those set forth in the draft loan and project agreements presented to the Board.

Takehiko Nakao
President

DESIGN AND MONITORING FRAMEWORK

| Design Summary | Performance Targets and Indicators with Baselines | Data Sources and Reporting Mechanisms | Assumptions and Risks |
|---|--|--|--|
| <p>Impact The environment and public health are improved in Koror and Airai</p> | <p>By 2025 Temporary bans on public swimming in lagoon waters reduced to 0/year (baseline 2 in 2012)</p> <p>Incidence of gastroenteritis per capita decreased by 20% (baseline: 2012: males 1:8, females 1:8).</p> | <p>EQPB data on public notices</p> <p>Annual MOH data to PPUC</p> | <p>Assumption Other public health indicators not related to waterborne diseases remain unchanged</p> <p>Risks Major environmental catastrophe United States federal funding of health services declines</p> |
| <p>Outcome Improved delivery of sanitation services by PPUC</p> | <p>By 2022 Sewer overflows to the land and sea reported to EQPB reduced by 50% (baseline: 2013 average to be established during early implementation)</p> <p>Treatment system outflow from the discharge pipe in Koror and Airai consistently meets EQPB standards</p> | <p>EQPB reported data</p> <p>EQPB monitoring data</p> | <p>Risks KASMP phase 2 infrastructure improvements are needed before funding is available</p> |
| <p>Output 1 Effective, efficient, and sustainable sewage collection systems in Koror and Airai</p> | <p>By 2018 Power consumption per equivalent population at pump stations decreased by 10% (baseline to be calculated)</p> <p>Response time to system failure decreased to 2 hours (no baseline available)</p> <p>Emergency calls-outs for pump station overflows decreased by 30% (baseline: 2013 average to be established during early implementation)</p> <p>Site maintenance contractors have increased participation by women (target 20% of administration-based workers)</p> | <p>PPUC performance monitoring information</p> <p>PPUC performance monitoring information</p> <p>PPUC performance monitoring information</p> | <p>Assumption Urbanization in Koror does not increase significantly</p> <p>Risks Emergency response equipment at PPUC is insufficient and not operating A continuous power supply is not provided for water and sewerage service</p> |

| Design Summary | Performance Targets and Indicators with Baselines | Data Sources and Reporting Mechanisms | Assumptions and Risks |
|--|---|---|--|
| <p>Output 2 Sewage treatment and disposal meets Palau's environmental standards</p> | <p>By 2018 Effluent discharge from the Malakal STP meets 20 PPM BOD and 20 PPM SS standards (baseline: 40 BOD PPM and 40 SS PPM)</p> <p>Effluent discharge from the Melekeok STP meets 20 PPM BOD and 20 PPM SS standards (baseline: 40 BOD PPM and 40 SS PPM)</p> <p>Effluent discharge from the Kesebelau STP meets 20 PPM BOD and 20 PPM SS standards (baseline: none, new STP)</p> <p>Solid waste handling from all treatment plants complies with a current EQPB disposal permit</p> | <p>EQPB monitoring data</p> <p>EQPB monitoring data</p> <p>EQPB monitoring data</p> <p>EQPB reporting</p> | <p>Assumption Koror solid waste dump used for the disposal of STP sludge remains in operation</p> <p>Risks Hotels and resorts do not follow regulations for the disposal of kitchen waste A continuous power supply is not provided for water and sewerage service</p> |
| <p>Output 3 Safe and hygienic public toilet facilities in Koror are available</p> | <p>By 2017 Existing gender-sensitive public toilets upgraded in KB Bridge, T-Dock, and Long Island for male and female amenities</p> <p>Three new gender-sensitive public toilet facilities at the Koror shopping district, Koror tourist precinct, and Malakal recreation area including roadside signage</p> <p>Newly constructed or rehabilitated facilities have toilet stalls for women and men in ratio of at least 2:1.</p> | <p>Government certificate of completion</p> <p>Government certificate of completion</p> | <p>Risk PPUC does not effectively maintain public toilets to standards expected by the community and/or tourists</p> |
| <p>Output 4 Effective project management</p> | <p>Project infrastructure is commissioned by December 2017</p> <p>The project is fully implemented by February 2022 and within budget</p> | | <p>Risk The current PPUC operations manager resigns and appointment of a replacement is delayed</p> |

| | |
|---|---|
| <p>Activities with Milestones</p> <p>1. Effective, efficient, and sustainable sewage collection systems in Koror and Airai</p> <p>1.1 Install new gravity inceptor mains and force mains in the Koror sewer network (Dec 2017).</p> <p>1.2 Upgrade and/or refurbish selected pump stations in the Koror sewer network (Dec 2017).</p> <p>1.3 Improve overflow infrastructure at selected pump stations in the Koror sewer network (Dec 2017).</p> <p>2. Sewage treatment and disposal meets Palau’s environmental standards</p> <p>2.1 Construct and commission an STP in Malakal (Jun 2017).</p> <p>2.2 Construct and commission an STP at Kesebelau (May 2017).</p> <p>2.3 Outsource management of the Malakal, Kesebelau, and Melekeok STPs to the STP construct and commission contractor (Apr 2014).</p> <p>3. Availability of safe and hygienic public toilet facilities in Koror</p> <p>3.1 Refurbish existing public toilets in Koror, Malakal, and Long Island (Sep 2016).</p> <p>3.2 Construct and commission new public toilets in Malakal and Koror (Sep 2016).</p> <p>3.3 Provide roadside and other signage to direct tourists (Sep 2016).</p> <p>4. Effective project management</p> <p>4.1 Establish a PMU (Nov 2013).</p> <p>4.2 Field consultants (Jun 2014).</p> <p>4.3 Undertake CCTV GPS survey, unauthorized inflow investigation, and sewage flow gauging of the Koror sewer network (Apr 2015).</p> <p>4.4 Design and supervise works (May 2017).</p> <p>4.5 Facilitate the PMU to undertake international competitive bidding and contract management to ADB requirements (May 2017).</p> | <p>Inputs</p> <p>ADB:</p> <p>Special Funds resources: \$1.9 million</p> <p>Ordinary capital resources: \$26.9 million</p> <p>Government:</p> <p>Taxes and charges: \$1.2 million</p> |
|---|---|

ADB = Asian Development Bank; BOD = biological oxygen demand; CCTV = closed circuit television; EQPB = Environmental Quality Protection Board; GPS = global positioning system; KASMP = Koror–Airai Sanitation Master Plan; MOF = Ministry of Finance; MOH = Ministry of Health; PMU = project management unit; PPM = parts per million; PPUC = Palau Public Utilities Corporation ; SS = suspended solids; STP = sewage treatment plant.

Source: Asian Development Bank.

LIST OF LINKED DOCUMENTS

<http://www.adb.org/Documents/RRPs/?id=42439-013-3>

1. Loan Agreement: Ordinary Capital Resources
2. Loan Agreement: Asian Development Fund
3. Project Agreement
4. Sector Assessment (Summary): Water Supply and Other Municipal Infrastructure and Services (Water Supply And Sanitation)
5. Project Administration Manual
6. Contribution to the ADB Results Framework
7. Development Coordination
8. Financial Analysis
9. Economic Analysis
10. Country Economic Indicators
11. Summary Poverty Reduction and Social Strategy
12. Gender Action Plan
13. Initial Environmental Examination
14. Risk Assessment and Risk Management Plan

Supplementary Documents

15. Water Sector Improvement Program Progress
16. Financial Management Assessment
17. Supplementary Economic Analysis
18. Procurement Assessment