

## FINANCIAL ANALYSIS

### A. Introduction

1. A financial analysis was conducted for the proposed project in accordance with the Guidelines for the Financial Management and Analysis of Projects (2005)<sup>1</sup> of the Asian Development Bank (ADB).
2. After the establishment of 276 urban municipalities in 2015,<sup>2</sup> about 58% of Nepal's 29 million (2016) inhabitants now live in urban areas. This rapid urbanization has widened the urban infrastructure deficit and given rise to unmanaged urban growth, resulting in environmental degradation, pollution, and an increase in urban poverty. The Government of Nepal has requested financing from ADB for the project under the sector loan modality to support urban development in 20 municipalities.<sup>3</sup>
3. The financial analysis was carried out for three sample water supply subprojects in the municipalities of Charikot, Pragatinagar, and Subhaghat for which detailed engineering designs had been completed.

### B. Methodology

4. A financial analysis assesses the ability of a project to meet its costs—including capital costs and operation and maintenance (O&M) expenditures—out of its revenue streams. Water supply subprojects to be developed under the project will be operated by the water users' and sanitation committees (WUSCs) that are currently in the process of registration.<sup>4</sup> Since a minimum of 70% of the civil works costs for water supply subprojects will be funded through a government grant, revenue streams are not intended for full cost recovery. Revenue from tariffs is expected to recover only O&M and debt service costs. The government will remain responsible for the ADB loan commitments.
5. With this premise, an incremental recurrent cost analysis, following procedures for revenue-generating projects, was conducted for three sample water supply subprojects to assess the potential for recovering incremental recurrent costs. Under the project, a tri-party agreement will be struck between the Department of Water Supply and Sewerage, the WUSCs, and the respective municipality. Based on this agreement, the project municipality will provide financial support to WUSCs if tariff revenues are insufficient to sustain the operation.

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<sup>1</sup> ADB. 2005. *Financial Management and Analysis of Projects*. Manila.

<sup>2</sup> Government of Nepal. 2015. *Constitution of Nepal*. Kathmandu. The new constitution provides for a three-tier setup by which the national government will have seven provinces, and seven provinces will have 753 rural and urban municipalities.

<sup>3</sup> Previously referred to as small towns, which were defined as (i) having a population of 5,000–40,000; (ii) being located on a road linked to the strategic road network; (iii) having perennial road access, grid power, telecommunication, and potential for growth; (iv) having an average population density of 10 people per hectare; and (v) having jurisdiction of one administrative boundary. These criteria will remain valid for the selection of the subproject coverage area in project municipalities.

<sup>4</sup> A WUSC formed under the Nepal Water Resource Act, 1992 is the elected executive body of the water users' association in each project municipality. The WUSCs will be responsible for the implementation of the project along with the Department of Water Supply and Sewerage. They will operate the assets developed under the project. WUSCs will contribute 30% of civil works costs for water supply (25% from the Town Development Fund loan and 5% from users' contribution).

6. Accordingly, a cash-flow analysis of the project municipalities for sample subprojects need to be carried out to determine their financial ability to support O&M of the assets established under the project. A cash-flow analysis of the project municipalities was not conducted because their financial information was not available since all municipalities are in the process of re-establishment in accordance with the new Local Government Operation Act, 2017.<sup>5</sup> Instead, a financial performance analysis was carried out for the government, given its role in supporting municipalities. The financial analysis of the remaining subprojects will be conducted during the implementation based on the approach used for the sample subprojects.

## C. Sample Water Supply Subprojects

### 1. Tariff Structure

7. In Nepal, the Water Resource Act, 1992<sup>6</sup> and the Drinking Water Rules, 1998<sup>7</sup> provide the basis for forming WUSCs that operate water supply systems in small municipalities. Under the powers given to them, WUSCs can set the water tariff and conduct the periodic revisions during the operation of water supply subprojects established under the project.

