

## FINANCIAL ANALYSIS

### A. Introduction and Methodology

#### 1. Introduction

1. The World Development Indicators show that the urbanization rate of Bhutan increased from 25.4% in 2000 to 38.4% in 2017.<sup>1</sup> The government's support has been traditionally directed towards the larger towns of Thimphu and Phuentsholing causing unbalanced urbanization. To address this concern, the Government of Bhutan has requested financing from the Asian Development Bank (ADB) for the proposed Secondary Towns Urban Development Project to support urban infrastructure development in three secondary towns.<sup>2</sup> The project aims to improve the quality, reliability, and sustainability of urban infrastructure in three secondary towns of Bhutan, with the following outputs: (i) urban infrastructure expanded and/or upgraded, and (ii) capacity of institutions and local communities strengthened. The project will focus on developing urban basic infrastructure, including (i) water supply in all three towns, (ii) sewerage in Samdrup Jongkhar, and (iii) urban drainage and road improvement in Sarpang. ADB conducted a financial analysis for the proposed Project in accordance with the Guidelines for the Financial Management and Analysis of Projects.<sup>3</sup>

#### 2. Methodology

2. A financial analysis assesses the ability of a project to meet its costs, including capital and operation and maintenance (O&M) expenditure, out of its revenue streams. The project comprises both revenue-generating (water supply and sewerage) and non-revenue-generating (drainage and/or road) subprojects. However, the tariff philosophy of project towns for water supply and sewerage is not premised on full cost recovery. The government will be responsible for the ADB loan and counterpart funds during the implementation and O&M support to the project towns during the operation. The project towns will be responsible only for the O&M of the developed assets through tariff revenue and additional support from the government.

3. An incremental O&M cost analysis for the water supply and sewerage subprojects was conducted to assess the potential for O&M cost recovery. For drainage and road subprojects, a cash flow analysis of the project towns was carried out to determine their financial ability to absorb incremental O&M costs from their own revenues. This analysis included (i) a review of the historical financial performance of the project towns, and (ii) a financial forecast of project towns to determine their financial strength to operate and maintain the assets created under the project. The analysis also covered the government's financial capacity, as it will be responsible for repaying the ADB loan and supporting the project towns during operation.

### B. Financial Analysis of Subprojects

#### 1. Tariff Structure

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<sup>1</sup> World Bank. 2017. [World Development Indicators](#) (accessed 29 November 2017).

<sup>2</sup> Although there is no official definition of secondary towns in Bhutan, these can be considered as a group of around 30 towns (excluding Thimphu and Phuentsholing) with populations of around 4,000 or more. Samdrup Jongkhar and Sarpang are identified as growth centers in the south, while Trashigang is a key town in the east that has opened to new economic possibilities because of the recent air connectivity.

<sup>3</sup> ADB. 2005. *Financial Management and Analysis of Projects*. Manila.

4. Each town is responsible for setting tariffs for urban services upon the approval of the Ministry of Finance. As of February 2018, the water tariff in Trashigang and Samdrup Jongkhar was \$0.02 per cubic meter (Nu1.25 per cubic meter) and sewerage tariff is charged at 30% of water tariffs. There is currently no water tariff in Sarpang, with plans to introduce one in 2018.

5. There is no dedicated tariff policy published by the government. Although the government suggests O&M cost recovery through the Thromde Rules (2011) and the Eleventh Five-Year Plan (2013),<sup>4</sup> the present low tariff for urban services in the project towns is not guided by the O&M cost recovery principle.<sup>5</sup> Furthermore, tariff rates have not been revised since 2006, mainly because requests submitted to the Ministry of Finance were without substantiation. In pursuit of the government's ongoing decentralization policy, the Municipal Finance Policy (2012) emphasizes that all towns need to prepare a time-bound action plan to achieve financial sustainability. Until financial sustainability is achieved, the government will cover the revenue expenditure gap in all towns.<sup>6</sup> The capacity building support proposed under the current project will help the project towns to develop a rationalized tariff system in a phased manner.<sup>7</sup>

## 2. Affordability Analysis

6. As of February 2018, households in the project towns pay about 0.1%–0.3% of their income on water supply and sewerage, and this is estimated to change to 0.1%–0.4% in 2024 when the project operation starts (Table 1). For this analysis, ADB assumed a 20% tariff increase every 5 years based on the ongoing developments towards the principles of decentralization and self-sufficiency.<sup>8</sup> The estimated average household expenditure for water supply and sewerage from all income categories in the project towns was found to be less than the accepted level of 5% of the total household income, confirming the affordability for the project beneficiaries.<sup>9</sup>

