

TOWARD SUSTAINABLE WATER AND SANITATION SERVICES IN SRI LANKA

Beyond Sustainable
Development Goals to
Supporting the National
Economic Vision



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Toward Sustainable Water and Sanitation Services in Sri Lanka

Beyond Sustainable Development Goals to Supporting the National Economic Vision

Contents

Abbreviations.....	v
Acknowledgments.....	vi
Preface	vii
Overview.....	ix
1.National Economic Goals and Water Supply and Sanitation	1
2.Review of the Joint Portfolio for Water Supply and Sanitation, 2007–16	6
Distribution, Scale, and Objectives of Joint Projects in Sri Lanka.....	6
Relative Emphasis of the ADB, JICA, and the World Bank on Sector Issues and Geographic Areas.....	9
Assessing ADB, JICA, and World Bank Contributions to WSS in Sri Lanka.....	11
3.Trends and Issues in Urban and Rural Water Supply and Sanitation Service Delivery	13
Urban Water Supply.....	14
Rural Water Supply.....	19
Urban Sanitation	27
Rural Sanitation.....	30
Water Supply and Sanitation in the Estate Sector	32
4. Engaging with Development Partners.....	34
Donor Coordination.....	34
Challenges and Constraints	35
Challenges.....	35
Constraints	36
Addressing the Challenges and the Role of Development Partners.....	39
References	43

Figures

Figure 1.1. Development Indicators: Sri Lanka and Selected South and East Asian Countries.....	1
Figure 1.2. Sri Lanka: Unequal Distribution of Piped Water Access by Province, 2016.....	2
Figure 1.3. Average Water Tariff in Selected Cities in World Bank Regions and Colombo City	4
Figure 2.1. Location of ADB, JICA, and World Bank Projects for the WSS Sector in Sri Lanka	10
Figure 3.1. Access to Improved Water Supply and Sanitation, 2000–15 (percent of population).....	13

CONTENTS

Figure 3.2. Institutional Structure for Urban Water Supply.....	14
Figure 3.3. Distribution of CBOs by Size and Funding/Implementing Partners.....	20
Figure 3.4. Institutional Structure for Rural Water Supply Programs in Sri Lanka	20
Figure 3.5. Evolution of Rural Water Supply Models and Implications for CBO Sustainability	23
Figure 3.6. Institutional Arrangements for Urban Sanitation	28
Figure 3.7. Institutional Arrangements for Urban Sanitation	31
Figure 4.1. Intersectoral Coordination Needs for Effective WSS Service Delivery.....	39

Tables

Table 1.1. Off-Site Sewerage Infrastructure Coverage in Selected Urban Areas	3
Table 1.2. Sri Lanka's Relative Standing on Key Water Security Dimensions.....	3
Table 2.1. ADB, JICA, and World Bank WSS Projects in Sri Lanka Approved since 2007	6
Table 2.2. Water Supply and Sanitation Projects Approved or Closed during 2007–16 (number).....	7
Table 3.1. Urbanization and Water Supply Coverage (2006–13).....	15
Table 3.2. Key Service Indicators: NWSDB (2006–15).....	16
Table 3.3. Key Financial Indicators: NWSDB (2006–15)	16
Table 3.4. Payment Defaults and CBO Action.....	24
Table 3.5. Rural Population and Their Access to Toilets	30

Appendixes

<u>Appendix A. ADB, JICA, and the World Bank WSS Portfolio in Sri Lanka</u>	46
<u>Appendix B. Study Locations</u>	51
<u>Appendix C. Joint Case Study Focus Group Report</u>	53
<u>Appendix D. Joint Case Study Workshop Report</u>	57
<u>Appendix E. Workshop Participants</u>	65

Abbreviations

ADB	Asian Development Bank
AFD	Agence Française de Développement
CBO	community-based organization
CKDu	chronic kidney disease of unknown etiology
DCS	Department of Census and Statistics
DNCWS	Department of National Community Water Supply
DNP	Department of National Planning
GDP	gross domestic product
IED	Independent Evaluation Department (of Asian Development Bank)
JICA	Japan International Cooperation Agency
MOF	Ministry of Finance (Sri Lanka)
NGO	nongovernmental organization
NRW	non-revenue water
NWSDB	National Water Supply and Drainage Board
O&M	operation and maintenance
PMU	project management unit
RSC	regional support center
RWS	rural water supply
UN	United Nations
WSS	water supply and sanitation

All dollar amounts are U.S. dollars unless otherwise indicated.

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Preface

The objective of this joint case study is to review the experience of the Asian Development Bank (ADB), the Japan International Cooperation Agency (JICA), and the World Bank in supporting Sri Lanka as it moves toward its goals for sustainable and equitable provision of water and sanitation services to its people. The case study examines the collective experience of the three institutions during the 10-year period 2007–16, and alignment with the country’s sector and larger economic goals.

This case study was prepared by a team of staff and consultants from ADB’s Independent Evaluation Department (IED), the Evaluation Department of JICA, and the Independent Evaluation Group of the World Bank Group. This joint review is believed to be the first collaborative effort of this kind in any sector for the three institutions.

The team undertook a joint mission to Sri Lanka from August 22 to September 3, 2016 and met with officials of central government departments and agencies and provincial and local governments that are involved in or work with water supply and sanitation functions.

In addition to beneficiary interviews in 10 locations in six districts, the team also conducted focus group discussions in seven locations in two districts of Sri Lanka to obtain feedback from a range of beneficiaries and leaders of community-based organizations. A detailed report on the findings from the focus group discussions was prepared to accompany this document.

JICA hosted a workshop on September 2, 2016 on behalf of the joint mission that brought together officials of concerned government departments in the central government and officials representing other development partners to discuss the issues this joint case study raised. A separate document summarizes the proceedings. IED and JICA also prepared another sector background report that examines sector experience and coordination among donors and development partners.

Overview

Sri Lanka's ambitious goals for economic growth and joining the community of upper-middle-income countries call for setting high standards for the water supply and sanitation (WSS) sector. To support the country's growth objectives, the sector should aim beyond the Sustainable Development Goals for WSS and move toward physically, financially, and environmentally sustainable service delivery that responds to the increasing expectations of consumers and the needs of a growing economy.

The objective of this joint case study is to review the experience of the Asian Development Bank (ADB), the Japan International Cooperation Agency (JICA), and the World Bank in supporting Sri Lanka in the WSS sector. The case study reviews the collective experience of the three institutions over the 10-year period 2007–16 and makes recommendations on how the three development partners can better coordinate and contribute to the sector in the context of the country's larger economic goals.

Sri Lanka has made impressive progress in the past two decades in providing access to improved water supply covering 96 percent of its population and improved sanitation covering 95 percent, as of 2016. All three of the development partners have played a significant role in this effort through investment lending and technical assistance across both urban and rural water supply (RWS) and sanitation.

However, the favorable access levels are accompanied by serious gaps and shortcomings in service delivery across urban, rural, and estate areas. Piped water reaches only 48 percent of the total population and varies widely across the country, ranging from 11 percent in the Northern Province to

65 percent in the Western Province. Off-site sewerage is present only in the larger urban centers in the country and does not adequately cover the population in each location. Reliability and quality of the water supply vary widely in rural and estate areas. Most concerning of all is the country's vulnerability to natural disasters, which is compounded by inadequate management of liquid and solid wastes—drainage canals have become open sewers and are ineffective in evacuating flood waters.

The findings and analysis in this report point to the following important areas for coordination between development partners in their future sector engagement with the government of Sri Lanka:

- **Supporting policy and regulatory reform.** Support the government in WSS regulatory reforms, notably in establishing transparency in setting water tariffs to anchor the financial viability of service providers.
- **Focusing on the areas lagging in WSS.** Contribute tested and innovative ways to overcome technical, institutional, and capacity constraints for providing service delivery in lagging and hard-to-access areas in the rural and estate areas.
- **Adapting and strengthening the community-based organization (CBO) model for RWS.** Rising expectations for service delivery in areas served by CBOs, and decreasing willingness of consumers to make in-kind contribution to developing water supply facilities calls for professionalizing the CBOs' management according to size and

OVERVIEW

need. Greater clarity is needed in institutional responsibility to support weak CBOs.

- **Strengthening urban sanitation.** Expand and strengthen operation and maintenance (O&M) of off-site sewerage and on-site facilities, and create value chains for safe and efficient removal of fecal sludge and organic wastes. Improve in-country technical and consulting capacity. Use public-private partnerships.
- **Investing in a modern, responsive data system to underpin planning and service delivery:** Create a database for service delivery (adequacy, reliability, quality, and affordability), which is presently almost nonexistent for most of the population living outside urban areas. This exercise will help the government in developing a programmatic approach to the agenda in the WSS sector, and help development partners combine their efforts in a more complementary manner to achieve common sector outcomes. Sri Lanka is ideally placed to develop a modern system using geotagging, mobile phone apps, and the Internet, given the country's telecommunications connectivity, human resources,

technical penetration, transportation facilities, and relatively compact geography.

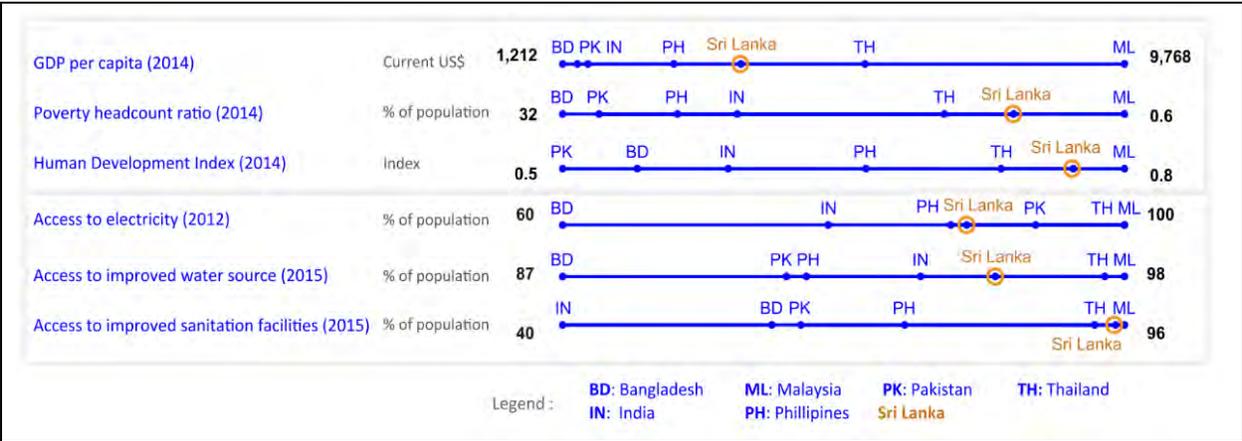
- **Enhancing mechanisms for intersectoral coordination.** Enhance existing intersectoral coordination and develop new intersectoral coordination for water resource management to meet growing demand from the domestic, agricultural, and industrial sectors; water quality in general in rural areas, particularly in areas affected by chronic kidney disease of unknown etiology (CKDu); the impact of poorly managed solid waste on sewerage and flooding; and better implementation of groundwater and environmental regulation.
- **Adopting integrated urban water management and circular economy concepts.** Build upon improved intersectoral coordination to introduce integrated urban water management practices. Reduce and eliminate unregulated dumping of urban liquid and solid waste in water bodies and lands by operationalizing circular economy concepts through adopting new and relevant technologies that enable the sector to contribute to methane capture and reuse.

1. National Economic Goals and Water Supply and Sanitation

Sri Lanka is a lower-middle-income country of 21 million people. Less than 7 percent of the population is below the poverty line, and Sri Lanka occupies a strategic position in Asia, the fastest-growing region in the world. The country has experienced average annual gross domestic product (GDP) growth of 6.25 percent since 2005, and the government is now targeting an annual growth rate of more than 7 percent in the next 10 years (CBSL 2010, 2015; MOF 2016).

Sri Lanka is well-positioned to meet its ambitious goals for economic growth. On the macroeconomic front, efforts are under way to strengthen fiscal policy, bolster public financial management, reform state enterprises, and improve competitiveness. The country has a strong base of human capital and reliable infrastructure. Ports and other transport-related facilities have benefited from increased investment in the past decade. Access to electricity and to improved water and sanitation are significantly better than in neighboring South Asian countries and compare favorably with those of Malaysia and Thailand, both upper-middle-income countries in East Asia (IMF 2016) (figure 1.1).

Figure 1.1. Development Indicators: Sri Lanka and Selected South and East Asian Countries



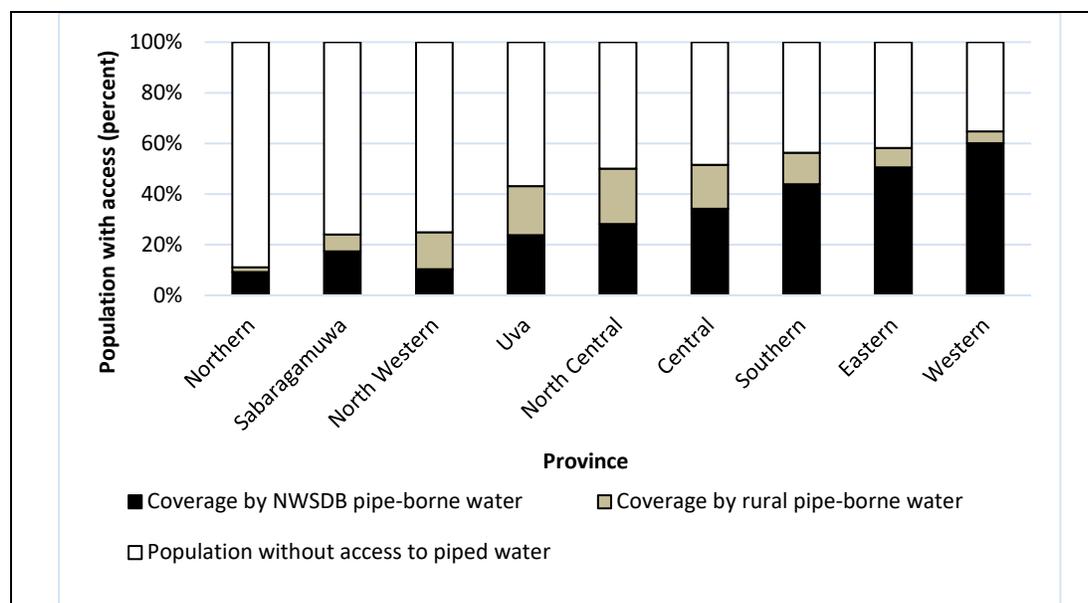
Source: World Development Indicators (database), World Bank, Washington, DC, <http://data.worldbank.org/data-catalog/world-development-indicators>.

Note: Per the World Development Indicators (WDI) reports, an improved drinking water source is one that is protected from outside contamination, particularly from fecal matter contamination, by nature of its construction or through active intervention (for example, borewells and piped water versus surface drinking water sources). An improved sanitation facility is one that hygienically separates human excreta from human contact (for example, a pit latrine with slab, flush/pour flush to sewer system versus open defecation or shared sanitation facilities).

However, regarding improved water supply and sanitation (WSS), Sri Lanka’s favorable access levels also come with serious gaps and shortcomings in responding to

beneficiaries’ needs for better quality across urban, rural, and estate areas. Piped water is available to only 48 percent of the total population. In the Northern Province, piped water is available to only 11 percent of the population, contrasting sharply with 65 percent in the Western Province. Off-site sewerage is available in only a few urban areas in the country and does not adequately cover the population in each location. Reliability and quality of the water supply vary widely in rural and estate areas.

Figure 1.2. Sri Lanka: Unequal Distribution of Piped Water Access by Province, 2016



Source: NWSDB 2016a.

Note: NWSDB = National Water Supply and Drainage Board.

The capacity of the existing infrastructure to provide service delivery that is acceptable to consumers is falling behind the rising demand and expectations from increasing urbanization and growth in incomes. In particular, scant treatment of wastewater, limited sewerage, and poor on-site sanitation are having an increasing impact on the quality of surface water and groundwater, affecting living conditions in urban and peri-urban areas and the quality of drinking water. Off-site sewerage is available in only a few urban areas in the country and is inadequate to cover the entire population of each location (table 1.1). Dependence on on-site sanitation has generated fecal sludge, which, when combined with solid wastes, clogs water bodies near settlements and stormwater drains in and around larger cities. Inadequate arrangements for collecting and segregating solid waste, especially in low-income communities, affects both water quality and sedimentation levels in stormwater drains, rivers, and lakes, adding to environmental impacts on water bodies and land that are difficult to reverse. Industrial wastewater from small and medium-size industries, which are spread widely in

residential and rural areas in the Western Province, spills heavy metals and persistent organic pollutants into wetlands and water bodies.

Table 1.1. Off-Site Sewerage Infrastructure Coverage in Selected Urban Areas

Municipal council	Population	Population with Access to Off-Site Sewerage	
		Number	Percent
Colombo	715,000	435,615	61
Dehiwala/Mt. Lavinia	112,000	10,700	10
Kolonnawa	60,000	6,380	11
Kandy	205,000 ^a	52,000 ^b	25 ^c

Sources: Jagannathan 2016; JICA 2010.

a. Includes 150,000 daily migrating population.

b. Expected coverage at commissioning of JICA-supported Kandy City Waste Water Management Project in 2021.

c. Percentage based on total population, including daily migrating population.

Domestic water needs are increasingly in competition with the demands of the agricultural, industrial, and services sectors. Although it fares well compared with countries in South Asia, Sri Lanka is behind comparable countries in East Asia on several components of a National Water Security Index, which covers household, urban, economic, environmental, and disaster resilience aspects.¹ In Colombo, this is seen in how the WSS infrastructure's shortcomings are contributing to the diminishing capacity of the network of rivers, drains, lakes, and ponds to adequately buffer the excess flows of rainwater during the two monsoon seasons that the city experiences every year. Consequently, the engineered hydraulic infrastructure and the natural water (wetland) ecosystem are highly stressed, posing a threat to both the city and country's plans for rapid economic growth (table 1.2).

Table 1.2. Sri Lanka's Relative Standing on Key Water Security Dimensions

Country	National Water Security Index (1–100)	Water Security Key Dimension (1–20)				
		Households	Economic	Urban	Environmental	Resilience to disasters
Malaysia	73.4	20.0	15.4	15.8	13.3	8.8
Thailand	54.4	13.3	15.7	6.8	8.0	10.6
Sri Lanka	51.4	13.3	12.4	10.0	8.0	7.7
Bangladesh	35.3	14.1	5.0	5.3	4.2	4.2
India	33.1	4.0	12.9	5.6	5.3	5.3
Pakistan	32.7	5.3	11.5	4.5	6.7	4.7

Source: ADB 2016.