8. The municipalities of the three sample subprojects currently have small water supply systems<sup>8</sup> with flat monthly tariff rates ranging from NRs80 to NRs100. However, project municipalities will have volumetric tariff-based water supply in 2024, when full operation starts. WUSCs of project municipalities need to finalize the tariff structure through consultation with the project management office (PMO) and the Town Development Fund (TDF).<sup>9</sup> The draft tariff structure prepared by the project design consultants was presented to WUSCs and agreed to in principle. However, the draft tariff rates will further be discussed with the PMO and TDF, and finally approved by the WUSCs. Thus, average tariff rates of about NRs45.5 per cubic meter are expected to be implemented from 2024.<sup>10</sup>

9. Only few cases of tariff revisions were observed under the existing flat-rate system in the project municipalities, and they revealed no particular trend. Hence, the analysis examined the known water tariff revisions in the region: (i) periodic tariff revision for the Kathmandu Valley water supply system,<sup>11</sup> (ii) revision of the monthly flat-rate water tariff in Charikot during 1998–2012,<sup>12</sup> and (iii) the approach followed by the TDF in appraising water supply projects.<sup>13</sup> Given that the above cases revealed no clear trend in terms of revision period and increase percentage, it is assumed that they followed the procedure prepared by TDF for tariff revision (10% increase once

<sup>5</sup> The Local Government Operation Act provides composition, operational procedures, and powers of municipalities.

<sup>6</sup> The Water Resources Act, 1992, provide guidelines for management of water resources. Section 5 of the Act has provision for forming Water Users Association and WUSCs as their elected executive bodies.

<sup>7</sup> Drinking Water Rules, 1998, were framed by exercising the power of Water Resources Act 1992 in Section 24. Among others, they provide guidelines to form and power to fix and manage water tariff to WUSCs.

<sup>8</sup> All three towns have water supply systems at various coverage level ranging from 2.3% (Subhaghat), 14% (Pragatinagar), and 61.0% (Charikot) through surface source or borewells based hand pumps.

<sup>9</sup> TDF will provide 25% of project costs for water supply subprojects to WUSCs as loan.

<sup>10</sup> Considering the consumption pattern, average household size, and proposed tariff, the average water tariff in three municipalities was found ranging from NRs46.5 per cubic metre (Charikot), NRs46.1 per cubic metre (Pragatinagar) to NRs43.7 per cubic metre (Subhaghat).

<sup>11</sup> The minimum flat tariff was revised from NRs50/10 cubic meters to NRs110/10 cubic meters in July 2013. There was no revision after that till date.

<sup>12</sup> For the existing water supply system, the WUSC Charikot revised the flat rate monthly tariff from NRs30 per household to NRs50 per household in 2007, and further to NRs100 per household in 2012. No further revision happened till date. Source: Discussion with WUSC Chairperson of Charikot.

<sup>13</sup> In the water supply subproject appraisal, TDF considered 10% tariff increase every three years. Source: Appraisal for Additional Loan Agreement for Khadbari Small Town Water Supply and Sanitation Project. 2017.

in 3 years) because this will be part of the onlending agreement to be signed between TDF and WUSCs.

## 2. Willingness to Pay and Affordability

10. All three project municipalities have water supply systems at various coverage levels with a flat tariff rate. These flat rates will be replaced in 2024 by the volumetric tariff rates. As of 2018, poor households<sup>14</sup> in three municipalities with sample subprojects pay about 0.1%—0.7% of their monthly income for water supply, and 0.1%—0.4% of non-poor households do so. This is estimated to increase from 4.3% to 4.7% for poor households and from 1.5% to 2.2% for non-poor households in 2024, when the WUSCs start the full operation of sample subprojects (Table 1). The estimated average household expenditure for water supply is found to be less than the accepted level of 5% of the total household income in all income categories of the three project municipalities, and this underlines the affordability for the project beneficiaries.

**Table 1: Water Charges, Usage, and Average Household Income**

Details	Existing (2018)			Proposed (2024) <sup>a</sup>		
	Charikot	Pragatinagar	Subhaghat	Charikot	Pragatinagar	Subhaghat
Monthly water supply bill (NRs/household) <sup>b</sup>	100.0	20.0	80.0	911.8	920.6	836.4
Average monthly household income – poor (NRs) <sup>c</sup>	13,390	13,390	13,390	19,538	19,538	19,538
<b>% of water bill—poor</b>	<b>0.7%</b>	<b>0.1%</b>	<b>0.6%</b>	<b>4.7%</b>	<b>4.7%</b>	<b>4.3%</b>
Average monthly household income – non-poor (NRs) <sup>d</sup>	28,424	43,409	28,670	41,474	63,340	41,834
<b>% of water bill—non-poor</b>	<b>0.4%</b>	<b>0.1%</b>	<b>0.3%</b>	<b>2.2%</b>	<b>1.5%</b>	<b>2.0%</b>

NRs = Nepalese rupees.

<sup>a</sup> 2024 is the year when WUSCs will start full operations.

