

## FINANCIAL ANALYSIS

### A. Introduction

1. A financial analysis of the proposed investment project, Koror-Airai Sanitation Project, was undertaken. The objectives of the analysis were to (i) determine and recommend the appropriate level of tariffs that could achieve the cost recovery principle<sup>1</sup> approved by the Government of Palau under the Water Sector Improvement Program (WSIP); (ii) ascertain if the proposed tariffs are affordable to the consumers, particularly the low-income group; (iii) establish the level of government cash subsidy to the Palau Public Utility Corporation Waste and Wastewater Operations (WOO) during its transition period prior to achieving full recovery of its service costs; (iv) determine if the investment project is financially viable and sustainable; and (v) demonstrate the financial sustainability of the project and WWO through financial projections consisting of the income statement, statement of cash flow, and balance sheet for a 10-year period following its creation.

### B. Methodology and Approach

2. The financial analysis was carried out in accordance with ADB's *Guidelines for the Financial Management and Analysis of Projects*<sup>2</sup> (the Guidelines) and the publication, *Financial Due Diligence, A Methodology Note*.<sup>3</sup>

3. The commitments of the government to ADB under the WSIP were taken into consideration in the analysis. The project supports reform of the water and sanitation sector, with a focus on improving policy and legal frameworks, financial sustainability, and capacity development. Specifically, the expected outputs of the WSIP that were factored into the analysis were (i) the establishment of the WWO, (ii) 100% consumer metering, (iii) reduction of non-revenue water (NRW) from 43% in 2010 to 25% by FY2015, (iv) progressive tariff increase to achieve full cost recovery by FY2015, (v) prudent and reduced water consumption<sup>4</sup> through tariff increases and a public awareness campaign, and (vi) budget support from the government to cover the difference between tariff revenue and actual costs during WWO's transition period prior to achieving full recovery of its service costs. At the end of the transition to full cost recovery in August 2016, the government will no longer provide financial support to WWO.

4. In the calculation of the financial internal rate of return (FIRR) for the investment project, incremental revenues and costs were arrived at through comparison of the 'without project' and 'with project' conditions. The proposed investment project, except for the new Kesebelau-Ked sewerage system in Airai, will rehabilitate, upgrade and/or replace priority sewerage infrastructure in Koror which is in poor condition. Sewage overflow and infiltration and exfiltration from sewers frequently occur. The system in its current state does not deliver its intended benefits. Without the project, the analysis assumes that the system which was initially built in mid-1970s has reached the end of its useful economic life<sup>5</sup>, a situation made worse by the absence of adequate and proper maintenance through the years. As customers feel they are

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<sup>1</sup> Full recovery of operating expenses (excluding depreciation) and debt service (principal and interest).

<sup>2</sup> ADB. 2005. *Financial Management and Analysis of Projects*. Manila.

<sup>3</sup> ADB. 2009. *Financial Due Diligence A Methodology Note*. Manila.

<sup>4</sup> Assumed at 4% annual reduction.

<sup>5</sup> One component which costs about 50% of the total investment project for Koror is the decommissioning of the existing sewage treatment plant and replacing it with a new advanced package treatment plant.

not receiving proper sewerage service, they may stop paying the sewage fee<sup>6</sup> portion of their monthly bill. With the project, the analysis assumes that upon completion, the proposed investment project will extend the system's economic life for 25 years. Thus, the sewage revenues collected from Koror consumers after completion of the investment project are considered incremental revenues in the analysis. Operating costs before and after the project is assumed the same except for an increase in maintenance and electricity costs after the project. The new sewerage system in Airai will generate all incremental revenues and costs.

### C. Recent Financial Performance

5. One of the commitments of the government under the WSIP is to progressively increase tariffs to achieve full cost recovery by FY2015. Prior to the WSIP, tariff levels have remained unchanged since the Utility Regulations 1986 were issued. As part of the WSIP tariff reform, water and sewer tariffs were progressively adjusted effective 1 April 2011 and 1 February 2012 as shown in Table 1.