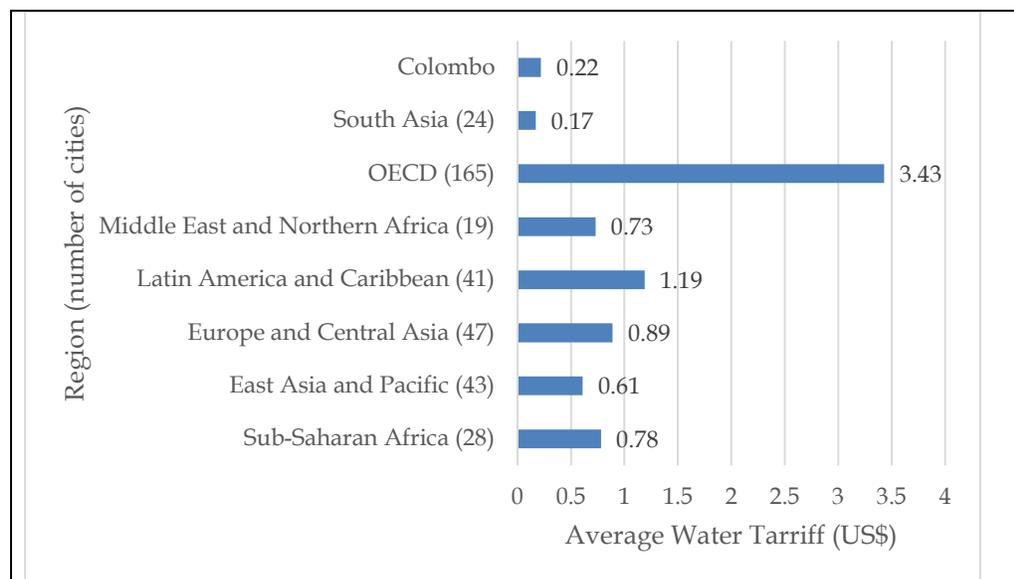
Water tariffs in Sri Lanka are some of the lowest in the world, barely covering operating costs, and leaving little room for contributing to rehabilitation. Given the large needs for

infrastructure rehabilitation and expansion of services, the lack of financial sustainability implied by the low tariffs further undermines the scale and sustainability of service delivery (figure 1.3).

Sri Lanka’s development objectives regarding water resources are contained in two key documents: Mahinda Chintana – *Vision for the Future: The Development Policy Framework, Government of Sri Lanka* (DNP 2010), and Mahinda Chintana: *A Vision for a New Sri Lanka – A Ten-Year Horizon Development Framework 2006 – 2016* (DNP 2006). Both publications recognize that urbanization will increase the demand for drinking water, and improved access to safe and reliable drinking water is needed for urban and rural areas throughout the country.

Sri Lanka’s ambitious goals for economic growth and joining the community of upper-middle-income countries call for setting high standards for the WSS sector. The appropriate objective for the country should be to go beyond the Sustainable Development Goals (achieving universal and equitable access to safe and affordable drinking water; and adequate and equitable sanitation and an end to open defecation, both by 2030).² The objective should move toward physically, financially, and environmentally sustainable service delivery in the WSS sector that responds to consumers’ increasing expectations and the needs of a growing economy.

Figure 1.3. Average Water Tariff for Selected Cities across Regions; Colombo City



Source: Global Water Intelligence 2015.

Note: OECD = Organisation for Economic Co-operation and Development.

By contrast, the broader national dialogue on the economy and infrastructure does not appear to give due importance to the WSS sector. Urgent and focused attention to

addressing the sector's needs in an informed and systematic manner is required so that the WSS sector's shortcomings and uneven development do not become a drag on the larger national goals for economic growth, and on reducing extreme poverty and improving shared prosperity.

¹ The National Water Security Index is based on five key dimensions for household, economic, urban, environmental, and resilience to water-related disasters. The overall national water security of each country is assessed as the composite result of the five key dimensions measured on a scale of 1–20, with 1 being a low level of water security and 20 being the exemplary level. For more information, see ADB 2016.

² For more information about the Sustainable Development goals, visit <http://www.un.org/sustainabledevelopment/sustainable-development-goals/>.

2. Review of the Joint Portfolio for Water Supply and Sanitation, 2007–16

ADB, JICA, and the World Bank give WSS high priority in their lending portfolios for all client countries. During 2007–16, ADB, JICA, and the World Bank committed about \$12.5 billion, \$12 billion, and \$38 billion, respectively, for WSS in their client countries, which amounted to about 25 percent, 14 percent, and 7 percent, respectively, of their overall lending. For ADB in particular, water became a core area of operation with the establishment of its Water Financing Program in 2006.

Distribution, Scale, and Objectives of Joint Projects in Sri Lanka

In Sri Lanka, the three development partners have played a prominent role in the WSS sector. During the 10-year period 2007–16, the quantum of assistance committed to the sector by these three institutions totals \$1,970.3 million, which supported total project costs of \$3,388.1 million. This compares to an average total annual investment in WSS in the country of about \$200 million during the period 2007–11, indicating the high share of investment contributed by the three development partners in the sector (World Bank 2014). ADB’s net support to WSS since 2007 is \$910.8 million, JICA’s is \$636.4 million, and the World Bank’s is \$423.1 million (table 2.1).

Table 2.1. ADB, JICA, and World Bank WSS Projects in Sri Lanka Approved since 2007

Organization and Instrument	Number of Projects	Project cost (US\$, millions committed or actual)	Net WSS Support (US\$, millions committed or actual)
ADB loan and grant	8	1531.8	907.4
ADB technical assistance	6	3.8	3.4
JICA loan and grant	7	829.9	636.4
JICA technical assistance	4	3.3	0.0 ^a
World Bank loan and grant	7	1,000.7	421.4
World Bank technical assistance	1	18.7	1.7

Sources: ADB, JICA, and World Bank evaluation units.

Note: ADB = Asian Development Bank; JICA = Japan International Cooperation Agency; WSS = water supply and sanitation.

a. The figure for JICA’s technical assistance excludes capacity-building components included in loans or grants and represents an independent project, so the lending amount is zero.

The three development partners completed or began the implementation of 39 projects during 2007–16 that either are dedicated to WSS (27) or have a significant component related to the sector (12). Of the 27 dedicated projects, 17 are infrastructure investments, and 10 focus exclusively on advisory and capacity-building technical assistance. Fifteen

dedicated WSS projects were completed during 2007–16, of which eight are infrastructure investments, and seven are technical assistance. Currently, the three development partners are supporting 12 dedicated WSS projects that are active, of which three are technical assistance projects (table 2.2). Appendix A contains a complete list of ADB, JICA, and World Bank projects for WSS in Sri Lanka active during the 2007–16 period.

Table 2.2. Water Supply and Sanitation Projects Approved or Closed during 2007–16 (number)

Dedicated, Other	Status	ADB		JICA		World Bank	
		Loans, grants	Technical assistance	Loans, grants	Technical assistance	Loans, grants	Technical assistance
Dedicated to WSS	Active	5	1	3	2	1	—
	Closed	3	5	5	2	1	—
Other sector, but with WSS components	Active	2	1	—	—	3	—
	Closed	2	—	—	—	4	1
Total		10	7	8	4	9	1

Sources: ADB, JICA, and World Bank evaluation units.

Note: Technical assistance shown here is advisory and capacity-development technical assistance and excludes project-preparatory technical assistance. ADB = Asian Development Bank; JICA = Japan International Cooperation Agency; WSS = water supply and sanitation; — = not available.

ADB had three loans (investment projects) and five technical assistance projects dedicated to the sector that were closed during 2007–16 (including one that was closed in mid-2017). The two investment projects commenced in the late 1990s and targeted rehabilitation of existing water supply programs, and new construction for villages and small and medium-size secondary towns (population ranging between 6,000 and 30,000). Closed technical assistance projects have focused on capacity building for reducing non-revenue water (NRW) and wastewater management in Colombo, and on regulatory reform and strengthening decentralization in the water sector. The five ongoing investment projects also focus on large towns and cities, and they concentrate on improving WSS services in dry-zone towns and rural water supply programs, and in the Greater Colombo area. The projects in conflict-affected areas around Jaffna and Kilinochchi have just been closed. In recent years, water supply projects have come to have greater importance in providing improved access to safe drinking water, particularly in areas affected by CKDu, which is a government priority. Two of ADB’s recent technical assistance projects are focusing on institutional development of the National Water Supply and Drainage Board (NWSDB) and wastewater management improvement in Colombo.

JICA had five loan projects and two technical assistance engagements dedicated to WSS that were completed during 2007–16, and three loan projects and two technical

CHAPTER 2

REVIEW OF THE JOINT PORTFOLIO FOR WATER SUPPLY AND SANITATION, 2007–16

assistance engagements are ongoing. Collectively, these projects address a variety of sector issues. These include expanding the existing water supply facilities in urban areas and introducing new pipe-borne water supply facilities, including community-based, small-scale facilities in rural areas; reducing NRW by replacing and repairing aged water pipes in urban areas and providing related technical cooperation; and improving sewerage by implementing high-priority projects, and analyzing the current status and challenges through technical assistance for the preparation of a strategic master plan. Under its loan projects, JICA's emphasis is on providing quality infrastructure investments.

In addition to these three areas, JICA implements several other programs, such as public-private partnerships that technologies of small and medium-size Japanese enterprises that meet local needs and conditions, such as measures to reduce NRW, prestressed concrete tanks, and ozone treatment of industrial water. JICA also provides a form of technical cooperation under its Japan-based Sector Technical Training Program, now called the Knowledge Co-Creation Program, which is geared to improving the problem-solving skills of program participants, thus adding a crucial element in human resource development that complements other assistance. Many of Sri Lanka's WSS sector officials from both the national and local governments have taken part in this program since the mid-1950s, and feedback obtained from some of these officials confirms the program's value added for sector-related work.

The World Bank's projects tend to have a multisector orientation, and in the period under consideration, only one dedicated sector project (focusing on rural WSS) has been completed, and another dedicated project – also focusing on rural WSS – is ongoing. The Second Community Water Supply and Sanitation Project, which was completed in 2011, is a continuation of the groundbreaking Community Water Supply and Sanitation Project implemented in the 1990s that pioneered devolving management of RWS programs to CBOs. Building on the achievements of the first project, the Second Community Water Supply and Sanitation Project aimed to increase service coverage and achieve effective and sustained use of WSS services in rural communities in Sri Lanka. The ongoing Water and Sanitation Improvement Project aims to increase access to piped water services and improved sanitation in seven selected districts and strengthen the capacity of associated institutions. In the past, the World Bank has also provided significant non-lending or technical assistance support for infrastructure assessments, public-private partnership frameworks, and urban policy covering WSS, among other sectors.

Relative Emphasis of the ADB, JICA, and the World Bank on Sector Issues and Geographic Areas

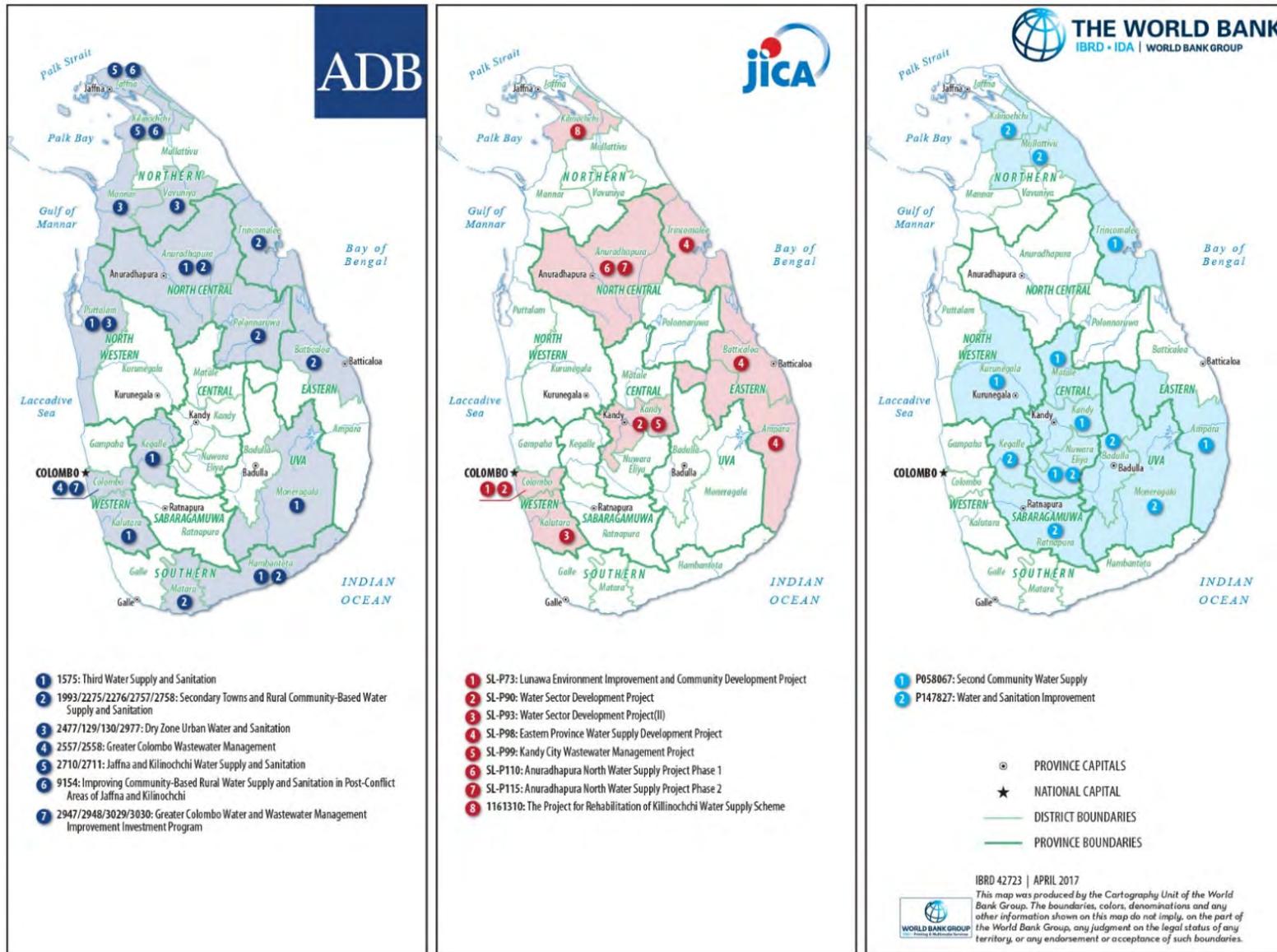
During the past decade, there have been consistent patterns in the efforts of the development partners regarding issues and geographic coverage. ADB's Sri Lanka country partnership strategies (ADB 2003, 2010, 2011) during the past 10 years aimed to assist the government in providing safe water for all, improving sanitation, supporting lagging and conflict areas, and promoting rational policy development. JICA Country Analytical Work (JICA 2012) has focused on three issues: expanding water supply improvement in urban areas and establishing new water supply systems in rural areas; contributing to reduction of NRW and improving the management efficiency of NWSDB; and identifying priority sanitation improvement projects through the Project for the Strategic Master Plan under Sewerage Sector, a technical assistance project. For the World Bank, WSS has consistently been one of the key priorities in its country strategies in the past decade, with emphasis on providing water supply to rural areas and the postconflict North and Eastern regions. Although all three of the development partners emphasize their role in expanding access to WSS services, including lagging and postconflict areas, JICA has placed more emphasis on reducing NRW, improving urban sanitation, and water resources management, while ADB has placed relatively more emphasis on institutional reforms and WSS improvements for secondary towns.

There are some noteworthy patterns in the urban, rural, and geographic deployment of the development partners' projects. Although the World Bank's activities are mostly in rural areas and lagging regions in Central, Sabaragamuwa, and Uva Provinces, JICA and ADB are more oriented toward interventions in urban areas. However, JICA focuses more on large cities such as Colombo and Kandy, unlike ADB, which focuses more on secondary towns such as Muttur. JICA and ADB also have projects in Colombo, but they have a different focus. JICA has been concentrating on the Kalu River in the southern part of Colombo as an alternative water resource to the Kelani River. In the project formulation stage in 1997, JICA strategically identified this area to prevent water scarcity in Colombo caused by its rapid economic growth and urbanization. ADB's projects in Colombo have focused on improving water supply services and wastewater management in the city. All three of the development partners are involved in projects being implemented in areas in the north and east that were previously conflict-affected, notably in Trincomalee and Kilinochchi Districts, and in Batticaloa and Ampara in the Eastern Province. Together, the development partners have worked or are working on sector activities in 23 districts of Sri Lanka since 2007, excluding only Gampaha in the Western Province and Galle in the Southern Province (figure 2.1).

CHAPTER 2

REVIEW OF THE JOINT PORTFOLIO FOR WATER SUPPLY AND SANITATION, 2007–16

Figure 2.1. Location of ADB, JICA, and World Bank Projects for the WSS Sector in Sri Lanka (approved or closed during 2007–16)



Sources: ADB, JICA, and World Bank evaluation units.

Overall, each development partner has worked on distinctive issues of focus within common sector goals, but coordination of efforts has been good. The development partners' activities have had no overlapping locations or beneficiaries. Most of the districts throughout the country have been covered with assistance of at least one of the three development partners. Where more than one development partner works in a single geographic area, division of assistance by either subareas or subsectors between them has avoided overlap and resulted in synergistic effects for the area as a whole. For example, both ADB and JICA have provided loans, in parallel, to increase water supply coverage throughout the Greater Colombo area. Additionally, JICA has worked on reducing NRW and on water quality monitoring while ADB has worked on rehabilitation of the networks. Together, the two development partners' approach has contributed to the improvement of water supply services in Greater Colombo and has strengthened the capacity of NWSDB. Similarly, the three development partners had a coordinated approach in RWS assistance – the CBO program approach that the World Bank originally designed has evolved with ADB's rural community-based water supply programs, and JICA also adopted it for its RWS projects. A water and sanitation sector donor-coordination working group aided this coordination. *Agence Française de Développement* (AFD), the French overseas development assistance agency, initiated the working group, and it was affiliated with the Development Partners Forum coordinated by the World Bank Sri Lanka office.¹

Assessing ADB, JICA, and World Bank Contributions to WSS in Sri Lanka

Each development partner rates the performance of its projects using its own rating scale, and the scales are not strictly comparable.² ADB rated the Third Water Supply Project and the Local Government Infrastructure Improvement Project as successful, and the Secondary Towns and Rural Community-Based Water Supply and Sanitation project as less than successful. Of the five closed technical assistance projects, three of them supporting the Capacity Development for Wastewater Management Services in Colombo, Capacity Development for Non-Revenue Water Reduction, and Wastewater Management Improvement in Colombo Municipal Council project were rated successful, and two technical assistance projects related to supporting a regulatory framework for WSS and supporting decentralization in the sector were rated less than successful. For JICA, four loans are not yet rated; the Lunawa Environment Improvement and Community Development Project was rated satisfactory. Similarly, of the two closed technical assistance projects, the Capacity Development Project for NRW Reduction in Colombo City was rated as having achieved its objectives and attained the desired outcome. For the World Bank, of five rated projects, four were rated moderately satisfactory, and one was rated unsatisfactory. The Second Community Water Supply

CHAPTER 2

REVIEW OF THE JOINT PORTFOLIO FOR WATER SUPPLY AND SANITATION, 2007–16

and Sanitation Project, which is the only closed project dedicated to WSS, was rated moderately satisfactory.