<sup>b</sup> All three towns have water supply systems at various coverage levels ranging from 2.3% (Subhaghat) to 14.0% (Pragatinagar) to 61.0% (Charikot), with flat monthly tariff rates at present. For the proposed water supply of 100 liters per capita per day in 2024, the volumetric tariff rates prepared by design consultants in consultation with WUSCs are considered.

<sup>c</sup> The average monthly household income of NRs13,390 for poor households in 2018 was estimated based on the average daily poor household income of NRs535.6 and 25 working days a month. This is updated to 2024 with a 6.5% annual increase, the inflation rate suggested by the Asian Development Bank for Nepal.

<sup>d</sup> The average daily non-poor household income (ranging from NRs1,137 to NRs1,736) was derived from a socio-economic survey (2015) carried out in the project municipalities and was updated to 2018 using the past inflation rate (8%). Considering 25 working days a month, the average monthly household income was estimated for 2018. Further, these monthly household incomes for 2024 are updated with a 6.5% inflation rate, which the Asian Development Bank suggests for Nepal.

Sources: Government of Nepal, Department of Water Supply and Sewerage. 2015. *Baseline socio-economic survey reports for sample towns*. Kathmandu; and Government of Nepal, Department of Water Supply and Sewerage. 2017. *Detailed Project Reports of Water Supply Projects of Sample Towns*. Kathmandu.

## 3. Incremental Recurrent Cost Recovery for Water Supply Subprojects

11. The cash flow of sample water supply subprojects is projected for 20 years of operation, taking into consideration both the expected tariff revenues and incremental expenditure. Incremental expenditure includes O&M and the debt repayment to TDF (25% of civil works costs).<sup>15</sup> The general assumptions followed to calculate the cash flow are as follows:

<sup>14</sup> Households living below the poverty line, which is based on per capita consumption of 2,144 calories. Source: Central Bureau of Statistics. 2005. *Poverty Trends in Nepal (1995-96 and 2003-2004)*. Kathmandu.

<sup>15</sup> For the water supply subprojects, 70% of project costs will be covered by a grant from the Government of Nepal, 5% by users' contributions, and 25% by a TDF loan. The WUSCs will be responsible for the repayment of the TDF loan.

- (i) The projection covers the period from 2018 to 2043, including 6 years of implementation. Assets established have a 20-year lifespan.
- (ii) All costs are in nominal prices and converted at an exchange rate of \$1 = NRs103.
- (iii) The proposed volumetric tariff will be implemented from 2024, with subsequent 10% tariff increases every 3 years.
- (iv) Incremental costs include expenditures for personnel, maintenance, administration, chemicals, power, and TDF loan repayment; and exclude depreciated expenditure, which is a non-cash item.
- (v) The TDF loan will cover 25% of civil works costs; it has a grace period of 6 years and a repayment period of 20 years at a 5% interest rate; and
- (vi) Based on the actual performance of user charge collection in small towns under an earlier project funded by ADB,<sup>16</sup> a 95% collection efficiency applies.

12. The cash-flow projection shows that the sample water supply subprojects will fully recover incremental recurrent costs from the start of full operations in 2024 (Table 2). Under the project, the WUSCs will be given capacity building support from the PMO and TDF through training sessions and study tours. Project municipalities will provide financial support to WUSCs if the tariff revenues are insufficient to sustain the operation. Together, these factors underline the sustainability of the sample water supply subprojects.

**Table 2: Recovery of Incremental Recurrent Costs by Sample Subprojects**  
(\$ million)

Details	Charikot			Pragatinagar			Subhaghat		
	2024	2029	2034	2024	2029	2034	2024	2029	2034
Income from tariff	0.49	0.59	0.80	0.30	0.44	0.71	0.33	0.44	0.63
Incremental expenses	0.15	0.21	0.29	0.09	0.12	0.16	0.12	0.16	0.22
Debt repayment <sup>a</sup>	0.24	0.24	0.24	0.14	0.14	0.14	0.19	0.19	0.19
<b>Surplus / (deficit)</b>	<b>0.09</b>	<b>0.14</b>	<b>0.27</b>	<b>0.08</b>	<b>0.19</b>	<b>0.41</b>	<b>0.03</b>	<b>0.09</b>	<b>0.22</b>
<b>Operating ratio<sup>b</sup></b>	<b>80.9%</b>	<b>75.8%</b>	<b>66.2%</b>	<b>73.6%</b>	<b>57.9%</b>	<b>42.5%</b>	<b>91.3%</b>	<b>79.8%</b>	<b>65.0%</b>

<sup>a</sup> Debt repayment includes both principal and interest.

<sup>b</sup> Calculated by dividing operating expenditure by revenues.