**Table 1: Water and Sewerage Charges and Usage, and Average Household Income**  
(Nu per month)

Item	Existing (2017)			Proposed (2024) <sup>a</sup>		
	Samdrup Jongkhar	Sarpang	Trashigang	Samdrup Jongkhar	Sarpang	Trashigang
Water bill (per household) <sup>b</sup>	17.9		20.6	31.1	32.3	30.2
Sewerage bill (per household) <sup>b,c</sup>	5.4		6.2	9.3	9.7	9.1
<b>Total</b>	<b>23.3</b>		<b>26.8</b>	<b>40.4</b>	<b>42.0</b>	<b>39.3</b>
Household income - slum <sup>b,d</sup>	8,333.0	8,333.0	8,333.0	11,726.0	11,726.0	11,726.0
<b>% of all bills</b>	<b>0.3</b>	<b>0.0</b>	<b>0.3</b>	<b>0.3</b>	<b>0.4</b>	<b>0.3</b>
Household income - nonslum <sup>b,d</sup>	44,118.0	15,367.0	31,076.0	62,078.0	21,622.0	43,727.0
<b>% of all bills</b>	<b>0.1</b>	<b>0.0</b>	<b>0.1</b>	<b>0.1</b>	<b>0.2</b>	<b>0.1</b>

<sup>a</sup> 2024 is the operation start year for the project.

<sup>4</sup> (i) Government of Bhutan, Ministry of Works and Human Settlement. 2011. *Thromde Rules, 2011*. Thimphu. It suggests "to set the tariff at a level no higher than the cost of the most efficient method of providing the service," with revision provision; and (ii) Government of Bhutan. 2013. *Eleventh Five-Year Plan. 2013–2018*. Thimphu. The plan underlines the cost recovery principle to improve urban service delivery.

<sup>5</sup> The water tariff for households in Thimphu is \$0.04–\$0.06 per cubic meter. The sewerage tariff is 50% of the water tariff. The tariff for water supply and sewerage in the project towns is lower.

<sup>6</sup> Government of Bhutan, Ministry of Works and Human Settlement. 2012. *Thromde Finance Policy*. Thimphu. The policy states that "towns shall receive current grants to the extent of operating deficit and such grants shall be phased out based on the agreement signed between the Ministry of Finance and the town in an agreed timeline."

<sup>7</sup> The institutional specialist under the project will help the project towns develop a tariff-fixing mechanism and guidelines.

<sup>8</sup> Between 2002 and 2010, the water tariff in Thimphu was increased by 44% in two revisions. As project towns are smaller, a conservative assumption of a 20% tariff increase once in 5 years is followed.

<sup>9</sup> World Health Organization, Water and Sanitation Program. 2011. *Cost Recovery in Urban Water Services: Select Experiences in Indian Cities*. Washington, DC.

<sup>b</sup> Assumptions: 5% annual growth rate for household income from 2017 and 20% tariff increase every 5 years from 2017 to 2024.

<sup>c</sup> Sewerage charges are 30% of the monthly water bill.

<sup>d</sup> Adopted from ADB. 2016. *Poverty and Social Assessment Report*. Consultant's report. Manila (TA 8551-BHU) with an update to 2017 using 5% annual growth rate. For slum households, Nu0.1 million was considered as annual household income in 2017.

Source: Asian Development Bank estimates based on discussions with officials from the project towns.

### 3. Recovery of Operation and Maintenance Costs for Revenue-Generating Subprojects

7. The cash flow of revenue-generating subprojects (water supply and sewerage) is projected for 20 years' operation considering the forecast tariff revenue and O&M expenditure. The general assumptions followed to calculate the cash flow of revenue-generating subprojects are as follows:

- (i) The projection was carried from 2018 to 2043 including 6 years of implementation. Assets established were assumed to have a 20-year life span from project completion;
- (ii) All costs are in nominal prices and converted at \$1 = Nu65;
- (iii) The O&M costs include personnel, maintenance, administration, and operation but exclude depreciation of expenditure, which is a noncash item;
- (iv) The current tariff with 20% increase was assumed to be implemented from 2024 and further assumed to increase by 20% every 5 years;
- (v) The sewerage tariff was assumed to be 30% of the water tariff; and
- (vi) Based on the existing performance of project towns for user charge collection,<sup>10</sup> a 90% collection efficiency was assumed.

8. The cash flow projection shows that the proposed revenue-generating subprojects in the project towns would only cover part of the incremental O&M costs during the whole operation period (Table 2). With the assumption of a 20% tariff increase every 5 years, the operating ratio for the water supply subprojects was in the range of 4.82–6.39 in the 10th year of operation (2034). The analysis estimated that, to achieve the ratio of 1.0 with full O&M cost recovery during the period, the present water tariff would need to increase by 64% in Samdrup, 66% in Trashigang, and 80% in Sarpang every 5 years. Thus, in addition to the revenues from the proposed tariffs, financial support from the government would be required to cover O&M costs.