This case study attempted to map the key performance indicators used by each development partner to a common set of key performance indicators. However, varying definitions for similar parameters between development partners made it difficult to carry out this exercise. In the future, development partners should work with the government to develop consistent definitions for different parameters to enable better tracking of the Sustainable Development Goals indicators.

Appendix A presents details of the entire Sri Lanka WSS portfolio of ADB, JICA, and the World Bank, including investment (loan and grant) and technical assistance interventions approved or closed during 2007–16.

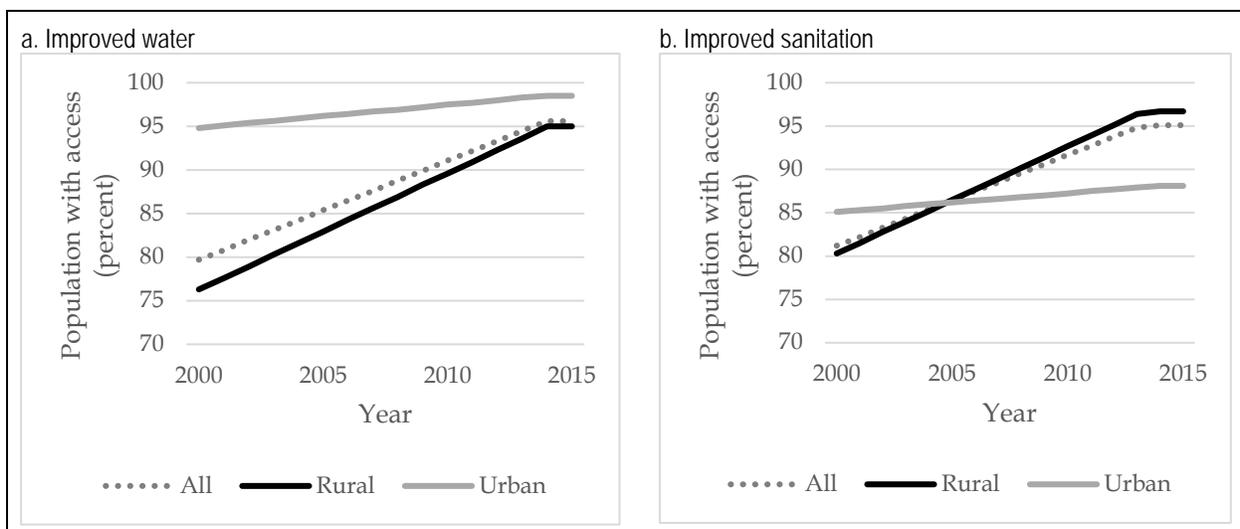
¹ The Development Partners Forum is an informal, broad, and inclusive mechanism for information and experience-sharing within the foreign aid community in Sri Lanka. It provides an opportunity for development partners to identify and discuss topics of common interest and areas that may require further dialogue with government authorities. The Development Partner Forum allows missions to brief one another on their aid strategies and programs, and discuss new initiatives. The World Bank Group's Colombo office is the development partner Secretariat, supported with a dedicated Development Partner Coordinator position.

² The ADB uses a four-point scale: highly successful, successful, less than successful, and unsuccessful. JICA uses a four-point scale: highly satisfactory, satisfactory, partially satisfactory, and unsatisfactory. The World Bank uses a six-point scale: highly satisfactory, satisfactory, moderately satisfactory, moderately unsatisfactory, unsatisfactory, and highly unsatisfactory.

3. Trends and Issues in Urban and Rural Water Supply and Sanitation Service Delivery

Eighteen percent of the population of Sri Lanka is urban and 82 percent is rural.¹ The rural population includes the estate sector, which comprises 5 percent of the national population. Access to RWS and sanitation in Sri Lanka has grown significantly in the survey years between 2000 and 2015, from 77 percent and 80 percent in 2000 to 95 percent and 97 percent, in 2015. However, it appears to have leveled off since then, pointing to the challenges of bridging the last mile. The growth in access to rural WSS has been particularly impressive and has mostly driven the overall national trend for sanitation. Urban sanitation lags in relative terms, having grown only marginally from 85 percent to 88 percent during the 2000–15 period. Urban water supply started from a high base of 95 percent in 2000 and had reached 98 percent by 2015 (figure 3.1).

Figure 3.1. Access to Improved Water Supply and Sanitation, 2000–15 (percent of population)



Source: World Development Indicators (database), World Bank, Washington, DC, <http://data.worldbank.org/data-catalog/world-development-indicators>.

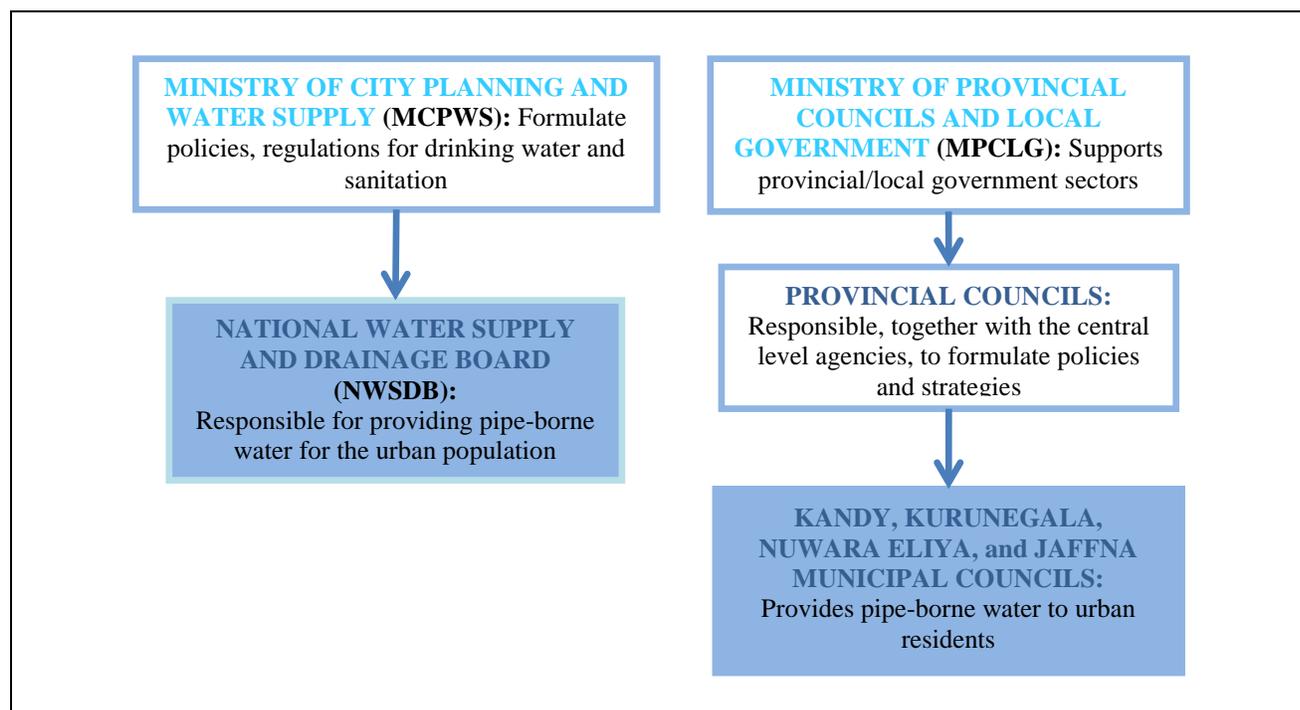
Overall access to WSS is impressive, but there are large gaps and shortcomings in service delivery parameters – adequacy, reliability, and quality – for WSS, in urban and rural areas. Service providers in all categories face challenges in operational efficiency, financial sustainability, technical and managerial capacity, and institutional clarity. The following sections discuss these challenges, in order, for urban water supply, RWS, urban sanitation, and rural sanitation, followed by the estate sector and its unique issues.

Urban Water Supply

Service Delivery Mode and Institutions: The NWSDB is responsible for water supply services to urban areas in Sri Lanka, except for areas where municipal or urban councils provide the water supply (Kandy, Kurunegala, Nuwara Eliya, and Jaffna). The NWSDB, which was originally a subdepartment under the Public Works Department, was operated as a highly centralized organization until 1992, when regional support centers (RSC) were established with the help of an institutional development program funded by the U.S. Agency for International Development.² Currently, NWSDB operates through 11 RSCs, each headed by a deputy general manager who reports to another general manager at the head office in Colombo.

Although many functions – including design – are now decentralized to RSCs (a move supported by the ADB-funded Institutional Strengthening for Decentralized Service Delivery in the Water Sector technical assistance project), some key functions, such as finance, human resource management, and procurement, are still managed centrally. RSCs are well positioned to coordinate with local authorities, such as provincial councils, to improve water supply services in the regions. Furthermore, decentralization is desirable to enable RSCs to respond more effectively and promptly to local needs and to coordinate with other relevant agencies, such as the office of the Medical Officers of Health, at the local level.

Figure 3.2. Institutional Structure for Urban Water Supply



Access: Access to safe water in 2012–13 in urban areas was 98.8 percent, having overcome the impact of about 10 percent 2006–7 (table 3.1).³ More than 92 percent of the urban population is reported to have access to drinking water within their premises. Urban water supply is provided through 331 urban water supply programs that provide more than 1.9 million connections (NWSDB 2016b) covering about 7.4 million people.⁴ Although many small towns that are outside the official definition of urban areas are already covered by these water supply programs, some areas in the previously conflict-affected areas to the north and east are in the process of getting piped water.

Table 3.1. Urbanization and Water Supply Coverage (2006–13)

Indicator	2006–07	2009–10	2012–13	Percent change, 2006–13
Urban population (millions)	2.7	3.0	3.6	33.3
With access to safe water (%)	97.7	87.6	98.8	1.1
With access to drinking water within premises (%)	88.1	88.9	92.2	4.6
With sufficient drinking water (%)	96.6	97.3	98.2	1.6
With sufficient bathing/washing water (%)	94.8	95.8	97.8	3.1
Urban mean household income (current rupees)	41,928	47,783	69,880	66.7 ^a

Sources: DCS 2007, 2010, 2015.

Adequacy and Reliability: About 98 percent of the urban population is estimated to have sufficient water for drinking, bathing, and washing. About 40 percent of the urban water supply programs provide 18–20 hours of continuous supply (table 3.2). Most households have adapted to these hours by constructing water storage tanks on their premises, though poorer households may not have sufficient space for storage tanks. The low pressure in pipes from discontinuity in the water supply may be causing contamination of water within the distribution network. Overall, demand for water is increasing due to changing lifestyles and greater appliance use made possible by increasing incomes (table 3.2).

Operational Performance: Overall, the NWSDB, as the sole lead sector agency with national responsibilities for water supply development, has achieved strong results in expanding coverage and access to improved water supply. The NWSDB's service performance has improved during the past decade (table 3.2). The agency has reduced islandwide NRW from 34 percent in 2006 to 26 percent by 2016, but NRW in Colombo still stands at 46 percent. The reasons for the high level of NRW include inaccessible breaks (under concrete roads, for example); poor quality of equipment such as pipes, pumps, and fittings; and lack of an adequate metering system. Technical capacity, particularly within the plumbing industry, is inadequate to recognize leaks and provide long-term solutions. The age of the distribution network is clearly a major factor, particularly in Colombo, where some pipes are more than 100 years old. To bring NRW

CHAPTER 3

TRENDS AND ISSUES IN URBAN AND RURAL WATER SUPPLY AND SANITATION SERVICE DELIVERY

down to acceptable levels, substantial capital investment and capacity building are necessary for rehabilitation and replacement of aging assets (table 3.2).⁵

Table 3.2. Key Service Indicators: NWSDB (2006–15)

Indicator	2006	2011	2015
Piped water supply coverage (%)	29	42	45.9
Consumption, liters per capita per day	117	—	—
Non-revenue water, islandwide (%)	34	30.4	27.3
Non-revenue water, Colombo (%)	51.8	49.9	46.1
Water availability (number of hours per day)	16	20	20
Bacterial water quality compliance (%)	95	98	99.5
Number of water connections (millions)	0.98	1.49	1.95
Number of public standpipes (number of units)	8,146	6,376	1,824
Sewerage connections (number)	9,472	11,173	17,870

Sources: World Bank 2014; NWSDB 2015, 2017.

Note: — = not available.

Water Quality: The quality of water supplied by the NWSDB is perceived to be safe to drink without any further purification by the household. This is consistent with the feedback received from beneficiaries during focus group discussions held for this case study in Allainagar and Jayanagar in Muttur. However, according to the Ministry of Health, objective measurements show that only 77 percent of samples that the Ministry of Health collected for bacteriological testing from the NWSDB's distribution network were found to be satisfactory, compared with 99.5 percent of samples collected and tested by the NWSDB on its own. This difference warrants further analysis.

Table 3.3. Key Financial Indicators: NWSDB (2006–15)

Indicator	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Operating profit on sale of water (SL Rs thousands)	1,788	1,579	654	3,348	3,682	4,146	4,310	7,059	7,384	7,269
Profit or (loss) from operating activities (SL Rs thousands)	254	(576)	(1,665)	184	(4,529)	1,288	588	1,864	2,454	(100)
Staff productivity (total staff per thousand connections)	8.7	8.2	7.6	7.16	6.6	6.4	6.09	5.83	5.7	5.2
Debt service coverage (earnings before interest and tax/interest payable + short term loan payable)	0.58	(0.59)	(0.60)	(0.32)	(0.82)	0.34	0.19	0.27	0.39	(0.131) ^a

Sources: World Bank 2014; NWSDB 2007, 2009, 2011, 2013.

Note: NWSDB = National Water Supply and Drainage Board.

a. Interest payable is not included.

Financial Sustainability: NWSDB posted a profit from operating activities in six of the past 10 years, but its financial sustainability may be threatened because of its growing debt and debt service requirements (table 3.3). The NWSDB's current tariff model strives for financial sustainability at the national level through cross-subsidization; at present, all NWSDB systems in all of the provinces have the same tariff program. Water tariffs in Sri Lanka are relatively low compared with those in other countries (figure 1.3), and the actual cost of water supply services is not known precisely. By some estimates, if capital investment cost, operation and maintenance cost, replacement cost, environmental cost, and opportunity cost are all included, only about one-third of the total cost of water supply is recovered from consumers (CCI 2016). Although water tariffs were increased in 2009 and again in 2012, they are still too low for cost recovery beyond operation and maintenance costs.⁶ Public opinion is likely to be against tariff increases and will need to be managed through a program to raise consumer awareness, foster stakeholder engagement, and provide education. Focus group discussions carried out for this case study with urban users in Kandy and Trincomalee suggest that urban consumers have little knowledge of the costs of supplying clean drinking water, and although some users recognize the need to pay more for water supply services, others are strongly opposed to tariff increases. A cabinet decision in May 2017 approved the introduction of external regulation for the water services industry through the appointment of the Public Utilities Commission as independent regulator. The enabling legislation and guidelines for implementing the regulation are currently being developed for formal implementation in 2018. During the past decade, the development partners have provided loans, grants, and technical assistance for improving urban water supply services. Together, they have contributed or will contribute to providing improved water supply services to more than 1.5 million urban households. For example, JICA's Water Sector Development (II) loan aims to provide 490,600 people with 48,000 cubic meters per day of supply in the Greater Colombo area. Additionally, projects supported by the development partners have helped to rehabilitate or replace more than 350 kilometers of pipes within the urban water supply network, and currently active projects are expected to add more benefits. For example, ADB's Greater Colombo Water and Wastewater Management Improvement Investment Program aims to rehabilitate and replace about 318 kilometers of seriously degraded distribution network pipes. As part of the World Bank-supported Sri Lanka Strategic Cities Development Project, 650,000 urban residents are expected to benefit from improved basic services, including water supply.

The technical assistance operations supporting the urban water subsector have achieved mixed results. JICA's Capacity Development Project for Non-Revenue Water Reduction in Colombo City Project, implemented from 2009 to 2012, is reported to have resulted in a remarkable NRW reduction in the pilot sites. The technical assistance provided

training on methods and techniques and assistance for preparation of the NRW reduction work plan; and NRW reduction activities, such as meter installation, meter replacement, leak detection and repair, and detection and elimination of illegal connection. The actual decrement of NRW rate per year in Colombo Metropolitan City area during 2012–15 was 1.2 percentage points per year, to which the project is considered to have made a substantial contribution. Similar assistance for reducing NRW was also provided in the Kandy Municipal area.

By contrast, technical assistance focused on sector reforms had limited success. The World Bank's economic reform technical assistance to support reforms and promote private sector participation in urban water supply was either reversed or not implemented. The ADB-supported technical assistance for two projects—Strengthening the Regulatory Framework for Water Supply and Sanitation, and Institutional Strengthening for Decentralized Service Delivery in the Water Sector—were also not completely successful. The first achieved some amendments to the NWSDB Act, but the outcome of developing an adequate legal and regulatory framework for water services was not achieved by the time of their evaluation because the Water Services Reform Bill had not been approved by parliament. The second technical assistance supported a significant level of decentralization within the NWSDB, but not to the extent envisioned, particularly in relation to financial and human resource aspects. However, the recent cabinet decision to appoint the Public Utilities Commission as independent regulator for water services, and plans to further decentralize planning and financial functions to RSCs may be partially attributed to the technical assistance groundwork.

Interventions in urban water supply supported by the three development partners have generated benefits at the household level. Focus group interviews with beneficiaries of ADB's Second Towns Project in Muttur noted the improvement in the quality of water available to them, and the beneficiaries of JICA's Water Sector Development Project in Kandy noted the improvement in proximity and convenience after obtaining house connections to the NWSDB network. In addition, beneficiary interviews conducted in the Greater Colombo area for JICA's Water Sector Development Project II suggest that sanitary conditions have improved—beneficiaries have frequent showers and safe water available for drinking and cooking; life quality has improved because of the time saved from water fetching; and family expenditure is saved on electricity previously required for dug-well operation. The results of the beneficiary interviews also suggest some positive impacts on local economic activities. These include increased productivity because of the reduction of cost and time necessary for water access, and improved health conditions of workers. Local businesses in the service sector, especially restaurants and hotels, reported an increase in the number of customers and customer satisfaction.

