

FINANCIAL ANALYSIS

A. Financial and Operational Performance of NWSDB

1. The NWSDB was established in 1975 by an Act, and has a mandate to: (i) develop, operate, and control an efficient, coordinated water supply system and distribute water for public, domestic, and industrial purposes; (ii) establish, develop, operate, and control an efficient, coordinated sewerage system; (iii) take over and carry on any water supply or sewerage undertaking of any local authority transferred to the NWSDB either by a voluntary transfer order or by a compulsory transfer order; and (iv) supply water and distribute or sell water in bulk or otherwise to any local authority, government department, institution or organization, or any individual.

2. The NWSDB has a national network of water and sewerage operations with 11 regional support centers (RSCs), as well as the Colombo head office. The NWSDB's operation includes 310 schemes, 1.27 million water connections, and an estimated 5.36 million people served, along with 9,000 staff. Responsibility and authority for day-to-day administration, planning, procurement, capital works, and operation and maintenance of the water schemes are devolved to each RSC. However, all water revenues go directly to the Colombo head office through nationwide banking network facilities. Funds are distributed to each RSC according to its needs and as agreed upon in the annual budget. The regional and RSC offices keep their own books of accounts, and the chief accountant at the respective RSC office forwards the financial reports to the head office where the financial reports, including balance sheet, income statement, and cash flow, are consolidated. The RSC offices do not consolidate accounts received from the regional offices under their purview. Adjustments for depreciation and loan service charges are incorporated only at the accounts consolidation stage and carried out at the head office.

3. As shown in Table 1, the financial performance of the NWSDB has continued to deteriorate in 2000-2009, resulting in an accumulated net loss of SLRs7.58 billion as of end-2009. From 2002 to 2004, net losses of the NWSDB had averaged SLRs370 million per year. From 2005 to 2009 these losses escalated to an average of SLRs1.18 billion per year, mainly because of increasing operating expenses and debt service charges exacerbated by the low national water tariffs. Over the 10-year period, the NWSDB raised its national water tariff twice—effective March 2005 and February 2009. With the tariff revision, the corresponding rates were increased from SLRs1.25 per cubic meter (m^3) to SLRs3.00/ m^3 . This upward tariff revision resulted in a 160% increase in the average monthly water bill of a household, from SLRs75 per month to SLRs195 per month for 15 m^3 of consumption. Largely because of this tariff revision, water sales revenue during 2009 witnessed a year-on-year increase of more than 43%, which enabled a marginal operating profit following a record loss experienced in 2008. However, the increased debt service charges resulted in an overall end-of-year loss of SLRs1.43 billion. Nonetheless, this loss represented 50% decrease compared with the loss in 2008.

4. The sewerage tariff has yet to be introduced. Hence, the sewerage operation is simply contributing to the NWSDB's net income loss. The sewerage schemes are limited to Colombo, the Dehiwala and Mt. Lavinia municipal councils, and the Kolonnawa urban council areas, with 10,435 connections maintained by the Greater Colombo Sewerage section and a more recent scheme in the Kandy city area. Under the project, a revised water tariff schedule and the introduction of a sewerage tariff schedule are proposed. Under the new schemes, tariff revenues will cover at least operations and maintenance (O&M) costs and debt service costs to ensure financial sustainability of the assets created.

5. Though the NWSDB's financial performance has shown negative net incomes, its operational performance has shown promising if inconsistent improvement. While the NWSDB has failed to maintain a positive operating income (largely because of higher fuel and electricity prices), nonrevenue water levels decreased from 37.9% to 36.2% in 2008. The number of staff per 1,000 connections decreased from 8.92 in August 2005 to 7.16 in December 2009. The average bill collection rate has averaged more than 95%, and reached 99% in 2008 after a more efficient payment system and a more effective disconnection policy were introduced. A new payment incentive scheme involving penalty charges and early payment rebates also contributed to the improved bill collection rate.