Note: In line with TDF Project Financial Appraisal Manual, 2015, and the procedures followed in earlier loans for repayment to TDF, "equated annual debt repayment" considers both principal and interest.

Sources: Asian Development Bank estimates.

#### D. Financial Performance of Municipalities

13. Under the new Local Government Operation Act, 2017<sup>17</sup> municipalities have legislative, executive, and judiciary powers and are in the process of re-establishment by recruiting the adequate number of staff and formulating local laws, policies, and procedures. Adequate administrative infrastructures and services will need to be built for their full functionality.

#### E. Financial Capacity of the Government of Nepal

14. All the subprojects are demand driven and structured with a defined cost-sharing model by which the federal government and municipalities are stakeholders, as followed for the ongoing third small towns project (footnote 16). Under the provisions of the new Local Government

<sup>16</sup> ADB. [Nepal: Small Towns Water Supply and Sanitation Sector Project](#); ADB. [Nepal: Second Small Towns Water Supply and Sanitation Sector Project](#); and ADB. [Nepal: Third Small Towns Water Supply and Sanitation Sector Project](#).

<sup>17</sup> The Local Government Operation Act, 2017 defines the composition, operational procedures, and powers of municipalities.

Operation Act, the role of the federal government in supporting municipalities is clearly defined. Given this background and considering the non-availability of financial data for newly restructured municipalities, a financial performance analysis was carried out for the government.

15. The financial position of the government was found to be satisfactory in terms of revenue surplus and deficit (Table 3). The government is further striving to improve Nepal's gross domestic product through policy initiatives such as the Fourteenth Three-Year Plan (2017–2019),<sup>18</sup> and the National Urban Development Strategy (2017).<sup>19</sup> The government's budget allocation for water supply increased from \$0.13 billion in 2014 to \$0.22 billion in 2018,<sup>20</sup> and this underlines the government's commitment to operation and maintenance of basic urban infrastructure, including the project.

**Table 3: Financial Performance of Government of Nepal**  
(\$ billion)

Particulars	2012	2013	2014	2015	2016
<b>I. Revenue Receipts</b>					
Tax revenues	2.06	2.52	3.03	3.46	4.09
Non-tax revenues	0.32	0.36	0.49	0.48	0.59
Other	0.01	0.02	0.06	0.06	0.03
Grants	0.40	0.34	0.41	0.37	0.38
<b>Total</b>	<b>2.77</b>	<b>3.23</b>	<b>3.99</b>	<b>4.37</b>	<b>5.09</b>
<b>II. Revenue Expenditure</b>					
Salary	0.64	0.64	0.82	0.86	0.87
Social security	0.29	0.36	0.40	0.49	0.55
Interest payment	0.15	0.13	0.12	0.09	0.08
Others	1.28	1.26	1.61	1.85	2.10
<b>Total</b>	<b>2.36</b>	<b>2.40</b>	<b>2.95</b>	<b>3.29</b>	<b>3.60</b>
<b>Surplus/(deficit)</b>	<b>0.41</b>	<b>0.83</b>	<b>1.04</b>	<b>1.08</b>	<b>1.49</b>
<b>III. GDP</b>	<b>14.83</b>	<b>16.46</b>	<b>19.07</b>	<b>20.59</b>	<b>21.83</b>
<b>IV. Financial Indicators</b>					
Total income/GDP	18.7%	19.7%	20.9%	21.2%	23.3%
Total expenditure/GDP	15.9%	14.6%	15.5%	16.0%	16.5%
Surplus/(deficit) to GDP	2.7%	5.1%	5.5%	5.2%	6.8%

GDP = gross domestic product.

Note: All figures are actual figures, and the government accounts up to 2016 were audited by the Office of the Accountant General.

Source: Government of Nepal, Ministry of Finance. 2018. *Public Statement on Income & Expenditure: For the Fiscal Year 2014, to 2018*. Kathmandu; Government of Nepal, Office of Auditor General. 2018. *Annual reports FY2012 to FY2016*. Kathmandu; and ADB. 2017. *Macroeconomic Update Nepal*. Manila.

<sup>18</sup> Government of Nepal, National Planning Commission. 2016. *Government's Fourteenth Plan*. Kathmandu.

<sup>19</sup> Government of Nepal, Ministry of Urban Development. 2017. *National Urban Development Strategy*. Kathmandu.

<sup>20</sup> Government of Nepal, Ministry of Finance. 2018. *Budget for Fiscal Years 2013-2014 to 2017-2018*. Kathmandu.