Rural Water Supply

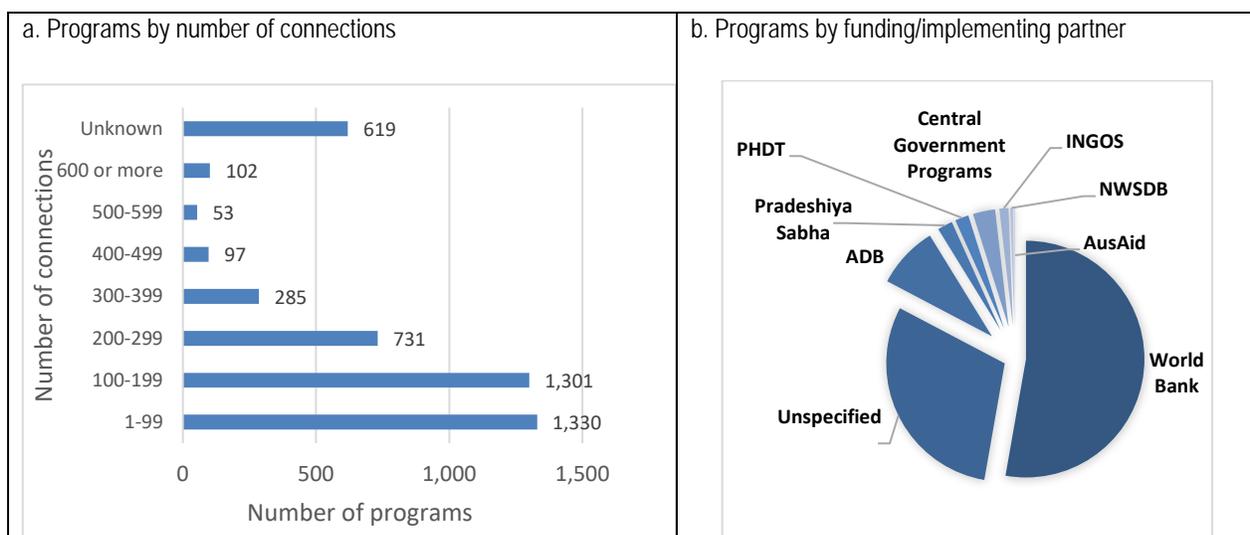
Service Delivery Modes and Institutions: CBOs are the mainstay of RWS. Introduced through a pilot program in the 1990s as part of the World Bank–funded Community Water Supply and Sanitation Project, CBO programs have grown in popularity, and several development partners, including ADB and JICA, have funded projects to establish CBO-based RWS programs. At present, an estimated 4,500 such programs are currently in existence, ranging in size from less than 50 connections to more than 1,000 connections, providing piped water to about 2.6 million beneficiaries (figure 3.3).

Institutional Issues: The larger sectoral context in which RWS programs operate has an important role in ensuring their sustained service delivery (figure 3.4). In this context, the roles and functions of the NWSDB, Department of National Community Water Supply (DNCWS), and local authorities overlap somewhat and need clarification. Although the DNCWS is the lead agency and has a clear mandate to oversee, monitor, and give guidance to the RWS sector in the country, it is a relatively new agency, and it needs technical and financial support to fulfill these functions. The NWSDB can provide technical support to DNCWS mainly because of its current role of technical support provider to CBOs. For example, the NWSDB has well-staffed RSCs (with RWS units) in all the regions while DNCWS is currently in the process of establishing parallel district-level structures. Furthermore, the NWSDB’s RWS unit has an existing database of CBOs, which needs further support and resources to be complete and up-to-date, but the DNCWS is collecting data for a new, parallel database.

CHAPTER 3

TRENDS AND ISSUES IN URBAN AND RURAL WATER SUPPLY AND SANITATION SERVICE DELIVERY

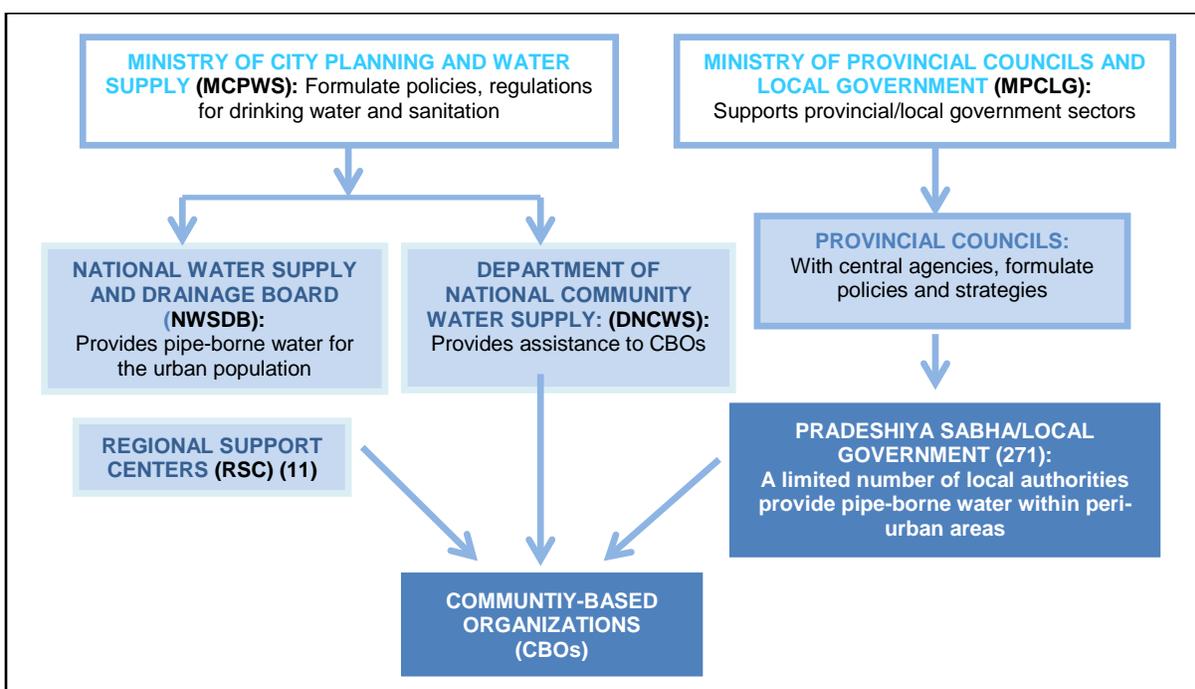
Figure 3.3. Distribution of CBOs by Size and Funding/Implementing Partners



Source: NWSDB, Rural Water and Sanitation Section 2016 (as of July 26, 2016).

Note: ADB = Asian Development Bank; INGOS = International Non-Governmental Organizations; PHDT = Plantation Human Development Trust; NWSDB = National Water Supply and Drainage Board.

Figure 3.4. Institutional Structure for Rural Water Supply Programs in Sri Lanka



Note: Most Pradeshiya Sabhas support CBOs to provide rural water supply services, but a small number manage their own programs and provide water supply services directly to the population. In some of these cases, Pradeshiya Sabhas buy bulk water from the NWSDB.

Through their projects, development partners have tested different institutional designs to support the CBOs. Model 1 placed the project management unit (PMU) within the RWS unit of the Ministry of City Planning and Water and created a support structure

for CBOs within the relevant provincial councils. Model 2 placed the PMU within the NWSDB, and the support structure for CBOs was essentially the NWSDB with limited connection to provincial or local government entities. Model 3 placed the PMU within the Ministry of Provincial Councils and Local Government, where the support structures were the local authorities (Pradeshiya Sabhas). These models have different advantages and disadvantages. Placing the PMU within the RWS arm of the ministry has not ensured continued, sustainable support to the CBOs, because the unit has undergone many changes – from a unit to a trust to a department – during the past decade. By contrast, placing the PMU within the NWSDB has resulted in stability and continuity through the NWSDB’s regional structures to support CBOs for their technical and operations and management needs, though this was not as effective for financial supervision. Although Pradeshiya Sabhas can provide technical and financial support because of their proximity to CBOs, their capacity to provide such support varies widely (figure 3.5).

Access: As of 2012–13, an estimated 90 percent of rural households reportedly have access to safe drinking water, mostly from protected dug wells, and almost 87 percent had adequate water for washing and bathing (DCS 2015). However, these static figures do not capture seasonal variability and adequacy of water available year-round. Unlike in urban areas, where piped water supply is the norm, less than 15 percent of the rural population has access to piped water, and the rest continue to experience the inconveniences associated with fetching water either from dug wells in the yard or from a distance. Focus group discussions with rural households conducted for this case study suggest that many rural households meet their water needs by tapping a range of sources. These include water provided by CBO program, trusted wells (either their own or wells shared with neighbors), and buying drinking water from private providers, along with using water from rivers, streams, irrigation tanks, and canals for washing and bathing.

Adequacy and Reliability: Most CBOs provide far less than 24 hours of water supply because of inadequate or seasonally varying supply at the source, inadequate labor for operating the pumps, or unaffordable electricity bills. Focus group discussions with beneficiaries (appendix C) revealed that most households manage by storing water in 500-liter overhead tanks or other large containers. Many use a range of sources, including wells and buying water from private vendors. Economic constraints are rarely the reason for using alternative sources. However, demand for piped water drops during the wet season, when other sources are plentiful.

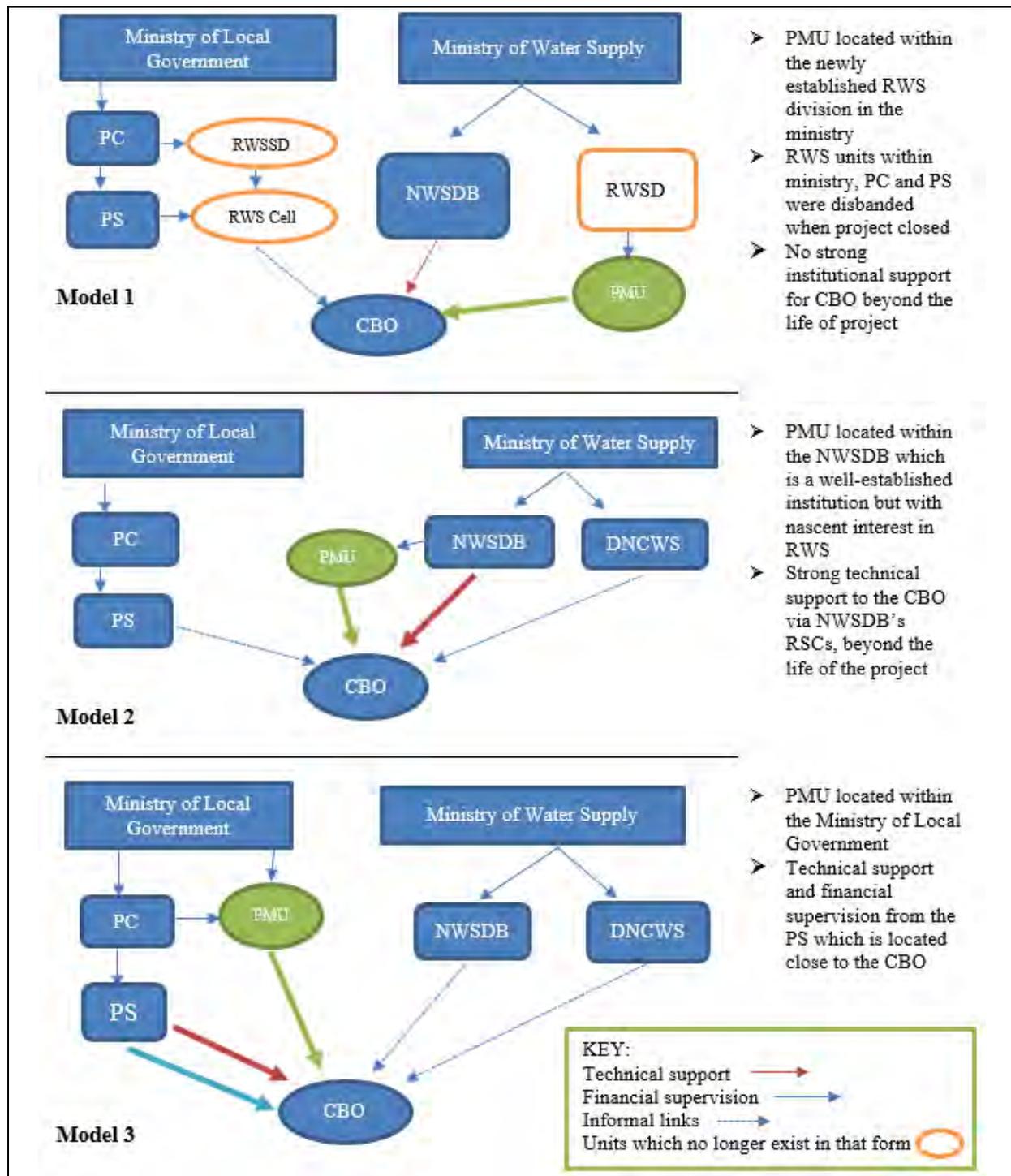
Quality: The quality of water supplied by CBOs is a major concern in many areas, and focus group discussions with beneficiaries suggest that most households cope with this by boiling or filtering the water (or both) or by using the CBO water for purposes other

than drinking. Beneficiaries have greater awareness of water quality because CBO water is tested regularly – for example, under the Greater Kandy Water Supply Project supported by JICA, the Katugastota Water Treatment Plant was equipped with laboratory facilities to test CBO water in the Kandy District. According to data compiled by the Ministry of Health, only 45 percent of water samples collected islandwide during 2013–15 were deemed to be of satisfactory quality compared with almost 77 percent for NWSDB and 49 percent for private wells.⁷ In some cases, fecal contamination from proximity to poorly constructed on-site sanitation is responsible for poor water quality. Despite training provided by the NWSDB, provincial councils, and Pradeshiya Sabhas, many CBOs seem unable or reluctant to conduct daily chlorination because of cost, unavailability of chlorine in remote rural areas, problems with storing chlorine bought in bulk, and technical issues with operating the chlorinators.

The spread of CKDu adds an important facet to concerns about water quality in Anuradhapura, Polonnaruwa, Badulla, and Kurunegala Districts, and more recently in Trincomalee, Ampara, Matale, and Moneragala Districts (Rajapakse S et al 2016). Although CKDu affects less than 5 percent of the population in these districts, its rapid spread and nonresponsiveness to treatment are of concern. Water treatment plants using reverse osmosis have been set up at CBOs in some areas in the red zone of CKDu-affected areas to remove both hardness and fluoride from groundwater, which are considered possible causes of the disease. The reverse osmosis treatment plants – set up primarily with assistance from the NWSDB, the private sector, and national and international nongovernmental organizations (NGO) – are expensive to procure and maintain, and may not be sustainable in the long term. However, if CBOs operate the unit, revenue from sale of the water has provided them with additional revenue and improved financial sustainability.

Affordability: A beneficiary household joins a CBO program by paying an initial connection fee and monthly fees depending on use. At the outset of the program, the household can choose to pay for the connection fee in cash (equivalent to between SL Rs 15,000 and 20,000), contribute labor, or a combination of both. This has proved to be an affordable model for many who join during establishment of the program. Those joining later can pay for the connection cost only in cash, which some may find difficult to afford. In such cases, CBOs help by offering loans with extended payments. Bill collection across a sample of CBOs shows substantial variation (table 3.4). Defaults in payments are attributable to dissatisfaction with unreliable supply, faulty meters resulting in disputed bills, and a perceived lack of authority on the part of the CBO. CBOs tend to take a sympathetic view of default by households with economic constraints or those with elderly and/or disabled heads of households and make special arrangements to accommodate them.

Figure 3.5. Evolution of Rural Water Supply Models and Implications for CBO Sustainability



Note: CBO = community-based organization; DNCWS = Department of National Community Water Supply; NWSDB = National Water Supply and Drainage Board; PC = provincial council; PMU = project management unit; PS = Pradeshiya Sabha; RWS = rural water supply; RWSDB = Rural Water Supply Department; RWSSD = Rural Water Supply and Sanitation Department.

CHAPTER 3

TRENDS AND ISSUES IN URBAN AND RURAL WATER SUPPLY AND SANITATION SERVICE DELIVERY

Table 3.4. Payment Defaults and CBO Action

CBO Location	Operational Since	Number of Connections	Approximate Number of Households Defaulted to Date	Reason for Default by Household	CBO Action
Serunuwara, Trincomalee	2008	360	200	Deterioration of water supply and quality Ineffectiveness of CBO	No action
Werapitiya, Kandy	2007	221	25	Not a question of lack of money, but attempts to free ride	No action. CBO has tried disconnection, but this created conflict. CBO has no legal power despite agreement signed with the households when the connection is provided.
Pallekottuwa, Kandy	2007	57	6	Not having money on the day of collection. When water supply is irregular	No action. CBO tries to approach the situation in a humane manner. Because CBO has no legal authority, its leadership feels that the law stands by the consumer because water is a basic need.
Etambaoya, Polonnaruwa	2007	210	5	Mainly due to carry-forward of unsettled arrears when renters or property owners change. One case of economic hardship	Households that default are disconnected, and a reconnection fee of SL Rs 1,000 is imposed.
Kolongolla, Trincomalee	2012	42	1	Elderly, vulnerable, no means to pay	CBO follows a step-by-step method per the contract signed between it and beneficiary households. Up to 3 months of defaults are given, 14 days to pay, after which a 10 percent fine is imposed on the total bill, then disconnected if the payment still isn't received. The community development officer of the Pradeshiya Sabha authorizes the disconnection.

Source: Focus Group Discussions.

Note: CBO = community-based organization.

Operational Efficiency and Financial Sustainability: The sample of field visits undertaken for this study suggests that a wide variation exists in the endowment and

functioning of CBO water supply programs. Although many CBO programs are functioning well, a substantial number appear to be operating under considerable strain, and a small number may have failed completely. For example, in Nikagolla Village in the Matale District, the CBO established under the World Bank's Second Community Water Supply and Sanitation Project ceased operation one year after establishment because of water source depletion. Five rural programs under the ADB's Secondary Towns Project are in distress, again because of supply problems. The most important success factors for operational efficiency of CBOs appear to be technical soundness of the initial design – particularly the choice of water source – and the quality of construction. Poor technical design can be traced to insufficient time and resources spent on identifying a suitable water source, a lack of local knowledge or capacity on the part of consulting firms, and insufficient oversight by technical experts, such as NWSDB staff. Even for CBOs that started out well, insufficient attention to replenishment rates and activities to aid recharging has sometimes resulted in ground wells failing to produce the expected volume of water. In Mallacoota in the Kandy District, for example, the CBO program (also established under the World Bank's Second Community Water Supply and Sanitation Project) aimed to supply 115 households, but it can only meet the demand of 60 households every other day. Discussions with officials indicate that in such cases, a few CBOs have attempted to identify additional suitable water sources, but such resources have not been available for this purpose.

CBOs have developed financial sustainability and greater community ownership through diversification of CBO activities (microcredit, for example). In addition to providing local services, which increases the CBO's involvement in community activities and has a positive effect on bill collection, such activities also further strengthen the financial status of CBOs. However, to ensure ownership and sustainability, the CBO itself should make decisions for diversification. Depending on their size and power, financial strength can be a two-edged sword for a CBO because other players, such as local politicians, reportedly seek to interfere in the management of successful CBOs. Strong CBO leadership and support from reputed and respected government institutions, such as the NWSDB, can support CBOs in successfully managing these issues.