**Table 1: Summary of Income and Expenditures for 2000–2009
(SLRs million)**

Item	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Sales of water	2,992	3,376	3,835	4,136	4,264	5,446	5,869	6,482	6,743	9,670
Other operating income	447	634	768	728	645	814	1,075	1,129	1,391	1,397
Total operating revenues	3,438	4,010	4,604	4,864	4,909	6,261	6,944	7,611	8,134	11,067
Less: Operating expenses	2,929	3,621	4,491	4,585	5,317	5,894	6,753	8,241	9,865	10,972
Operating income	509	389	112	279	(408)	367	191	(630)	(1,730)	95
Add: Investment income	213	250	210	136	97	33	106	203	60	49
Less: Operating interest	501	481	461	550	525	492	512	852	1,193	1,569
Net income attributable for the year	221	158	(139)	(134)	(836)	(92)	(214)	(1,278)	(2,863)	(1,425)
Brought forward income (loss)	(976)	(755)	(597)	(736)	(870)	(1,706)	(1,798)	(2,012)	(3,290)	(6,153)
Income (loss) carried forward	(755)	(597)	(736)	(870)	(1,706)	(1,798)	(2,012)	(3,290)	(6,153)	(7,579)

Source: Jaffna Peninsula Water Supply & Sanitation Feasibility Study prepared under 2043/2044-SRI: Conflict Affected Areas Rehabilitation Project. This was further updated by Asian Development Bank.

6. The NWSDB has implemented several projects supported by ADB, the World Bank, and other development partners. As of December 2009, capital work-in-progress for NWSDB was valued at SLRs72.81 billion (\$636.6 million). As of December 2009, the outstanding loan capital and unamortized capital grants received by the NWSDB were about SLRs89.09 billion (\$778.8 million), of which 98% were foreign-funded (including five ADB-funded projects).

Table 2: Subsidiary Lending Terms between the Government of Sri Lanka and the National Water Supply and Drainage Board

Project Type	Financing Mix (%)		Interest Rate (%)
	Loan	Grant	
Urban WSS	50	50	10
Rural WSS	15	85	10
Sanitation	0	100	
Community WSS	0	100	

WSS = water supply and sanitation.

Source: Based on the Government of Sri Lanka's explanation.

7. Following the subsidiary lending arrangements established between the Government of Sri Lanka and the NWSDB, the loans from ADB will be on-lent from the government to the

NWSDB in a mix of grant and loan. The grant and loan ratio will depend on the type of investment and is shown in Table 2. Under the project, the water scheme will provide water to both urban areas (i.e., areas under the purview of the JMC and the Chavachacheri urban council) and rural areas (i.e., *Pradeshiya Sabhas*). Hence, the investment for the water scheme is classified as urban or rural, based on the population in urban or rural areas.

C. Activities of the NWSDB and Local Authorities

8. In the water supply subproject areas, NWSDB manages only 15 schemes, of which 12 schemes are operational with about 745 water connections. Unlike in the rest of Sri Lanka, a significant proportion (319, or 43%) of connections in the water supply subproject areas are standposts.¹ These standposts are managed by community standpost groups in an agreement between the NWSDB and each group, whereby the group selects 4–5 officers to collect the bills due from other members of the group and transfers the money collected to the NWSDB. The NWSDB also provides water by bowzers,² as piped water supply is not sufficient. The newly elevated north RSC of the NWSDB, located in Vavuniya District, is responsible for overseeing the operations of the two regional offices in Jaffna and Vavuniya districts, managing 12 small water schemes, and monitoring the water quality in five districts—namely, Jaffna, Kilinochchi, Mannar, Mullativu and Vavuniya. The north RSC—including its regional offices in Jaffna and Vavuniya districts—is staffed by 109 personnel. To handle the expanded services in the area and take up project implementation functions, the regional office in Jaffna District will take on additional staff and be upgraded through staff training, renovations of an administrative building, and procurement of additional office equipment and furniture.