**Table 1: Past and Present Tariffs**  
(\$ per 1,000 gallons<sup>a</sup>)

Item	Effective 1986	Effective 1 April 2011	Effective 1 February 2012
<b>Water</b>			
Domestic	\$0.85		
First 5,000 gallons	(...)	\$1.06	\$1.17
Above 5,000 gallons	(...)	\$1.28	\$1.91
Non-domestic	\$0.85	\$1.28	\$1.91
<b>Sewer</b>			
Domestic	(...)	\$0.30	\$0.30
Non-domestic	(...)	\$1.28	\$2.21

<sup>a</sup> 1,000 gallons is 3,785 liters.

Source: Meter Reading, Billing and Collection Section, Ministry of Finance.

6. The adjustment of tariffs effective 1 April 2011 resulted to revenues of \$965,000 in FY2011, a 92% increase compared to revenues of \$502,000 in FY2010. The government cash subsidy to the water and sewer sector in FY2011 amounted to about \$2.8 million. Table 2 shows the breakdown of operating revenues and expenses for FY2011 into water and sewer operations. Electricity and personnel costs accounted for 60% and 25%, respectively, of water operating expenses, and 53% and 27%, respectively, of sewer operating expenses. Combined electricity expenses in water and sewer operations for FY2011 increased by 63% compared to FY2010 level, largely driven by increases in global oil prices.

**Table 2: FY2011 Financial Results**  
(\$)

Item	Water	Sewer	Total
Operating revenues	818,235	147,143	965,378
Operating expenses (excluding depreciation)	3,072,468	718,216	3,790,684
Surplus (subsidy)	(2,254,233)	(571,073)	(2,825,306)

() = negative numbers.

Source: Ministry of Finance.

<sup>6</sup> Collection of sewer fee was only introduced last year effective 1 April 2011. Prior to that, there was no sewer fee imposed from the time the system was first installed in 1988.

7. Collection efficiency of customers' accounts was 92% for FY2011. Accounts receivable balance as of the end of FY2011 (30 September 2011) was equivalent to 30 days of water sales and sewer fees combined.

#### D. Projected Financial Performance

8. **Proposed Tariff Requirements.** To meet the objective of full cost recovery by FY2015 and the subsequent years thereafter, the existing tariffs need to be increased annually as outlined in Table 3. The proposed tariffs were calculated based on current cost levels and existing volumes of water produced and wastewater treated and adjusted annually on the basis of forecasted changes in these factors.

**Table 3: Proposed Tariffs**  
(\$ per 1,000 gallons per fiscal year<sup>a</sup>)

Item	2013	2014	2015	2016	2017	2018	2019
<b>Water</b>							
Domestic							
First 5,000 gallons	1.29	1.41	1.47	1.53	1.59	1.65	1.72
Above 5,000 gallons	2.54	3.38	4.51	5.41	6.49	6.75	7.02
Non-domestic	2.54	3.38	4.51	5.41	6.49	6.75	7.02
<b>Tariff Increase</b>							
Lifeline (%)	10%	9%	4%	4%	4%	4%	4%
Non-domestic (%)	33%	33%	33%	20%	20%	4%	4%
<b>Sewer</b>							
Domestic	0.33	0.35	0.36	0.38	0.39	0.41	0.43
Non-domestic	2.87	3.44	4.13	4.95	5.94	6.18	6.43
<b>Tariff Increase</b>							
Domestic (%)	10%	6%	4%	4%	4%	4%	4%
Non-domestic (%)	30%	20%	20%	20%	20%	4%	4%

<sup>a</sup> 1,000 gallons is 3,785 liters.

Source: Asian Development Bank Consultant calculation.

9. **Government Subsidy.** During the transition of WWO to full cost recovery, the government will provide budget support to WWO to cover the difference between tariff revenue and actual (cash) expenses. The annual budget support needed from FY2012 to FY2019 is shown in Table 4. The proposed tariffs shown in the previous table were used in the calculation of the annual operating surplus and deficit as detailed in the table below.

**Table 4: FY2012 to FY2019 Government Subsidy**  
(\$'000 per fiscal year)

Item	2012	2013	2014	2015	2016	2017	2018	2019
Operating Surplus (Deficit) <sup>a</sup> :								
Water Supply	(1,885)	(1,384)	(696)	167	722	1,381	1,603	1,789
Sewer	523	811	1,022	1,263	898	1,219	1,292	1,368
Debt Service Payment <sup>b</sup>								
WSIP	(23)	(74)	(117)	(138)	(574)	(574)	(574)	(574)
KASP	0	(89)	(218)	(342)	(399)	(416)	(2,206)	(2,206)
Total GOP Cash Subsidy	(1,385)	(736)	(9)	0	0	0	0	0

() = negative numbers, WSIP = water sector improvement program, KASP = Koror Airai Sanitation Project.