CBO Management, Leadership, and Capacity: Focus group discussions with CBO members and leaders, both past and present, identified the capacity of the CBO leaders as the most critical issue in the overall success of managing and operating a water supply program. This is not surprising, and the World Bank's Second Community Water Supply and Sanitation Project devoted time and resources to mobilizing a new group of community leaders who were not the traditional elites of the village, providing them with the skills to mobilize and lead a CBO. Building on the Community Water

Supply and Sanitation Project model, the ADB's RWS development projects have supported partner organizations – often a local NGO selected by the NWSDB through a competitive bidding process – to mobilize communities and identify potential CBO leaders while facilitating project implementation. For example, in rural programs designed under the ADB's Secondary Towns Projects, the involvement of local NGOs (which placed a staff member in the village for up to two years) during program design raised awareness and encouraged community participation (especially by women) in program planning, duly assisted by technical and training support provided by government water agencies during the CBO establishment and subproject implementation phases. However, in practice (as suggested by the sample analyzed for this case study), CBO leaders are still generally drawn from among traditionally influential members, such as the school principal or public sector employees, while new leaders are often still in training and in the second line of leadership and responsibility. In most cases, one or two key leaders carried the burden of the CBO, functioning in voluntary positions in the executive committee. Although many do not have any significant technical knowledge, the critical attributes appear to be the possession of a problem-solving orientation and a strong commitment to service.

Efforts have been made to improve the capacity of CBO leadership. Approaches included the CBO Forum hosted by the NWSDB's RSCs, which is held periodically in some regions. However, it is clear that CBOs continue to need strong and consistent support in institutional and technical matters if they are to maintain and improve service delivery. Technical aspects regarding operation and maintenance, particularly concerning what to do in the case of contamination, are often beyond the capacity of village CBO leadership. Effective financial supervision is often beyond the capacity of the village membership. The NWSDB, which has a strong presence at the regional level through its RWS units located within the RSCs, has reached out to the CBOs or been sought out by them, and provides effective technical support in most cases. Effective financial supervision is often provided by the Pradeshiya Sabha, but even in the small sample of cases examined in depth for this case study, there is great variation in the capacity and interest of the Pradeshiya Sabhas to carry out this function.

The three development partners have had an important role in supporting RWS services in Sri Lanka. During the past decade alone, development partner-supported programs have provided new piped water connections to more than 200,000 households, benefiting more than 900,000 people in rural areas. The World Bank's Second Community Water Supply and Sanitation Project completed and operationalized 709 water supply subprojects that provided new piped water connections to 92,000 households and access to improved water sources to 384,100 people, and constructed or rehabilitated 922 improved water distribution points. Similarly, the JICA-supported Eastern Province Water Supply Development Project is

estimated to have served 209,000 people with 24-hour water supply and provided 41,000 new house connections. ADB's Secondary Towns and Rural Community-Based Water Supply and Sanitation Project (Loan 1993) provided water to 252,569 rural dwellers or about 60,000 households. Through the years, development partner-supported projects have provided space to innovate and test various models of service delivery mechanisms based on the CBO model (figure 3.5) with substantial cross-learning between the projects. These projects and the learning they have generated have fundamentally shaped the RWS sector in Sri Lanka.

Urban Sanitation

Service Delivery Modes and Institutional Arrangements: The Colombo Municipal Council is responsible for the sewerage network in the core city area, and the NWSDB offers piped sewage services in the outskirts of the city. The NWSDB, under JICA's Kandy City Wastewater Management Project, is designing and constructing a sanitation system in Kandy (Sri Lanka's second-largest city) that will be handed over to the Kandy Municipal Council for operation. Piped sewerage systems are present in a few other secondary towns, such as Kataragama and Hikkaduwa. However, most urban residents rely on on-site sanitation through septic tanks and closed pit latrines served by bowsers and vacuum trucks from municipal and urban councils. These institutions have varying levels of capacity to carry out their mandate, and they sometimes must fall back on the technical capacity of the NWSDB to continue services. Without a concerted effort to build minimum levels of capacity, it is a moot point whether allocating responsibility to these various institutions will yield the desired results (figure 3.6).

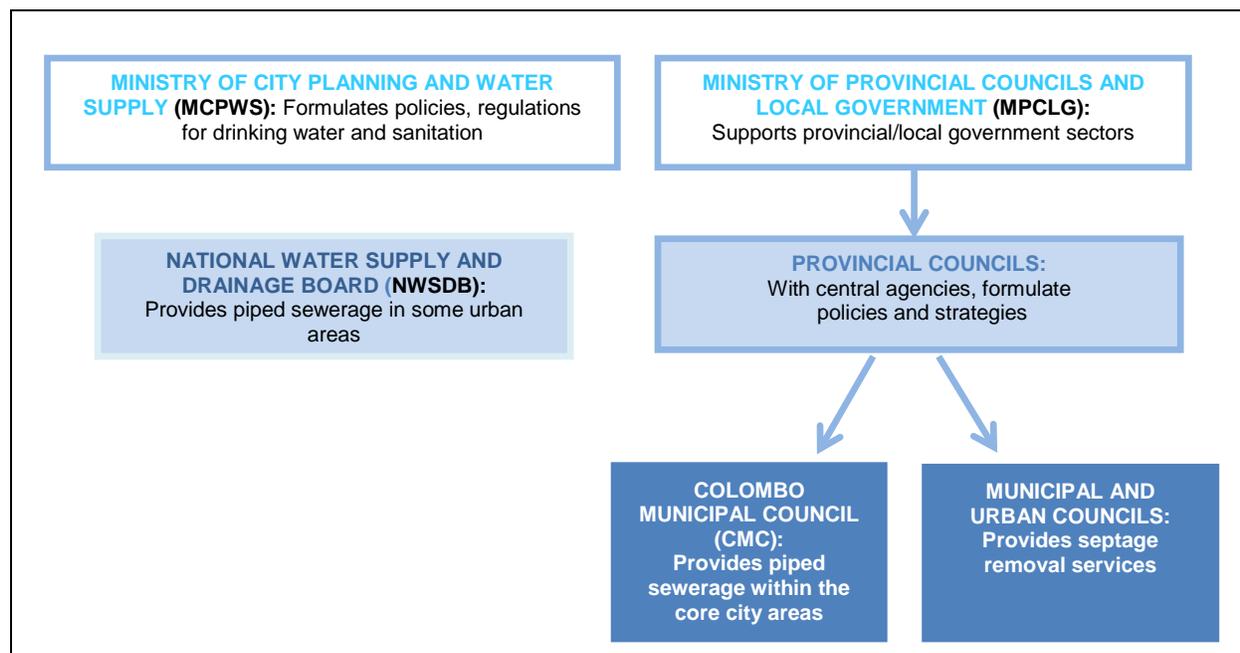
Access: Overall, in contrast to piped water supply (which has covered most urban areas), sanitation infrastructure is greatly lagging current needs and is in danger of falling behind further as urbanization increases. More than 90 percent of urban residents have access to a toilet facility exclusively used by their household, just 2.7 percent rely on public toilets, and no households are without toilets, but piped sewerage systems presently cover less than 12 percent of the urban population.

Environmental Impacts: Without a functioning septage management system, septic overflows can spill into the nearest water bodies, and liquid wastes from poorly designed on-site systems infiltrate groundwater. For example, in highly congested urban areas such as Muttur, Trincomalee District, and Akurana, Kandy District, safe disposal of septic tank waste is particularly important because of the high density of housing and the nature of the terrain. The public health inspectors for these areas noted that it is common practice for households to release overflow from septic tanks and pit latrines into rainwater drains and rivers. Because this is illegal and a serious health risk,

they noted that it is done in secret either at night or during rains, when it cannot be detected.⁸

The implications of such practices can be far-reaching for the environment, living conditions, and human health. Although causes have yet to be determined, there is mounting evidence of groundwater pollution in Muttur, and residents complain that their well water is becoming increasingly contaminated, is turning a dark color, and has a strong odor, making it unfit for human consumption. The situation in Muttur suggests that in addition to cities and large towns, highly congested small town areas – particularly in the north and east, which have mostly been neglected because of the conflict – are in urgent need of improvements in O&M of on-site sewage treatment and collection facilities and investment in well-functioning septage management or piped sewerage systems. Greater capacity to monitor environmental impacts is also important. JICA is currently supporting a technical assistance project, Monitoring of the Water Quality of Major Water Bodies, which is expected to strengthen water quality monitoring and management capacity of the Central Environmental Authority concerning river pollution control, particularly in the Kelani River.

Figure 3.6. Institutional Arrangements for Urban Sanitation



Poor Management of Solid Waste: According to officials, poor management of solid waste is adding to the environmental degradation and health risks posed by inadequate sanitation infrastructure in urban areas (Jagannathan 2016). There is considerable ingress of solid waste into the sewerage system, contributing to system blockages and damage to the infrastructure. Major improvements are needed to streamline collection,

segregation, and proper disposal of solid waste through sanitary landfills, which Sri Lanka still does not have. Without professional garbage collection and disposal systems, continuing adverse impacts on water bodies are likely, leading to poor health outcomes, and flooding in urban areas because of clogged drainage and sewer systems.

Operational Efficiency: The sewerage system in Colombo City was constructed more than 100 years ago, and some sewers are in poor condition or are under capacity and experience collapses, serious blockages, and overflows. The system is further stressed by the recent rapid development of the city, particularly the commercial developments and construction of high-rise apartments. Effective methods of knowledge and capacity transfer from the NWSDB to the municipal councils are needed, especially when they will be taking on the sewerage management responsibility for the first time, as in the case of the Kandy Municipal Council. However, these services are not well organized, and they are often inadequate to meet needs, leading to poor performance of sanitation infrastructure. On-site facilities, particularly if they are not well constructed, are unsuitable in the context of the high population density and housing conditions prevailing in most urban areas in the country, especially because poor septage management at the household level can have immediate repercussions for the household and neighboring houses.

In the urban sanitation subsector, the three development partners have supported the provision of sewerage connections to households, and improved sewerage systems and wastewater management in cities, including Colombo, Kandy, and Jaffna. JICA supported the Kandy City Wastewater Management Project and aims to provide a modern sewerage system for the city of Kandy, providing improved sanitation access to 55,000 people, which will lead to improved water quality of the Mahaweli River. ADB's Greater Colombo Wastewater Management Project, approved in 2009, aims to address blockages in the network, reduce flooding due to pipe blockages, and cut down on overflow and collapses in the sewerage system. JICA is also providing technical assistance to develop a National Sewerage Master Plan of Sri Lanka and city sewerage master plans for prioritized cities. In the formulation of the National Sewerage Master Plan of Sri Lanka, a study of 79 cities was completed that included 64 municipal councils and union councils, 25 district capitals, and some large population centers. Five cities were selected for the implementation of the City Sewerage Master Plan, and the City Sewerage Master Plans were completed for Sri Jayawardenapura Kotte, Anuradhapura, Badulla, Nuwara Eliya, and Dehiwala-Mount Lavinia.

Rural Sanitation

Access: About 90 percent of the rural population had access to toilet facilities within their premises in 2012–13. Often, these are pour flush, squatting toilets located within the compound in an outhouse. Where piped water is available, households may have another toilet within the house. Focus group discussions in rural locations suggest that the few households that do not have a toilet facility exclusively for their own use are usually subfamilies that share the same compound as the parental home. There is no evidence of dissatisfaction with the availability of toilets, and open defecation is reported to be highly uncommon and limited to small pockets in coastal areas and estates, often driven by preference rather than lack of facilities (table 3.5).⁹

Groundwater Contamination: Given the number of individually constructed toilets spread across rural Sri Lanka and the potential variation in their design and construction quality, there is a possibility of groundwater becoming polluted within the household compound. Public health inspectors are required to respond to a request or investigation if a disease outbreak occurs. The inspectors are also required to certify and monitor new pits and septic tanks, though it is unclear to what extent this is occurring. Reports of water contamination due to sanitation appear to be rare. However, the lack of proper septic tanks, lack of systematic programs to educate householders and builders (including recommended separation in various soil and toilet types), and lack of systematic studies of groundwater flows where wells and toilets coexist have substantial implications for groundwater quality in rural areas and may result in future environmental and health problems.

Table 3.5. Rural Population and Their Access to Toilets

Group	2006–07	2009–10	2012–13
Population (millions)	14.7	16.3	15.4
With toilet facility exclusively for the household (%)	90.9	90.9	90.7 ^a
Sharing with another household (%)	6.0	6.2	7.8
Using public toilet facilities (%)	—	0.4	0.2
With no toilet facilities (%)	3.0	2.5	1.2

Sources: DCS 2007, 2010, 2015.

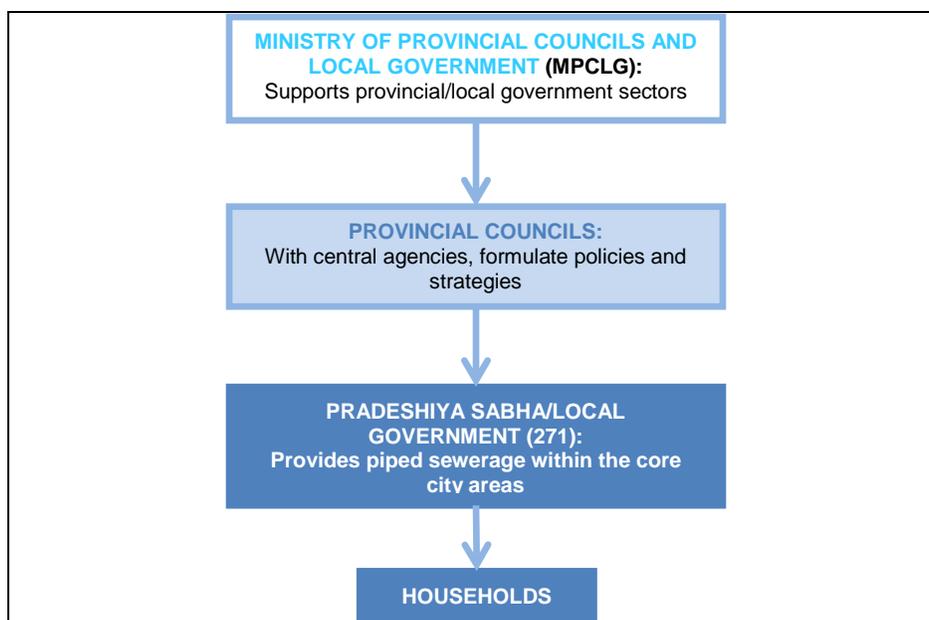
Note: — = not available.

^a: Increased to 95 percent improved in premises in 2015; shared: 4 percent, other: 1 percent; no facilities: 0 percent. (UNICEF and WHO 2015).

Institutions and Regulation: Unlike most other developing countries, where the main challenge is providing access to improved sanitation facilities, Sri Lanka faces additional problems concerning regulation, monitoring, and supervision of rural sanitation facilities. The default responsibility for managing sanitation is mainly the individual household's, which most often chooses to build low-cost pit latrines. Little or

no technical support is available to the household – such as a latrine design manual or set of guidelines covering a range of designs and including advice on separation from wells – to design and build a safe and environmentally sustainable sanitation facility. However, focus group discussions reveal that rural households are generally aware of the need to refrain from placing water sources and toilets close to each other, though they may not be familiar with norms for separating the facilities.

Figure 3.7. Institutional Arrangements for Urban Sanitation



Feedback from government officials suggests that rural sanitation in Sri Lanka is generally unmonitored and unmanaged. According to the rural water and sanitation sector policy adopted in 2001, the responsibility for ensuring quality and standards of services in relation to both water and sanitation resides broadly with local government (MUDCPU 2001). Although there is substantial variation of capacity across local governments, the large majority of Pradeshiya Sabhas do not have the technical knowledge in-house regarding sanitation technology, such as how to design environmentally sound septic tanks or promote innovative technology and methods to address rural sanitation. In addition, where the Pradeshiya Sabhas carry out septic tank pump-outs, there is a need to construct and operate septage treatment plants with proper disposal.

During the past decade, interventions by the three development partners in the rural sanitation sector have focused mainly on assisting rural households to construct toilets, and more than 120,000 toilets have been constructed in rural areas under projects supported by the development partners. For example, the World Bank's Second Community Water Supply and Sanitation Project provided a revolving sanitation fund

that supported the construction of 45,600 latrines. Additionally, ADB's Dry Zone Urban Water and Sanitation Project provided support to local authorities to improve their services in pit desludging, and septage handling, treatment, and disposal. JICA is working at the macro level regarding rural sanitation, supporting the development of a national sewerage master plan through the technical assistance project Strategic Master Plan under Sewerage Sector.

Water Supply and Sanitation in the Estate Sector

The estate sector in Sri Lanka includes about 1 million people (less than 5 percent of the country's population) and consists of areas with cash crop plantations with more than 20 acres of land and 10 or more resident laborers. Historically, the estate management rather than the government has provided services to the estate population. As a result, 10.9 percent of the estate population is poor compared with 2.1 percent of the urban sector and 7.6 percent of the rural sector (DCS 2015).

Access to Improved Water Supply: Although conditions in the estates have significantly improved in the past decade, access to safe water remains an issue. Only about 47 percent of the estate population is reported to have access to safe drinking water, typically supplied through gravity-based pipes that serve up to 125 families, and supplemented by wells and rainwater harvesting. The rest still rely on open, unprotected water sources, such as rivers, streams, irrigation tanks, and springs. Data are limited regarding access to piped water in the estate sector, but informal calculations suggest that just 2 percent of households have connections.¹⁰ In comparison, 92 percent in urban areas and 15 percent in rural areas have connections.

Access to Improved Sanitation: Improved sanitation facilities covered 76.2 percent of the estate population by 2012–13 compared with 90 percent for the rural sector. Sanitation is mainly through on-site latrines, but their construction quality is uncertain because there are many reported instances of water-source pollution due to unsanitary latrines used by the plantation communities. The regional plantation companies, with support from the Plantation Human Development Trust, typically manage the programs.

The development partners have had limited engagement in WSS in the estate sector. Of 38 projects active during 2007–16, only one project refers to the estate sector. The World Bank-supported Second Community Development and Livelihood Improvement Project has constructed 467 community water supply projects and 695 sanitation subprojects, some of which are in the estate sector. Because of the estate sector's special features (plantation management provides basic services instead of the state), the most

appropriate institutional model to deliver water and sanitation services to estate populations is still unclear. Various community-based models with varying levels of ownership and participation by the plantation companies have been tried with the assistance of development partners, but they have achieved limited success, mostly because of low capacity and low interest in managing WSS programs among estate populations.