9. The JMC manages two major and six minor water schemes with 460 household connections and more than 800 standposts, of which a large number are abandoned. Even though the JMC charges a higher rate than the NWSDB for 15 m³ of water, its cost recovery performance is poorer at 25% of O&M costs. This is mainly because the JMC does not charge for standposts. Other local authorities (i.e., urban councils and *Pradeshiya Sabhas*) also manage small water schemes and provide water by bowzers where piped water supply is insufficient. Many of these schemes suffer from lack of funds for maintenance, and facilities used in these schemes have deteriorated or were already abandoned. Some local authorities recover a portion of costs by collecting tariffs from consumer societies at the standpost level of SLRs5 per month, with a membership fee of SLRs100; others—in Arali North, Ponnalai and Vali West villages—charge SLRs30 per month per family for standpost connections. In the islands, bowser water supply is charged at SLRs5 per 20-liter container, which amounts to SLRs600 to SLRs800 per month for a household's drinking water expenditures.

D. Tariff and Cost Recovery

10. The NWSDB's tariff policy at the national level is to recover O&M costs, and the higher of debt service costs or depreciation. Hence, the tariff policy allows regional cross-subsidization, whereby western RSCs substantially subsidize the O&M costs of other RSCs. The tariff structure also allows high cross-subsidization between domestic and nondomestic consumers, whereby nondomestic consumers pay about 4.5 times more than domestic consumers for a unit of water consumption. Recovery of O&M and debt service costs for the new water scheme requires an annual nominal tariff increase of 10%, and recovery of O&M costs for the new

¹ A public distribution point for a water supply system.

² A mobile water tank deployed to distribute fresh water in emergency situations where the normal system of piped distribution has broken down or is insufficient

sewerage system constructed under the project requires an introduction of a sewerage tariff and an annual nominal increase of 16% for 20 years after commission (Table 3).

**Table 3: Indicative Water and Sewerage Tariff Schedule
(SLRs)**

Item	2010	2015	2020	2025	2030
Water Supply					
Metered water tariff					
Domestic ^a					
1–5 cubic meters	3.0	4.8	7.8	12.5	20.2
6–10 cubic meters	7.0	11.3	18.2	29.2	47.1
11–15 cubic meters	15.0	24.2	38.9	62.7	100.9
Non-domestic	53.0	85.4	137.5	221.4	356.6
Fixed water tariff					
Domestic	70	112.7	181.6	292.4	470.9
Non-domestic	1,000.0	1,610.5	2,593.7	4,117.3	6,727.5
Sewerage^b					
Domestic					
1–10 cubic meters	1.3	2.7	6.0	13.2	28.9
6–10 cubic meters	2.5	5.5	12.0	26.3	57.8
11–15 cubic meters	3.5	7.7	16.8	36.9	80.9
Non-domestic	15.0	32.9	72.1	158.1	356.6

^a For a household that consumes 15 cubic meters per month, the cost of water will be SLRs195 in 2010, SLRs314.1 in 2020, SLRs505.8 in 2020, SLRs814.6 in 2025 and SLRs1,311.9 in 2030.

^b Expressed in nominal terms, assuming an annual inflation rate of 6%.

Source: *Jaffna Peninsula Water Supply and Sanitation Feasibility Study (March 2006) prepared under Loans 2043/2044-SRI Conflict-affected Areas Rehabilitation Project, updated by the post-fact finding mission.*

E. Analysis of Financial Viability and Sustainability

11. The financial internal rates of return for the water supply scheme and the sewerage scheme were calculated with the following assumptions: (i) the weighted average cost of capital is 0.24% for water supply and 0% (as a proxy for the financial opportunity cost of capital) for sewerage; (ii) the subproject implementation period is 5 years from 2011, with commission expected in 2016, (iii) the evaluation period is 20 years from commission; (iv) the constant price on December 2009 is used, with an exchange rate of SLRs114.38 to \$1; (v) the average community water supply size is 25 households per supply; (vi) average domestic water consumption is 77 liters per capita per day (lpcd) in 2016, rising gradually to 92 lpcd by 2036, while average standpost water consumption is 25 lpcd; (vii) average nondomestic consumption is 1.8 m³ per day per connection; (viii) the treatment plant loss is 5% and the nonrevenue water ratio is 15% in 2016, declining to 11% at the end of the 20-year period; and (ix) wastewater generated is 80% of clean water consumed.