<sup>a</sup> Depreciation is excluded in the calculation of operating surplus and deficit.

<sup>b</sup> Includes principal and interest payments.

Source: Asian Development Bank Consultant calculation.

10. **Tariff Affordability.** An affordability analysis was undertaken to ensure that domestic consumers, particularly those in the low income group, can afford the proposed water and sewer tariffs that meet the financial objectives. The average household incomes of Koror and Airai residents as contained in the 2006 Household Income and Expenditure Survey were used in the analysis.<sup>7</sup> Between 20%–25% of households consume less than 5,000 gallons/month<sup>8</sup> as per records of the Meter Reading, Billing, and Collection Section. The analysis assumes these households belong to the low income group. The results of the affordability analysis show that the percentages of monthly household income spent on water and sewer bill are below 5%. Based on generally accepted principle on affordability that the expenditure on water and sanitation should not exceed 5% of household income, the proposed water and sewer tariffs are considered affordable.

11. **FIRR and Sensitivity Analysis.** The results of the FIRR calculation and sensitivity analysis, which cover both the sewerage infrastructure in Koror and the new Kesebelau-Ked sewerage system in Airai, are summarized in Table 5. Based on the results, it can be seen that the proposed investment project is financially viable<sup>9</sup> under the base case and adverse scenarios with its FIRRs all above the weighted average cost of capital estimated at 1.63% per annum. The project is most sensitive to decrease in revenues.

**Table 5: Project FIRR and Sensitivity Analysis**

Key Variable	Change	NPV <sup>a</sup> (\$'000)	FIRR (%)	SI <sup>b</sup>	SV <sup>c</sup>
Base Case		16,544	5.86%		
Increase in Capital Costs	+ 20%	11,105	4.17%	3.99	30%
Increase in O&M Costs	+ 20%	15,316	5.56%	0.71	135%
Decrease in Revenues	- 20%	6,568	3.47%	5.64	17%
Project Delay	1 Year	14,086	5.08%	NPV lower by 17%	

<sup>a</sup> NPV = net present value discounted by the weighted average cost of capital

<sup>b</sup> SI = sensitivity indicator (ratio of % change in financial internal rate of return above the cut-off rate of weighted average cost of capital to % change in a variable)

<sup>c</sup> SV = switching value (% change in a variable to reduce the financial internal rate of return to the cut-off rate of the weighted average cost of capital)

Source: Asian Development Bank Consultant calculation.

12. **Projected Financial Results.** The results of the financial projections (consisting of the income statement, sources and uses of funds statement, and balance sheet) indicate that the WWO is projected to achieve full recovery of cash operating expenses and debt service by FY2015. Starting FY2017, full depreciation costs are recovered apart from cash operating expenses and debt service. WWO is projected to generate positive net cash flow each year over the forecast period. As a result, WWO will require no further subsidies from the government starting FY2016, to be able to repay the debt service obligations and generate cash surplus which can be used to fund capital asset replacement, rehabilitation or expansion in the future.

<sup>7</sup> Government of Palau. 2006. *Republic of Palau Household Income and Expenditure Survey*. Koror

<sup>8</sup> 1 US gallon is 3.785 liters

<sup>9</sup> On its own, the new Kesebelau-Ked sewerage system is not financially viable because of very few households to be connected to the system.

**E. Project Financial Sustainability and Implementation Risks**

13. The projected financial performance of WWO has shown that the financial objectives of cost recovery, including debt service, could be met. The attainment of the financial objectives, however, would require that tariffs are periodically raised as proposed. The financial sustainability of the project and WWO largely depends therefore on the government remaining committed to the tariff reform under WSIP.

14. The main risks associated with the project related to achievement of financial objectives are (i) failure by government to impose tariff increases necessary to ensure financial sustainability of the project and the WWO, and (ii) inadequate funding of the required subsidy to meet the shortfall between operation, maintenance, debt-servicing costs, and projected revenue of the WWO during the transition period to full cost recovery.