¹ Per the current definition used by the Department of Census and Statistics (DCS), only municipal and urban council areas are considered urban. However, town council areas were also considered urban until 1987, when town councils were abolished, and their areas were absorbed under the Pradeshiya Sabhas, which are in the rural sector. The DCS definition is thought to substantially underestimate the degree of urbanization and the urban population in Sri Lanka; by some estimates, the urban population is thought to exceed 8 million, or about 40 percent of the population (Weeraratne 2016). The water sector institutions use a different definition from that of DCS; according to the National Policy for Rural Water Supply and Sanitation (2001), Pradeshiya Sabha areas with a population of more than 6,000 are identified as urban for the purposes of water supply and sanitation services.

² For more information about the history of the NWSDB, visit www.waterboard.lk, accessed on November 11, 2016.

³ What constitutes “access to safe water” is still under debate in Sri Lanka, and different agencies use different definitions, resulting in different statistics. This report follows the DCS definition, which is “protected well within premises, protected well outside premises, tap inside home, tap within unit/premises (main line), tap outside premises (main line), water project in village, tube well, bowser, and bottled water.”

⁴ This is calculated based on average household size of 3.9.

⁵ ADB Loan 2947 is assisting the National Water Supply and Drainage Board (NWSDB) with reducing non-revenue water levels in Colombo. JICA (in 2009) and ADB (in 2012) also provided technical assistance.

⁶ However, water tariffs were reduced by 10 percent just before the presidential election in January 2015.

⁷ The Ministry of Health has facilities to test chemical parameters in three laboratories and to test bacteriological parameters in six laboratories.

⁸ This information is from interviews with the focus group team on August 25, 2017 (Akurana) and August 27, 2017 (Muttur).

⁹ However, dissatisfaction with the adequacy of toilet facilities available in public buildings, such as schools in rural areas, is substantial (Fan 2015).

¹⁰ This is according to the Deputy General Manager, RWS, NWSDB on March 30, 2017.

4. Engaging with Development Partners

Donor Coordination

Sri Lanka is at a mature stage of development coordination in the WSS sector (ADB and JICA 2017). The government is increasingly taking the lead in policy design and implementation, and coordinating the government's planning processes and systems with the engagement of the development partner community. A formal mechanism for coordinating activities among development partners in the Sri Lanka WSS sector, initiated by AFD and affiliated with the Development Partners Forum coordinated by the World Bank Sri Lanka Office, ceased functioning in late 2015. However, development partner representatives in Colombo and government officials confirm that informal networks and communications continue, keeping all parties aware of ongoing programs and involvement. Despite the lack of formal coordination arrangements, close engagement between each development partner and the government, and informal networks and information sharing among the development partners has resulted in good coordination in the field, avoiding geographic and issue overlap and duplication of efforts.¹

However, feedback from interviews conducted during the joint mission and from a broader cross-section of government officials at the Joint Case Study Workshop (appendix D) suggests that although development partners rightly point to a lack of coordination among government agencies, they should also pay greater attention to coordinating among themselves. Suggestions included the following: Development partners should not compete to provide loans, but rather coordinate more among themselves for better government service delivery; consider pooling funds into one basket and allocating them to utility agencies with a specific regional focus; and avoid extreme branding – that is, different operational and reporting requirements that make the state-sector partner deal with them as projects without being sufficiently integrated with those of the government system or with projects of other development partners.

Feedback from focus group discussions in the field also calls for specialization and coordination on the part of donor agencies. For example, one development partner may have greater strengths in community-based activities and another in building technical capacity. Some respondents in the field expressed concern about the quality and commitment of NGOs and private contractors (“They came, did what they could, and left without any arrangements for follow-up and ongoing support”).² In many cases, the NGOs and private contractors operated only during the project period and have since ended their operations, dissipating the knowledge and capacity gained. In this context, the development partners may have a role in supporting the development of a more

stable, knowledgeable, and skilled set of NGOs and private contractors to support WSS projects in rural Sri Lanka.

Participants in the joint workshop highlighted the long delays associated with procurement procedures. This is seen as arising partly from government delays, and from the need to obtain approval on a case-by-case basis, sometimes from the head office of the development partner. Although the objective of procurement guidelines is to enable the borrower countries to procure high-quality goods and services as economically as possible, 'small print' in the procurement guidelines often results in the rejection of many bids. Consequently, there is a perception that Sri Lanka has become a "dumping ground for low-quality equipment." The message is that procurement guidelines need revision to improve speed and quality while preserving the core procurement principles. One solution suggested was for the development partners to coordinate and set out a common prequalification of suppliers, contractors, and consultants, which would eliminate the need for a prolonged approval process for each procurement. Another suggestion was for greater flexibility, which may still achieve the desired outcome – for example, allow rectification of omissions or deviations in the bid rather than outright rejection. Overall, workshop participants strongly expressed a need to review and revise procurement guidelines to enable the sector to meet the increasing demand for effective service delivery in the next decade, an area that is likely to benefit from greater coordination among development partners.

Challenges and Constraints

The main challenges facing the WSS sector in Sri Lanka that emerged from this review relate to covering the last mile in achieving universal access to water supply, ensuring water quality (especially in CKDu-affected areas), providing broader coverage by piped sewerage networks, and securing water resources for current and future demand.

CHALLENGES

Beneficiary-focused service delivery, especially in rural, "rurban," and small town areas: Service delivery for water supply in rural, rurban, and small town areas regarding piped water access, adequacy and reliability, and quality is significantly below that of urban areas.³ Sri Lanka's aspirations for middle-income status call for bringing the rural areas up to the level of urban areas.

Ensuring water quality: A well-resourced management system is required to ensure water quality, one that combines effective monitoring with timely response. At present, comprehensive and regular testing of CBO water is constrained by insufficient monitoring of CBOs to ensure that they send samples for regular testing, and by limited

laboratory facilities to conduct tests. In addition, even when quality issues are known, solutions are not readily available because of technical and resource constraints. The CKDu-affected areas are of immediate concern and require a quicker and more comprehensive response.

Expanding water resources for adequate and reliable supply: Across urban and rural areas, rising incomes and aspirations are increasing the demand for water and competing with the parallel and growing demand from agricultural and industrial users. Rural areas – especially in the north and northeastern areas – have inadequate or seasonally varying water supply. NRW is still at a high level in the Western Province, particularly in Colombo, mainly because of aging infrastructure, and any reduction of losses would augment the amount of water available for consumption.

Expanding and upgrading urban sanitation, thus improving living conditions and safeguarding the environment: Insufficient coverage, aging piped sewerage networks, and issues with the quality of on-site sanitation have strong implications for living conditions and the environment. Sewage seepage and overflow affect peri-urban and low-income areas disproportionately and contaminate groundwater and surface water bodies.

Covering the last mile for universal access, especially in estate areas: Improved water supply is lacking for 53 percent of the population in estate areas, for 5 percent in rural areas, and for 2 percent in urban areas. Improved sanitation is lacking for 24 percent in estate areas, 3 percent in rural areas, and 12 percent in urban areas. These figures have remained essentially stagnant for the past few years and will require significant incremental effort to reduce the gap.

Addressing the challenges described involves overcoming several constraints. These cover the availability of wider and quality data for program planning and monitoring; intersectoral coordination; complexities in policy and institutional arrangements; financial constraints for infrastructure improvement; and inadequate technical capacity.

CONSTRAINTS

Lack of data on service delivery: The current state of data in Sri Lanka's WSS sector is inadequate for planning, implementing, and measuring progress toward improved service delivery in all of its important dimensions of adequacy, reliability, and quality, especially outside the large urban areas. In this respect, Sri Lanka's situation is similar to that of most other developing countries. However, standards need to be raised much higher if the sector is to support the national development goals for economic growth. Beyond a point, knowing that a certain proportion of the urban or rural population lacks access to improved water supply or sanitation services is of little value if

information is lacking on where these deficits are located. There is currently little clarity on what constitutes adequacy, reliability, quality, and affordability for water supply services in urban, rural, and estate contexts. Local governments that need to act on water and sanitation provision call for a very different data collection program and process. Similarly, other sectoral agencies that impinge on service delivery – those dealing with water resource management, health, environment, and pollution – require specific, actionable data to coordinate their actions with the institutions that are primarily responsible for WSS services.

Various institutions currently collect data related to water supply, and there is often overlap and lack of alignment among the various sources. Specifically, the RWS division under the NWSDB collects data on CBOs, as does the newly created DNCWS in parallel. Coverage data vary substantially between what the water supply institutions provide and what is reflected in the national survey, which is the Household Income and Expenditure Survey conducted by the DCS.

Intersectoral coordination: There is much to be done in improving coordination between institutions that are primarily responsible for WSS and those whose cooperation is needed to improve various aspects of service delivery, especially water resources management, public health, environment and pollution, and municipal solid waste management. Various aspects of this case study highlight the importance of each of these functions. For example, officials responsible for environmental and pollution regulation need to work with local government agencies to monitor pollution levels and provide feedback for better wastewater and septage collection and disposal. Public health authorities should be able to track problems and promote improvements in sanitation and wastewater collection and treatment. There is also a need to coordinate planning and construction of WSS infrastructure with the Road Development Authority, particularly pipe laying to avoid having to lay pipes again because of changes in road design. The existing arrangements need to be made more systematic, and coordinated action across institutions needs to be informed by sound data and information.

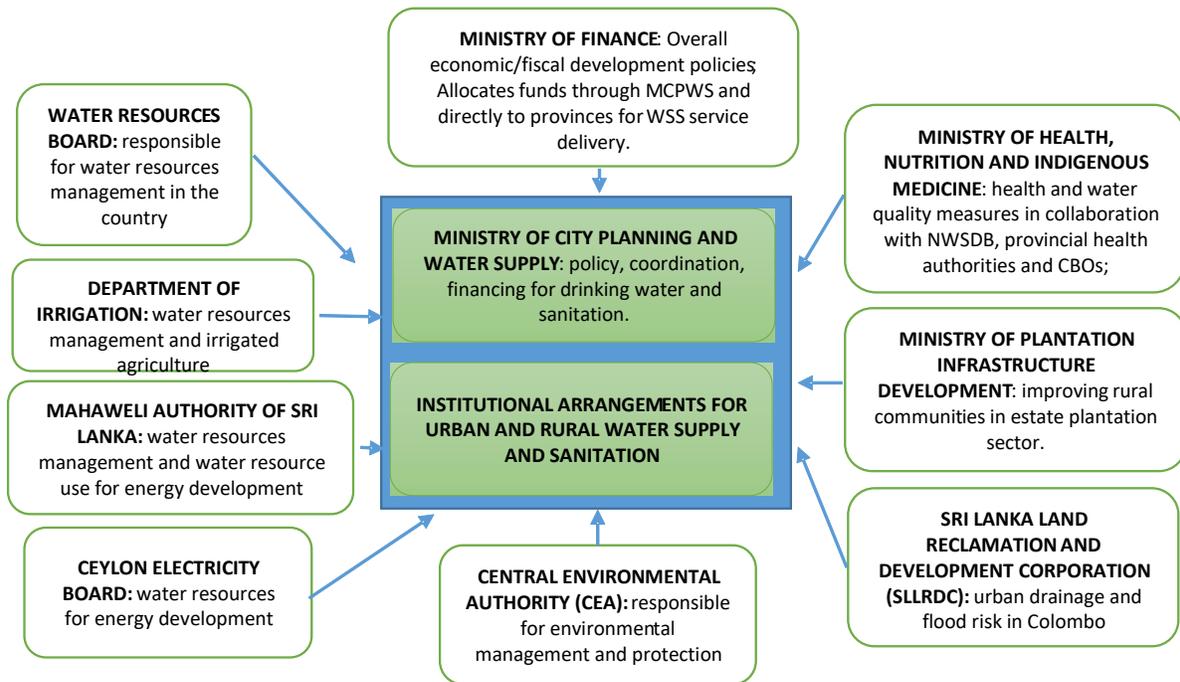
A crowded policy landscape for WSS: There are more than 50 acts of parliament concerning the water sector. Key legislation includes the Forest Ordinance of 1907 and its amendments; the Land Development Ordinance of 1935; the Crown Lands Ordinance of 1947; the Soil Conservation Act No. 25 of 1951 and No. 29 of 1953; the Water Resources Board Act of 1964; the National Water Supply and Drainage Act of 1975; the Land Grants Act of 1979; the Agrarian Services Act No. 58 of 1979; and the National Environmental Act 47 of 1980. Although there is legislation to mitigate most of the problems related to WSS, it is administered by numerous agencies with a wide range of responsibilities (figure 4.1), resulting in overlaps, gaps, and conflicting

jurisdictions (FAO 2011). In 2005, there were 19 bilateral agencies, three multilateral agencies, and 11 United Nations (UN) and related agencies supporting the WSS sector.⁴ Most of these are continuing to support the government in the sector. Overall, sustainability of current water resource use practices and efficiency of use have been under threat for the past few decades, partly reflecting the state of relevant policies and the lack of planning and coordination of legislative amendments.

Lack of institutional clarity for important functions: This is most prominent in providing administrative and technical support to CBOs. The DNCWS has a mandate to oversee, monitor, and give guidance to the RWS sector in the country, but the DNCWS is a relatively new unit and needs technical and financial support to fulfill its function of providing technical expertise to CBOs. At the same time, the NWSDB has well-staffed RSCs (with RWS units) in all the regions. This puts NWSDB in a good position to provide guidance through its RSCs to parallel units that DNCWS is creating at the district level. However, this raises the question of whether having two lines of support—one through RSCs and the other through the DNCWS district-level units—is an efficient arrangement. Regarding onsite sanitation, existing legislation places responsibility on the local government, but the Water Board Act charges the NWSDB with managing sanitation with the consent of local government, which requires a level of coordination and cooperation that may not be obtained easily in practice.

Financing shortfall for infrastructure needs: The national target for piped water connections is coverage of 60 percent of the population by the year 2020, much of this through expansion of the NWSDB network. NWSDB estimates that this effort would require an annual investment of \$80 million from 2016 on and has projected a substantial gap in investment (NWSDB 2016b). Calculation based on international data and information from World Bank projects suggest that during the 2010–20 period, improvements to the water and sanitation sector would require an annual investment of between \$75.5 million to \$154 million, or approximately 0.13 to 0.26 percent of GDP (Biller and Nabi 2013). The investment gap is proposed to be met partly through funds from the government and multilateral and bilateral donors, which may not be sufficient for the scale of investment required. There is a need to leverage private finance on a fiscally sustainable basis, such as through public-private partnerships, which can help to address gaps in the urban sanitation subsector.⁵

Figure 4.1. Intersectoral Coordination Needs for Effective WSS Service Delivery



Note: Local authorities, such as CMC, KMC, and Pradeshiya Sabhas, are important players in providing WSS. CBO = community-based organization; MCPWS = Ministry of City Planning and Water Supply; NWSDB = National Water Supply and Drainage Board; WSS = water supply and sanitation.

Insufficient capacity at various levels: Sri Lanka needs to strengthen its local contractor and technical consultancy industry, especially for urban sanitation. The procurement guidelines do not cover this aspect sufficiently, and it relates to supporting the development of the local contractor and consultancy industry, which is in the WSS sector’s long-term interest. Outright rejection of bids that are not considered substantially responsive and long delays between the bid submission and award of a contract work against the development of the local contractor and consultancy industries. As discussed in the section on RWS, CBO capacity for technical and financial management of water supply varies widely, and the weaker CBOs need arrangements for reliable and responsive support. The overlap, lack of institutional clarity, and inadequate resources to provide the needed support must be addressed to achieve any significant improvement in RWS.

Addressing the Challenges and the Role of Development Partners

ADB, JICA, and the World Bank, as Sri Lanka’s key development partners, have played a significant role in supporting the country’s WSS sector during the past decade, as reviewed in this case study. Going forward, they have much to contribute by using their individual strengths in policy advice, technical assistance, capacity building, and

investment assistance to overcome the challenges and constraints discussed in the preceding sections. The findings and analysis suggest that the development partners should coordinate in their future sector engagement with the Sri Lankan government regarding the following:

- **Policy and regulatory reform:** Support the government in WSS regulatory reforms, notably in establishing transparency in water tariff setting.
- **Focusing on the lagging areas:** Sri Lanka has achieved impressive gains in relation to access to improved water and sanitation, but these increases appear to have leveled off in the past several years, highlighting the particular difficulties of providing service delivery in difficult-to-access, lagging areas in the rural sector and in estates. Reaching these thinly populated and remote locations would require new and innovative thinking because business-as-usual may not be able to meet the specific challenges associated with delivering sustainable services in communities hindered by technical, institutional, and capacity constraints.
- **Adapting and strengthening the CBO model:** The CBO model has delivered good results overall, but it needs to adapt according to the context, to rising consumer expectations for service delivery, and to their decreasing willingness to contribute in-kind to water supply facilities and upkeep. Ways to professionalize the management of CBOs according to size and need should be explored. A greater role for the NWSDB and local government or Pradeshiya Sabhas may become necessary in some cases. Hybrid models may be considered that combine close links to the CBO with the level of technical input that the NWSDB can provide, together with effective and close financial supervision. Clarity in institutional responsibility to support weak CBOs is needed to make this mechanism effective and responsive.
- **Urban sanitation – expanding, and strengthening O&M of off-site sewerage and on-site facilities and creating value chains for safe and efficient removal of fecal sludge and organic wastes:** Support the government in taking a balanced and phased approach to expanding urban sanitation and strengthening O&M for sewage treatment and collection facilities. Recognizing the scale of challenges in urban sanitation may not be met cost-effectively or promptly by extension of the sewerage network alone, O&M of on-site facilities need to be improved in the short and medium term through, for example, assistance to install domestic wastewater treatment or septic tanks, construction of treatment facilities for the removed septage, and technical support. Given the large incidence of on-site sanitation, value chains and incentives can be created for septage management in

cities and small towns. Scope exists for using public-private partnerships, such as those created through performance contracts. Other countries have done this successfully, such as the Philippines for septage management and Vietnam for reducing NRW by locating and fixing leaks. This can also have the effect of improving in-country technical and consulting capacity. Other, newer options exist for combining organic domestic wastes with sludge to produce biomethane fuel, and the digestate can be used as fertilizer. Although these newer options may not be least-cost solutions to the problems at hand, developments after the 21st Conference of Parties (COP21) to the UN Framework Convention on Climate Change provide opportunities for closing the viability gap while yielding strong local environmental benefits and global greenhouse gas benefits.