12. The FIRR is negative for both the water supply subproject and the sewerage subproject, as tariffs are only sufficient to recover O&M costs and debt service costs for 20 years from commission. With the proposed tariff revision schedule, average water and sewerage tariffs will exceed the average incremental financial costs for O&M and debt services. Thus, the revised tariffs will be sufficient to cover at least O&M costs and debt service costs for 20 years from commission. Under the revised tariff scheme, the average water tariff will increase 100% from current (unrevised) levels; the average sewerage tariff will increase by less than that, and at SLRs26.23/m³ will be lower than the proposed water tariff in real terms.

Table 4: Financial Internal Rates of Return for Water Supply and Sewerage

Item	Water Supply Subproject		Sewerage Subproject	
NPV (SLRs billion)	(9.831)		(5.199)	
FIRR	(6.55%)		(8.60%)	
AIFC (SLRs)				
Full Cost	91.23		95.81	
O&M and debt services	22.26		14.38	
O&M	17.14		14.38	
Average Tariff with revision (SLRs)	37.46		26.23	
Average Tariff without revision (SLRs)	18.82		0	
Sensitivity Test	NPV	FIRR	NPV	FIRR
	(SLRs billion)		(SLRs billion)	
10% increase in capital costs	(11.253)	(7.16%)	(5.807)	(9.02%)
10% increase in O&M revenues	(10.160)	(7.01%)	(5.306)	(8.91%)
10% decrease in revenues	(10.599)	(7.60%)	(5.395)	(9.40%)

AIFC = average incremental financial cost, FIRR = financial internal rate of return, NPV = net present value, O&M = operations and maintenance.

Source(s): Jaffna Peninsula Water Supply and Sanitation Feasibility Study (March 2006) prepared under Loans 2043/2044-SRI Conflict-affected Areas Rehabilitation Project, updated by the post-fact finding mission.

13. **Affordability.** The monthly water and sewerage bills in the JMC are compared with the average monthly household income in each subproject area in Table 5. Household mean income is estimated based on 2005 data and adjusted to account for changes in the real wage index during 2005–2009. Based on the proposed tariff schedule for domestic consumers, monthly water bills will account for 2.7%–4.0% of the total monthly income, while the combined monthly bills for water and sewerage in Jaffna (Peninsula–Urban) will account for 4.7% of the total monthly income. On the other hand, the poor will mostly rely on the community water supply, which will cost a nominal amount.

Table 5: Water and Sewerage Charges and Average Household Income in 2026 by Region

Project Area	Income SLRs/ month	Usage m ³ / month	Water Charge		Sewerage Charge		Total	
			SLRs/ month	% of income	SLRs/ month	% of income	SLRs/ month	% of income
Peninsula–Urban	14,793	18.9	460	3.1	235	1.6	694	4.7
Peninsula–Rural	12,366	15.3	371	3.0			371	3.0
Islands	9,616	15.3	371	3.9			371	3.9
Jaffna District	13,448	15.0	365	2.7			365	2.7
Northern Kilinochchi	9,231	15.3	371	4.0			371	4.0

Note: 2009 constant price.

Source(s): Jaffna Peninsula Water Supply and Sanitation Feasibility Study (March 2006) prepared under Loans 2043/2044-SRI Conflict-affected Areas Rehabilitation Project, updated by the post-fact finding mission.

F. Assessment of Subproject Sustainability

14. To sustain the revenue-earning subprojects of the Jaffna and Kilinochchi Water Supply and Sanitation Project, the NWSDB must raise water and sewerage tariffs. Given the NWSDB's improved operational performance, the major reason for its poor financial performance is low tariffs. The proposed revised tariff schedule will cover O&M and debt service costs for water and sewerage operations for 20 years from commissioning in the subproject areas. When the proposed tariff schedule is applied to the entire country, it is expected that the financial performance of the NWSDB will improve substantially.