**Table 2: Incremental Recurrent Cost Recovery Analysis**  
(Nu million)

Details	Samdrup Jongkhar – Water Supply			Sarpang – Water Supply			Trashigang – Water Supply			Samdrup Jongkhar - Sewerage		
	2024	2029	2034	2024	2029	2034	2024	2029	2034	2024	2029	2034
Income from tariff	0.86	1.19	1.65	0.53	0.72	0.99	0.20	0.27	0.38	0.03	0.03	0.05
Incremental costs	3.86	5.55	7.97	3.06	4.39	6.31	0.91	1.30	1.87	1.57	2.26	3.25
Surplus/(deficit)	(3.00)	(4.35)	(6.31)	(2.53)	(3.67)	(5.32)	(0.71)	(1.03)	(1.49)	(1.55)	(2.23)	(3.20)
Operating ratio (%)	4.47	4.65	4.82	5.76	6.09	6.39	4.61	4.79	4.97	62.67	65.11	67.59

<sup>a</sup> Estimated by dividing operating expenditure by revenues.

Source: Asian Development Bank estimates.

### 4. Non-Revenue-Generating Subprojects

<sup>10</sup> ADB. 2016. *Poverty and Social Assessment Report*. Consultant's report. Manila (TA 8551-BHU). The project preparatory technical assistance found that the collection efficiency of tariffs was 60%–80% in the project towns. With the improvement in service delivery, the collection efficiency was assumed at 90% in 2024.

9. In Bhutan, each town has a mandate to develop and maintain the drainage systems along with adjoining roads within its boundary. The proposed drainage and road subproject in Sarpang will be maintained by the Sarpang dzongkhag (district administration) from its own resources upon project completion as there are no user charges levied at present. Thus, the financial performance of Sarpang dzongkhag was reviewed to ascertain its financial capacity to operate the proposed drainage and road subproject.

## C. Financial Performance and Projection

### 1. Financial Performance and Projections of Project Towns

10. **Financial performance.** The financial analysis also assessed the impact of subprojects on the overall financial capacity of project towns. A financial performance analysis of the operations accounts of project towns for the last 5 fiscal years indicates that

- (i) there was no operational surplus in the project towns in 2014–2017;
- (ii) although there was no defined trend in the growth pattern for revenue and expenditure, the growth of expenses was found to be higher than the growth in revenue in all the project towns; and
- (iii) the government funded all operational deficits in the project towns.

11. **Financial projections.** The following assumptions were considered for the financial projections of project towns: (i) the growth rate of national gross domestic product was used for projecting income, (ii) an average of 2% as real growth rate was considered for expenses, and (iii) additional revenue and O&M expenditures because of the project.

12. The financial projections given in Table 3 show that the project towns would need the government's continued support to cover their O&M expenditure. Project towns would also need to prepare their systematic plans for enhancing revenues and reducing costs, including introducing volumetric water tariffs with periodic revisions and improving collection efficiency.

**Table 3: Financial Performance and Projections of Project Towns**  
(Nu million)

Details	Samdrup Jongkhar			Sarpang			Trashigang		
	2016	2024	2034	2016	2024	2034	2016	2024	2034
Taxes and fees	3.05	23.02	42.32	0.45	0.75	1.38	0.73	2.39	4.39
Tariff (water and sewerage)	0.51	1.08	2.05		0.53	0.99	0.77	1.57	2.91
Others									
<b>Total income</b>	<b>3.56</b>	<b>24.09</b>	<b>44.37</b>	<b>0.45</b>	<b>1.28</b>	<b>2.37</b>	<b>1.50</b>	<b>3.96</b>	<b>7.30</b>
Personnel and admin. expenses	29.08	50.98	108.45	10.51	18.43	39.20	5.65	8.90	18.93
O&M expenses	6.20	10.87	23.12	2.86	5.01	10.65	2.21	3.34	7.11
Additional O&M due to project		5.44	6.63		3.06	3.73		0.91	1.10
Others	0.27	0.47	0.99	(...)			(...)		
<b>Total expenses</b>	<b>35.54</b>	<b>67.75</b>	<b>139.19</b>	<b>13.37</b>	<b>26.50</b>	<b>53.58</b>	<b>7.86</b>	<b>13.15</b>	<b>27.14</b>
<b>Surplus / (deficit)</b>	<b>(31.98)</b>	<b>(43.66)</b>	<b>(94.82)</b>	<b>(12.91)</b>	<b>(25.21)</b>	<b>(51.21)</b>	<b>(6.36)</b>	<b>(9.18)</b>	<b>(19.84)</b>

O&M = operation and maintenance.

Source: Asian Development Bank estimates based on the financial statements of project towns for fiscal year (FY) 2013 to FY2016.