- **Investing in a modern, responsive data system to underpin planning and service delivery:** Creating a database for service delivery (adequacy, reliability, quality, and affordability) is necessary to shift the focus of sector strategy from access to service delivery. Such a database will enable planners to get a true picture of service delivery, which is almost nonexistent for most of the population living outside urban areas. It should allow improved physical and financial planning, regulation, environmental monitoring, intersectoral coordination, monitoring and evaluation, and customer satisfaction. It will also enable a more systematic and efficient engagement with development partners, who can use the information to better align their strengths with the diversity of sector needs. Sri Lanka is ideally placed to develop a modern system using geotagging, mobile phone apps, and the Internet, given the country's telecommunications connectivity, human resources, technical penetration, transportation facilities, and relatively compact geography. This exercise will help the government in developing a programmatic approach to address the needs in the WSS sector, and to have development partners combine their efforts in a more complementary manner to achieve common sector outcomes. At the same time, development partners could work with the government to develop consistent definitions of different parameters to operationalize Sustainable Development Goals indicators, which can help the various partners work toward a common goal.
- **Enhancing mechanisms for intersectoral coordination:** Enhance existing modes for intersectoral coordination and develop new modes where necessary to ensure physical, social, and environmental sustainability of service delivery to address concerns. These include the current and growing concern for water resource management to keep pace with growing demand from the domestic, agricultural, and industrial sectors; water quality in general in rural areas and particularly in CKDu-affected areas; the impact of poorly managed solid waste on sewerage and

flooding; and better implementation of groundwater and environmental regulation. All of these concerns underscore the need for ministries and agencies responsible for these functions to enhance existing mechanisms or create new ones for coordination with WSS institutions, underpinned by improved data.

- **Adopting integrated urban water management and circular economy concepts:** Build upon improved intersectoral coordination to introduce integrated urban water management practices. Reduce and eliminate unregulated dumping of urban liquid and solid waste in water bodies and on land, and operationalize circular economy concepts through adopting new and relevant technologies, which can also contribute to methane capture and reuse.

¹ See section 2 of this report. In addition, ADB's Independent Evaluation Department (IED) and JICA's sector background report (footnote 4; Chapter V, VI) provides a detailed discussion and analysis of donor coordination and its evolution in Sri Lanka.

² However, note that ADB's rural water supply (RWS) projects, which were modeled on the earlier World Bank project based on the CBO approach, addressed this by incorporating significant input from nongovernmental organizations (NGO) in the CBO villages for two years during initial design and implementation.

³ A "rurban" area is an area of rural activity and on the edge of a suburban area that has already been developed.

⁴ See the 2005 document listing NGOs in Sri Lanka on the Sri Lanka library website at <http://www.lankalibrary.com/news/NGO.pdf>.

⁵ Note that in this context, public-private partnerships can provide a number of benefits (for example, value for money, enhanced service delivery, sustainability of operations and maintenance, and access to alternative sources of capital), but not all projects will be suitable for procurement through this route.

References

- ADB (Asian Development Bank). 2003. *Sri Lanka: Country Strategy and Program, 2004–2008*. Manila: ADB.
- — —. 2010. *Sri Lanka: Country Partnership Strategy, 2009–2011*. Manila: ADB.
- — —. 2011. *Sri Lanka: Country Partnership Strategy, 2012–2016*. Manila: ADB.
- — —. 2016. *Asian Water Development Outlook 2016: Strengthening Water Security in Asia and the Pacific*. Manila: ADB.
- Billar, Dan, and Ijaz Nabi. 2013. *Investing in Infrastructure: Harnessing Its Potential for Growth in Sri Lanka*. Washington, DC: World Bank.
- CBSL (Central Bank of Sri Lanka). 2010. *Annual Report of the Monetary Board to the Hon. Minister of Finance for the Year 2010*. Colombo, Sri Lanka: CBSL.
- — —. 2015. *Annual Report of the Monetary Board to the Hon. Minister of Finance for the Year 2015*. Colombo, Sri Lanka: CBSL.
- CCI (Chamber of Construction Industry, Sri Lanka). 2016. "Challenges in the Water Sector and Wastewater Sector." *CCI Bulletin* 15 (16): 12–16.
- DCS (Department of Census and Statistics, Sri Lanka). 2007. *Sri Lanka Household Income and Expenditure Survey 2006–2007*. Colombo, Sri Lanka: DCS.
- — —. 2010. *Sri Lanka Household Income and Expenditure Survey 2009–2010*. Colombo, Sri Lanka: DCS.
- — —. 2015. *Sri Lanka Household Income and Expenditure Survey 2012–2013*. Colombo, Sri Lanka: DCS.
- DNP (Department of National Planning, Sri Lanka). 2006. "Mahinda Chintana: A Vision for a New Sri Lanka – A Ten-Year Horizon Development Framework 2006–2016." Colombo, Sri Lanka: DNP.
- — —. 2015. "Mahinda Chintana: Vision for the Future: A Development Policy Framework." Colombo, Sri Lanka: DNP.
- Fan, Mingyuan. 2015. "Sri Lanka's Water Supply and Sanitation Sector: Achievements and a Way Forward." ADB South Asia Working Paper Series No. 35, ADB, Manila.
- FAO (Food and Agriculture Organization of the UN). 2011. *Aquastat*.
http://www.fao.org/nr/water/aquastat/countries_regions/LKA/.
- Global Water Intelligence*. 2015. "Global Water Intelligence Water Tariff Survey, 2015."
<https://www.globalwaterintel.com/global-water-intelligence-magazine/tariff-survey/>.
- IED (Independent Evaluation Department of the Asian Development Bank) and JICA (Japan International Cooperation Agency). 2017. *Sri Lanka Water Supply and Sanitation: Sector and Coordination Experience of the Asian Development Bank, Japan International Cooperation Agency, and the World Bank Group, 2007–2016*.

REFERENCES

- IMF (International Monetary Fund). 2016. "Sri Lanka to Reboot Economic Policies." IMF Survey June 14.
<http://www.imf.org/en/news/articles/2015/09/28/04/53/socar061416a>.
- Jagannathan, Vijay N. 2016. Water Diagnostics for Colombo. Background paper, World Resources Institute, Washington, D.C.
- JICA (Japan International Cooperation Agency). 2010. "For Our Beautiful Planet." JICA Brochure, March 2010.
[http://gwweb.jica.go.jp/km/FSubject1801.nsf/b9ebd9a793e2456249256fce001df569/8bc0fd8bd5f167b7492573df00105c8f/\\$FILE/%E5%AE%88%E3%82%8D%E3%81%86%EF%BC%81%E7%A7%81%E3%81%9F%E3%81%A1%E3%81%AE%E5%9C%B0%E7%90%83%E3%80%80%E8%8B%B1%E6%96%87.pdf](http://gwweb.jica.go.jp/km/FSubject1801.nsf/b9ebd9a793e2456249256fce001df569/8bc0fd8bd5f167b7492573df00105c8f/$FILE/%E5%AE%88%E3%82%8D%E3%81%86%EF%BC%81%E7%A7%81%E3%81%9F%E3%81%A1%E3%81%AE%E5%9C%B0%E7%90%83%E3%80%80%E8%8B%B1%E6%96%87.pdf).
- — —. 2012. JICA Assistance Strategy on Water Supply and Sanitation (May 2012).
[http://gwweb.jica.go.jp/km/FSubject0301.nsf/ff4eb182720efa0f49256bc20018fd25/3958a0a725aba98549257a7900124f29/\\$FILE/Water_&_Sanitation_Assistance_Strategy.pdf](http://gwweb.jica.go.jp/km/FSubject0301.nsf/ff4eb182720efa0f49256bc20018fd25/3958a0a725aba98549257a7900124f29/$FILE/Water_&_Sanitation_Assistance_Strategy.pdf).
- — —. 2012. Country Analytical Work: Democratic Socialist Republic of Sri Lanka (October 2012) – Chapter 3: Life Environment.
- — —. 2013. Strategy paper on water environmental management by JICA (April 2013).
[http://gwweb.jica.go.jp/km/FSubject1801.nsf/b9ebd9a793e2456249256fce001df569/f14f12d2e015515449257b4300251154/\\$FILE/%E3%83%9D%E3%82%B8%E3%82%B7%E3%83%A7%E3%83%B3%E3%83%9A%E3%83%BC%E3%83%91%E3%83%BC%E6%9C%AC%E6%96%87_%E8%8B%B1%E6%96%87_2013%E5%B9%B4%E6%9C%88.pdf](http://gwweb.jica.go.jp/km/FSubject1801.nsf/b9ebd9a793e2456249256fce001df569/f14f12d2e015515449257b4300251154/$FILE/%E3%83%9D%E3%82%B8%E3%82%B7%E3%83%A7%E3%83%B3%E3%83%9A%E3%83%BC%E3%83%91%E3%83%BC%E6%9C%AC%E6%96%87_%E8%8B%B1%E6%96%87_2013%E5%B9%B4%E6%9C%88.pdf).
- — —. 2015. "Water Human Future." JICA Brochure (2015).
https://www.jica.go.jp/publication/pamph/ku57pq0000najg5-att/0206_water_e.pdf.
- — —. 2015. Japan Brand Brochure: Safe Water for All (2015).
https://www.jica.go.jp/english/publications/brochures/c8h0vm0000avs7w2-att/japan_brand_05.pdf.
- MOF (Ministry of Finance, Sri Lanka). 2016. Budget Speech 2017.
<http://www.treasury.gov.lk/documents/10181/28027/Budget+Speech+2017/a092d16a-68ec-46d5-8e27-9e3c00243aa8>.
- MUDCPU (Ministry of Urban Development, Construction, and Public Utilities, Sri Lanka). 2001. National Policy for Rural Water Supply and Sanitation Sector. Battaramulla: MUDCPU.
- NWSDB (National Water Supply and Drainage Board). 2007. *Annual Report 2007*. Ratmalana, Sri Lanka: NWSDB.
- — —. 2009. *Annual Report 2009*. Ratmalana, Sri Lanka: NWSDB.
- — —. 2011. *Annual Report 2011*. Ratmalana, Sri Lanka: NWSDB.
- — —. 2013. *Annual Report 2013*. Ratmalana, Sri Lanka: NWSDB.
- — —. 2016a. "Piped Water Connected Coverage December 2016."
<https://drive.google.com/uc?export=download&id=0BwBg25kWbLu2VkhISHpvMnBPSIU>.
- — —. 2016b. Presentation by Mr. Thilina Wijetunga, Deputy General Manager, NWSDB, at the JICA-World Bank-ADB Joint Evaluation Workshop, "Achievement and Future Challenges of the Water and Sanitation Sector in Sri Lanka," Colombo, Sri Lanka, September 2, 2016.

- Rajapakse, S, MC Shivanthan, and M. Selvarajah. 2016. "Chronic kidney disease of unknown etiology in Sri Lanka. *International Journal of Occupational and Environmental Health*." 2016;22(3):259-264. doi:10.1080/10773525.2016.1203097.
- TWCWM (Third World Centre for Water Management). 2003. "Impact Evaluation of Greater Colombo Water Supply Project: Developing a New Framework." Report submitted to Japan Bank for International Cooperation, TWCWM, Mexico City.
- UNICEF (United Nations Children's Fund) and WHO. 2015. "Progress on Sanitation and Drinking Water: 2015 Update and MDG Assessment." Geneva: UNICEF and WHO.
- Weeraratne, Bilesha. 2016. "Re-Defining Urban Areas in Sri Lanka." Working Paper Series No.23, Institute of Policy Studies of Sri Lanka, Colombo, Sri Lanka.
- WHO (World Health Organization). 2009. "Review of Coordination Mechanisms for Development Cooperation in Tajikistan: Summary Report." Copenhagen: WHO.
- World Bank. 2008. "Sri Lanka Country Assistance Strategy for the Period FY2009-FY2012." Country Assistance Strategy Document No. 43471, World Bank, Washington, DC.
- — —. 2012. "Sri Lanka Country Partnership Strategy for the Period FY2013-16." Country Assistance Strategy Document No. 66286, World Bank, Washington, DC.
- — —. 2014. "Sri Lanka Water Supply and Sanitation Sector Study. Operationalizing the 'Mahinda Chintana' Vision for Water Supply and Sanitation." Report No. ACS9513

Appendix A. ADB, JICA, and the World Bank WSS Portfolio in Sri Lanka

Table A.1. Water Supply and Sanitation Projects Approved or Closed during 2007–16, by Development Partner

Institution	No.	Project ID	Loan, Grant or TA	Project Name	Project Performance (Self Rating by Each Institution)	Status	Approval Date	Planned/ Actual Closing Date	Actual/ Planned Loan/Grant for W&S (US\$, millions)
ADB	1	1575	Loan	Third Water Supply and Sanitation	Successful	Closed	11/6/1997	8/19/2008	83.1
ADB	2	2201	Loan	Local Government Infrastructure Improvement Project	Successful	Closed	11/24/2005	10/12/2015	4.8
ADB	3	2557/2558	Loan	Greater Colombo Wastewater Management	—	Active	9/28/2009	6/30/2015	100.0
ADB	4	2626	Loan	Conflict-Affected Region Emergency Project	—	Closed	4/15/2010	7/24/2017	32.9
ADB	5	2710/2711	Loan/grant	Jaffna and Kilinochchi Water Supply and Sanitation	—	Active	11/29/2010	8/14/2017	90.6
ADB	6	9154	Grant	Improving Community-Based Rural Water Supply and Sanitation in Post-Conflict Areas of Jaffna and Kilinochchi	—	Closed	2/4/2011	7/13/2017	2.0

APPENDIX A
ADB, JICA, AND THE WORLD BANK WSS PORTFOLIO IN SRI LANKA

Institution	No.	Project ID	Loan, Grant or TA	Project Name	Project Performance (Self Rating by Each Institution)	Status	Approval Date	Planned/ Actual Closing Date	Actual/ Planned Loan/Grant for W&S (US\$, millions)
ADB	7	1993/2275/ 2276/2757/ 2758	Loan	Secondary Towns and Rural Community-Based Water Supply and Sanitation	Less than successful	Closed	6/8/2011	2/11/2016	137.9
ADB	8	2790 + extension	Loan	Local Government Enhancement Sector Project (SF)	—	Active	11/1/2011	6/30/2017	119.0
ADB	9	2477/0129/ 0130/2977	Loan/grant	Dry Zone Urban Water and Sanitation	—	Active	12/18/2012	12/31/2017	125.0
ADB	10	2947/2948/ 3029/3030/ 3348	Loan	Greater Colombo Water and Wastewater Management Improvement Investment Program	—	Active	9/26/2013	6/30/2019	300.0
ADB	11	4049	TA	Strengthening the Regulatory Framework for Water Supply and Sanitation	Less than successful	Closed	12/18/2002	4/30/2008	0.3
ADB	12	7078	TA	Institutional Strengthening for Decentralized Service Delivery in the Water Sector	Less than successful	Closed	4/24/2008	6/30/2010	0.7
ADB	13	7320	TA	Supporting Capacity Development for Wastewater Management Services in Colombo	Successful	Closed	7/28/2009	10/4/2011	0.7

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ADB, JICA, AND THE WORLD BANK WSS PORTFOLIO IN SRI LANKA

Institution	No.	Project ID	Loan, Grant or TA	Project Name	Project Performance (Self Rating by Each Institution)	Status	Approval Date	Planned/ Actual Closing Date	Actual/ Planned Loan/Grant for W&S (US\$, millions)
ADB	14	8206	TA	Capacity Development for Non-Revenue Water Reduction	Successful	Closed	11/5/2012	2/13/2015	0.2
ADB	15	8562	TA	Capacity Development for Project Implementation	—	Active	12/10/2013	12/31/2016	0.5
ADB	16	8835	TA	Institutional Development of National Water Supply and Drainage Board	—	Active	12/1/2014	12/1/2018	1.0
ADB	17	8733	TA	Wastewater Management Improvement in Colombo Municipal Council	Successful	Closed	12/1/2014	11/30/2016	0.4
JICA	1	SL-P73	Loan	Lunawa Environment Improvement and Community Development Project	Satisfactory	Closed	12/28/2001	4/1/2010	52.2
JICA	2	SL-P90	Loan	Water Sector Development Project	—	Closed	3/28/2007	6/1/2015	113.7
JICA	3	SL-P93	Loan	Water Sector Development Project (II)	—	Closed	7/29/2008	11/1/2015	65.8
JICA	4	SL-P98	Loan	Eastern Province Water Supply Development Project	—	Closed	3/1/2010	7/1/2016	38.5
JICA	5	SL-P99	Loan	Kandy City Wastewater Management Project	—	Active	3/26/2010	10/1/2017	150.5

APPENDIX A
ADB, JICA, AND THE WORLD BANK WSS PORTFOLIO IN SRI LANKA

Institution	No.	Project ID	Loan, Grant or TA	Project Name	Project Performance (Self Rating by Each Institution)	Status	Approval Date	Planned/ Actual Closing Date	Actual/ Planned Loan/Grant for W&S (US\$, millions)
JICA	6	1161310	Grant	The Project for Rehabilitation of Killinochchi Water Supply Scheme	—	Closed	3/6/2012	10/31/2016	11.6
JICA	7	SL-P110	Loan	Anuradhapura North Water Supply Project Phase 1	—	Active	3/14/2013	2/1/2018	65.1
JICA	8	SL-P115	Loan	Anuradhapura North Water Supply Project Phase 2	—	Active	11/17/2016	3/1/2022	191.2
JICA	9	TA-1	TA	Water and Sanitation Sector Advisor	—	Closed	3/1/2009	9/1/2010	n.a.
JICA	10	TA-2	TA	The Capacity Development Project for Non-Revenue Water (NRW) Reduction in Colombo City	Achieved the objectives and attained the desired outcome	Closed	4/1/2009	9/1/2012	n.a.
JICA	11	TA-3	TA	Project for Monitoring of the Water Quality of Major Water Bodies	—	Active	3/1/2015	2/1/2018	n.a.
JICA	12	TA-4	TA	Project for the Strategic Master Plan under Sewerage Sector	—	Active	9/1/2015	3/1/2017	n.a.
WB	1	P058067	Grant	Second Community Water	Moderately satisfactory	Closed	5/6/2003	1/7/2011	43.6
WB	2	P074872	Grant	Community Development and Livelihood Improvement	Highly satisfactory	Closed	3/30/2004	3/31/2010	10.4
WB	3	P100390	Loan	Puttalam Housing Project	Moderately satisfactory	Closed	2/20/2007	12/30/2011	8.4

APPENDIX A
ADB, JICA, AND THE WORLD BANK WSS PORTFOLIO IN SRI LANKA

Institution	No.	Project ID	Loan, Grant or TA	Project Name	Project Performance (Self Rating by Each Institution)	Status	Approval Date	Planned/ Actual Closing Date	Actual/ Planned Loan/Grant for W&S (US\$, millions)
WB	4	P087145	Loan	Second Community Development and Livelihood Improvement	Moderately satisfactory	Closed	9/10/2009	9/30/2015	7.4
WB	5	P118870	Loan	Emergency Northern Recovery	Moderately satisfactory	Closed	12/17/2009	12/31/2013	11.7
WB	6	P113036 P150140 P152623	Loan	North East Local Services Improvement	—	Active	5/13/2010	8/31/2017	17.6
WB	7	P122735	Loan	Metro Colombo Urban Development	—	Active	3/15/2012	12/31/2017	159.8
WB	8	P130548	Loan	Sri Lanka Strategic Cities Development	—	Active	5/5/2014	12/31/2021	51.5
WB	9	P147827	Loan	Water and Sanitation Improvement	—	Active	6/24/2015	12/31/2020	165.0
WB	10	P077586	TA	Economic Reform TA	Unsatisfactory	Closed	12/10/2002	6/30/2008	1.7

Note: ADB = Asian Development Bank; JICA = Japan International Cooperation Agency; TA = technical assistance; W&S = water and sanitation; WB = World Bank.