## 2. Financial Capacity of Bhutan

13. The financial performance of Bhutan during 2012–2016 showed mixed trends in terms of revenue surplus and deficit (Table 4). Except for 2013, the fiscal deficits were well within the target set in the Eleventh Five-Year Plan of the government and its Public Debt Policy 2016.<sup>11</sup> During the 5 years of the plan (2012–2016), the government met the debt threshold criteria for non-hydro-power debt only in 2012, 2015, and 2016.<sup>12</sup> The government expects income from internal revenue upon the commissioning of the planned hydro power projects from 2018.<sup>13</sup> Acceptable debt management within the targets demonstrated in the past, together with expected additional revenues from the sale of hydro power, will help the government increase its fiscal surplus in the upcoming fiscal years. This indicates that the government has the capacity to support the project. In addition, the increasing budget allocation to urban development during 2012–2016 also underlines the government's commitment to creating and operating urban infrastructure projects such as the proposed project.

**Table 4: Analysis of Bhutan Financials**  
(Nu million)

Details	2012	2013	2014	2015	2016
Internal revenue and other receipts	20,144.8	21,093.5	23,582.8	26,276.0	27,149.7
Grants	12,501.5	9,562.6	14,236.4	9,955.0	14,889.6
<b>Total revenue</b>	<b>32,646.4</b>	<b>30,656.1</b>	<b>37,819.1</b>	<b>36,231.1</b>	<b>42,039.3</b>
Current expenditure	16,705.6	18,096.6	17,941.2	21,032.0	22,880.6
Capital expenditure	18,137.1	18,431.3	16,668.8	15,443.8	21,807.9
Net lending, advance and others <sup>a</sup>	(118.2)	(887.1)	244.9	411.2	799.9
<b>Total expenditure</b>	<b>33,688.0</b>	<b>34,900.8</b>	<b>33,522.8</b>	<b>34,334.3</b>	<b>43,603.0</b>
Fiscal (deficit)/surplus	(1,041.7)	(4,244.7)	4,296.3	1,896.8	(1,563.7)
Net borrowings (borrowings – loan repayment)	(1,007.1)	492.3	(1,042.3)	(1,086.4)	(1,215.5)
<b>Overall resource gap</b>	<b>(2,048.8)</b>	<b>(3,752.4)</b>	<b>3,254.0</b>	<b>810.4</b>	<b>(2,779.2)</b>
<b>Outstanding debt</b>	<b>62,813.1</b>	<b>101,310.2</b>	<b>108,370.4</b>	<b>120,783.0</b>	<b>160,562.1</b>
Domestic debt	1,092.5	6,342.7	2,913.4	2,106.8	4,656.1
External debt	61,720.6	94,967.5	105,456.9	118,676.2	155,905.9
Hydro debt	32,546.3	60,826.7	67,870.2	81,183.6	113,811.3
Non-hydro-power debt	29,174.3	34,140.8	37,586.8	37,492.5	42,094.6
<b>Ratios</b>					
Non-hydro-power external debt/GDP < 35% (%)	33.2	38.7	36.7	31.6	32.9
Fiscal deficit/GDP < 3% (%)	1.1	4.1			1.1
GDP	91,249.1	104,473.0	110,201.2	125,184.8	142,107.1
Budget allocation for urban development	2,444.1	1,737.1	2,167.3	2,237.7	3,040.3

GDP = gross domestic product.

<sup>a</sup> Recovery of loans and advances to government staff. Only the net is brought into the account.

Sources: Government of Bhutan, Ministry of Finance. 2012–2016. Annual Financial Statements of the government for respective year. Thimphu; Government of Bhutan, Ministry of Finance. 2016. *Public Debt Policy 2016*. Thimphu; and Government of Bhutan. 2013. Gross National Happiness Commission. *Eleventh Five-Year plan (2013–2018)*. Thimphu.

<sup>11</sup> Government of Bhutan, Ministry of Finance, 2016. *Public Debt Policy*. Thimphu. Debt-related indicators are sourced from Government of Bhutan. 2016. *Public Debt Policy*. Thimphu; other financial indicators are sourced from Eleventh Five-Year Plan document (2013–2018).

<sup>12</sup> As the hydro power project is expected to be commissioned by 2018 and is projected to be self-sustainable, Bhutan has fixed the debt threshold separately for non-hydro-power projects. For the non-hydro-power subsector, the maximum threshold that the debt can reach is 35% of gross domestic product.

<sup>13</sup> Three hydro power projects—Punatsangchu I (1,200 megawatts [MW]), Punatsangchu II (1,020 MW), and Mangdechu (720 MW)—are scheduled to be commissioned in 2018–2019. Source: [http://www.mfa.gov.bt/rbedelhi/?page\\_id=28](http://www.mfa.gov.bt/rbedelhi/?page_id=28).