Appendix B. Study Locations

Table B.1. Study Locations

Project Sites	District, Province	Project (DP)	FGD/ Beneficiary Interviews
Pallekotuwa	Kandy, Central	Second CWSSP (WB)	FGD
Werapitiya	Kandy, Central	Second CWSSP (WB)	FGD
Pallegeegala	Kandy, Central	Water Sector Development Project I (JICA)	FGD
Adikaragama	Nuwara Eliya, Central	Second CWSSP (WB)	Beneficiary interviews
Nikagolla	Matale, Central	Second CWSSP (WB)	Beneficiary interviews
Deevilla	Matale, Central	Second CWSSP (WB)	Beneficiary interviews
Diulankadawala	Polonnaruwa, North Central	Secondary Towns and Rural Community-Based Water Supply and Sanitation (ADB)	Beneficiary interviews
Etambeoya	Polonnaruwa, North Central	Secondary Towns and Rural Community-Based Water Supply and Sanitation (ADB)	Beneficiary interviews
Jayanagar, Muthur	Trincomalee, Eastern	Secondary Towns and Rural Community-Based Water Supply and Sanitation (ADB)	FGD
Allainagar, Muthur	Trincomalee, Eastern	Secondary Towns and Rural Community-Based Water Supply and Sanitation (ADB)	FGD
Serunuwara	Trincomalee, Eastern	Second CWSSP (WB)	FGD
Navatsolai	Trincomalee, Eastern	North and East Pilot WASH for Post-Conflict Resettle (NEP WASH) (WB)	Beneficiary interviews
Kiliveddy	Trincomalee, Eastern	North and East Pilot WASH for Post-Conflict Resettle (NEP WASH) (WB)	Beneficiary interviews
Kolongolla, Padaviya	Trincomalee, Eastern	Eastern Province Water Supply Development Project (JICA)	FGD
Muthurankernei-kulam	Batticaloa, Eastern	Eastern Province Water Supply Development Project (JICA)	Beneficiary interviews
Alankulam	Batticaloa, Eastern	Eastern Province Water Supply Development Project (JICA)	Beneficiary interviews
Bandaragama	Kalutara, Western	Water Sector Development Project II (JICA)	Beneficiary interviews

Note: ADB = Asian Development Bank; CWSSP = Community Water Supply and Sanitation Project, FGD = focus group discussion; JICA = Japan International Cooperation Agency; TA = technical assistance; WASH = water, sanitation, and hygiene; WB = World Bank.

Figure B.1. Study Locations by Method of Data Collection



Note: FGD = focus group discussion.

Appendix C. Joint Case Study Focus Group Report

Executive Summary

This report presents the community-level data collection carried out by a separate team as part of data collection for the Joint Case Study of the Water and Sanitation Sector in Sri Lanka by Asian Development Bank (ADB), Japan International Cooperation Agency (JICA), and the World Bank Group. The objectives of this exercise were to listen directly to the “voice of the people” who are the final beneficiaries of the projects, and community members who manage water programs on behalf of their village; explore new issues and enable existing hypotheses and outcomes to be understood in greater depth; and triangulate data for greater accuracy to understand how a given issue can be experienced differently by different groups, and how outcomes can be prioritized differently by different groups.

A portfolio of methods and data sources was used to meet these objectives. These included focus group discussions with final beneficiaries and leaders of the community-based organizations (CBO) that manage the individual projects; key person interviews with officers of the National Water Supply and Drainage Board (NWSDB) Rural Water Supply (RWS) unit, local government (Pradeshiya Saba) and public health service officers working directly with the beneficiary communities, and site visits.

Table C.1. Respondents, by Data Collection Tool and Gender

Data Collection Tool	Male	Female	Total
FGD (with beneficiaries)	30	46	76
FGD (with CBO leaders)	8	10	18
Key person interviews	9	1	10
Total	47	57	104

Note: CBO = community-based organization; FGD = focus group discussion.

The analysis contained in this report draws from a limited number of locations and is not meant to be generalizable to all rural and urban water programs funded by the development partners, but it provides a local perspective that is often absent in evaluations of activities supported by development partners. The data have been rigorously triangulated at the local level, which is often not possible for the evaluation departments of development partners given the time, cost, and language limitations of evaluation missions.

Summary of Findings

IMPROVED ACCESS

The water supply programs in the sampled locations have met a need; in all locations, the large majority of households have connected to the water supply program. Piped water is the households' primary water source because it is convenient and reliable. However, most rural households continue to maintain a variety of sources, such as their own well, a common well, rivers, and springs. In the sampled locations, economic constraints were rarely the reason for using alternative sources. Most connected households continue to use alternative water sources because of their high quality (for example, well water for drinking) or because of habit and cultural conditioning (for example, the preference for well, tank, or stream water for bathing and washing clothes).

The water supply is quantitatively adequate when it is sufficient to meet household needs. None of the CBOs sampled provide 24-hour supply because of the need to ensure equitable distribution when water is limited, labor constraints to operate the pumps, the cost of electricity, and preventing wastage from overflows. The connected households know the supply days, and they adjust to available sources and manage availability by storing water while prioritizing usage of project water for needs that call for proximity and quality.

Except for the Serunuwara program, all the water projects have design elements incorporated into the infrastructure to improve water quality to raise it to an acceptable quality for household use. Households are aware that CBO water is not of drinking quality, and most cope with that by boiling it, using water from traditional drinking water wells, or buying water.

There is widespread acceptance among the rural respondents that the benefit of CBO water is worth the cost. The benefit is most often based on access and convenience rather than savings on expenditure. Saving on the cost of transporting water was mentioned as a secondary factor. Inability to pay the bill was not one of the reasons that households did not connect. Tariffs for CBO water are higher than NWSDB and Pradeshiya Saba tariffs; most CBO beneficiaries are aware of this difference and accept it.

Both CBO leaders and beneficiaries felt that most defaults were not due to economic constraints. Defaults were caused by unreliable supply, faulty meters causing disputed bills, and lack of CBO authority to enforce bill payment. However, a few households default because of economic constraints. These are households with elderly and/or disabled heads of household or chronically poor households. All CBOs take a sympathetic view of these households, acknowledging their critical need for water despite their inability to pay.

The findings from the urban sites where NWSDB was providing water differed substantially from the rural sites receiving CBO water. Because there was no CBO involvement, the urban users had no knowledge or opinion on the management of the water supply. They relied on piped water to a much greater extent than rural users. In Alainagar and Jayanagar, the respondents felt the NWSDB tariff rates were unaffordable and the cost of connections too high.

BENEFITS AND BENEFICIARIES

All respondents – regardless of age, gender, or livelihood – cited proximity and reliability as the primary benefit of piped water. The main benefits identified were the convenience of having the water in the compound and not having to travel to get it; reliability of supply during seasonal shortages of alternative sources; and quality (suitability for drinking). The benefit to the elderly is beyond general convenience because they are incapable of accessing water that requires a long walk or a steep or irregular climb.

Water-borne diseases, such as dysentery, typhoid, and diarrhea, were not reported as an issue. The viral hepatitis epidemic in Serunuwara in 2015 was the most severe disease reported that was directly related to water. The beneficiaries from the areas most affected by chronic kidney disease of unknown etiology (CKDu) were convinced that early symptoms of CKDu have been brought under control by drinking water purified by reverse osmosis. (Although the CBO does not run the reverse osmosis plant, it uses the CBO water).

A discussion on sanitation was included because it was a focus area of the main study. However, there was no dynamic discussion – respondents felt access to sanitation is generally good, and thus the communities did not see it as a significant issue. The public health inspectors were concerned about possible noncompliance with safe practices, such as the use of soap in the toilet, despite high levels of awareness. In urban sites, illegal discharge of sewage into the rainwater system is causing serious health and pollution impacts.

FACTORS AFFECTING SERVICE DELIVERY

A basic analysis of the focus group discussion data identified the initial design and implementation of the project infrastructure; CBO leaders and the institutional structure of the CBOs that manage the water program; and external institutional support as the main factors that affected the delivery of water.

The technical soundness (design and quality of construction) of the infrastructure is fundamental to successful and sustainable service delivery and is an enabling factor in CBO management. The choice of the source, capacity of the storage tank, purification methods

APPENDIX C

JOINT CASE STUDY FOCUS GROUP REPORT

installed, and so on, have a direct impact on the supply of water. Where the infrastructure has been inappropriate or quality shortcomings exist, the CBO had to incur higher operational costs, and the water supply has suffered. The latter has caused disruptions in supply and quality, which caused friction between the CBO and water users.

All three of the Second Community Water Supply and Sanitation (CWSSP2) projects had a period of extreme uncertainty when the CBO collapse was imminent. The CBO leaders were unable to find suitable solutions to supply-related problems that arose after the programs were handed over to them. Weaknesses in the water supply had led to the habit of defaulting on bill payments, which affected the financial sustainability and the authority of the CBO. According to the CBO leaders, they were overwhelmed by the responsibilities and financial issues involved and had no external institution or authority to turn to for help. Two CBOs (Pallekotuwa and Werapitiya) overcame this period when new leaders joined the CBO and succeeded in accessing the NWSDB-RWS for external supervisory assistance.

Unlike the CBOs set up under the CWSSP2, the Kolongolla CBO, which was funded under the Eastern Province Water Supply Development Project (EPWSDP), has been stable since its inception. The reasons discussed at the focus group discussion with CBO leaders pointed to the continued role of the local government (Pradeshiya Sabha) in supporting the CBO and providing it with authority. Unlike the other three CBOs, the Kolongolla CBO was set up as a Praja Mandalaya, a legal entity endorsed by the Ministry of Local Government and Provincial Councils and working directly with the Pradeshiya Saba.

Appendix D. Joint Case Study Workshop Report

JICA-World Bank-ADB Joint Evaluation Workshop: Achievement and Future Challenges of the Water and Sanitation Sector in Sri Lanka

Introduction

Japan International Cooperation Agency (JICA), the World Bank, and Asian Development Bank (ADB) are conducting a joint case study for fiscal year (FY) 2016 on Sri Lanka's water and sanitation sector to assess the achievement of assistance in the past 10 years and to enhance coordination of development partners' strategies and activities in the future. JICA, in collaboration with the World Bank and ADB, hosted a workshop to contribute to the joint case study "Achievement and Future Challenges of the Water and Sanitation Sector in Sri Lanka."

The workshop's objective was to bring together selected stakeholders in the water and sanitation sector to raise understanding and awareness of the sector's changing environment and challenges, and to identify areas in which government institutions and development partners could provide assistance to respond to various country-level needs to enhance inclusive and quality water supply and improve sanitation in Sri Lanka. Two primary outputs expected from the workshop were:

- Enhance common understanding of the challenges and possible entry points for both government institutions' and development partners' future strategies in the water and sanitation sector based on country needs and demands
- Foster, catalyze, and strengthen partnerships among participating stakeholders to contribute to national ownership and better coordination across development partners in the sector.

Program

Date: Friday, September 2, 2016, 9:00 a.m.-1:00 p.m. (Lunch 1:00-2:00)

Location: Cinnamon Grand Hotel (Angsana Room)

APPENDIX D JOINT CASE STUDY WORKSHOP REPORT

8:30–9:00	Registration
9:00–9:20	Inauguration: Welcome speech: JICA Sri Lanka Chief Representative Opening remarks: <ul style="list-style-type: none">• Secretary, Ministry of City Planning and Water Supply• Chairman, National Water Supply and Drainage Board (NWSDB)• General Manager, NWSDB
9:20–9:30	Introduction of the JICA–World Bank–ADB joint case study's scope and framework
9:30–10:15	Plenary discussion: Sector presentation by Thilina Wijethunga, Deputy General Manager, NWSDB
10:15–10:30	Guidance on breakout sessions
10:30–10:45	Tea break
10:45–12:00	Breakout sessions: "The Achievement and Future Challenges in the Water and Sanitation (W&S) Sector in Sri Lanka, and the Roles of Development Partners"
12:00–12:45	Presentation to plenary (by each group)
12:45–1:00	Concluding remarks
1:00–2:00	Lunch (Cinnamon Grand Hotel)

Workshop Output

Breakout session participants divided into four groups to discuss the topic most relevant to their own responsibility among the following four themes and topics:

Group 1: Urban Water Supply

- Operational efficiency and financial sustainability
- Customer satisfaction and water quality
- Organizational and policy issues
- Role of development partners.

Group 2: Urban and Rural Sanitation

- Innovative solutions for sewerage collection and treatment
- Role of development partners.

Group 3: Rural Water Supply

- Community-based organization (CBO) management and financial sustainability
- Technical and planning capacity for the future
- Institutional clarity
- Water quality
- Role of development partners.

Group 4: Sector Policy and Planning: Tracking service delivery outcomes

- Tracking progress toward Sustainable Development Goals
- Improve data for programmatic lending
- Intersector coordination
- Water resource management.

The joint mission members facilitated the discussion for each group. First, each participant received sticky notes to write down the most critical issues for group discussion considering the issue's alignment with the themes and topics. Facilitators organized the notes on a board to clarify cause and effects so that each group could identify problem trees and summarize possible solutions. At the end of the session, each group presented its discussion summary to plenary. The presented summaries are as follows:

Group 1: Urban Water Supply

Group members

M.M. Umarlebbe, Deputy General Manager, (Regional Support Centre North), NWSDB

K.T.P. Fernando, Deputy General Manager, (Project Coordination), NWSDB

D.S.D. Jayasiriwardane, Assistant General Manager (Southern and Eastern), NWSDB

P.H. Sarath Gamini, Project Director (Kandy WS), NWSDB

U. Ratnapala, Deputy General Manager, (North West), NWSDB

P. Ramawickrama, Project Director and Assistant General Manager (West Central), NWSDB

Facilitator: Au Shion Yee, ADB; and Tatsuya Asami, JICA

Presenter: Sarath Gamini, NWSDB

- Policies. Policies are needed to provide guidance on water resource allocation, catchment management, water conservation, reuse and recycling, and land use. The group noted that investing in water conservation and catchment management activities could significantly offset the high costs incurred for mobilizing additional capital and minimize water treatment costs. Ideally, establishment of a water apex body empowered by an umbrella legislation should be developed that outlines the priorities for water uses – this was attempted in 1990s under ADB technical assistance to establish the Water Resources Council and the Water Act. However, this was unlikely to be achieved in the short term. An overarching policy outlining how different pieces of legislation on water, resource use, and allocations could be applied in a coordinated manner could be a first step, given the numbers of actors and legislation related to water management in Sri Lanka (for example, National Water Supply and Drainage Board Act, Irrigation Act, and so on). Undertaking marketing

and raising awareness of such a policy to gain widespread support from government and the public is equally important.

- Regulations. Regulations by the Public Utilities Commission are needed to address water quality and tariffs and to guide requirements for cost recovery to meet sector investment and long-term sustainability (linked to customer services standards). More work is needed to engage customers at different levels to raise awareness of service standards (awareness of water value and production cost is currently low) and how water tariffs are linked to achieving desired levels of service. Ownership from consumers is needed to increase willingness to pay and to understand the cost of providing a reliable water supply service.
- Water database. Establishment and promotion of a national-level database is required to facilitate preparation of a comprehensive water sector plan (including a water resources inventory, land use, disaster management and emergency response, irrigation patterns, and demand projections). This central source of information, continually updated, could be valuable for the government to inform future planning for sector development programs. The group noted that each water supply program is developing water safety plans, which could link to a water sector plan.
- Project procedures. An assessment is needed of the cost effectiveness of lengthy project formulation, and concurrence and procurement procedures (focused on program scale instead of project level). Donors and development partners need to review current approval procedures and requirements to allow more flexibility, which may still achieve the same desired outcome (for government and donors).
- Role of donors. The future role of donors and development partners needs clarification regarding achieving national sector development objectives. The government also has to take responsibility in preparing a comprehensive sector development plan at the appropriate level that provides detailed sector objectives and program outcomes within a prescribed time frame (the Mahinda Chintana plan is at a macro level and therefore is not immediately operational in the field). This plan could be a useful tool to coordinate donor investment and support, building on the key strengths and experiences of each external development partner agency.

Group 2: Urban and Rural Sanitation

Group members

D.P.M. Chandana, PM, NWSDB

Wasantha Illangasinghe, PD (Kandy), NWSDB

Kumudinie Samarasinghe. Director (Project Management Unit), CMC

B.S. Wijemanna, Project Director, NWSDB

David Bekok, Agence Française de Développement (AFD)

Donald Sinclair, ADB Sri Lanka

Facilitator: Ramachandra Jammi, Independent Evaluation Group (IEG), World Bank

Presenter: Wasantha Illangasinghe

- Rural sanitation. At present, the default responsibility of constructing a latrine lies with the individual household. The responsibility to regulate rural sanitation lies broadly with the local government – however, the regulatory system is not properly managed and regulations are not systematically imposed. This, in turn, has enormous implications for groundwater quality. Poorly constructed septic tanks and lack of verification of separation between wells and septic tanks has an impact on human health and groundwater pollution. There is low capacity and knowledge among local authorities about how to design proper septic tanks and administer them. Education and training are needed at different levels – planning, designing, project implementation, and contracting.
- Urban sanitation. There is a need for greater clarity regarding institutional responsibility and accountability for urban sanitation – this is crucial for donors in planning and providing technical assistance and training. Preferably, the same agency should be in charge of both water supply and sanitation wherever feasible. Per existing ordinance, onsite sanitation is the local government’s responsibility. But under the Water Board Act, NWSDB has authority to manage sanitation with the consent from local government. The primary responsibility for urban sanitation needs clarity and policy. Administrative boundaries should not limit sewerage infrastructure – practical catchment areas should be considered instead. The advantages and disadvantages of decentralized versus centralized sewerage systems also need consideration. The question of responsibility and accountability arises only if capacity exists at local government authorities. Local governments’ capacity varies, and they have to rely on NWSDB as needed. NWSDB is implementing the Kandy City Wastewater Management Project and will hand it over to local government, the Kandy Municipal Council (KMC), but KMC’s capacity is an issue that needs to be addressed in parallel. Colombo Municipal Council (CMC) has good technical capacity, but KMC has relatively less. NWSDB’s capacity is more dependable and structured. A master plan should clarify the roles and responsibilities of local government authorities in relation to NWSDB. (JICA is formulating a plan, but it is more for site selection for investment planning.)
- Pollution: Dumping of septage is uncontrolled in several areas, and peri-urban and rural areas are affected. There is greater availability of septage treatment facilities compared to a 10 years ago, but there is a long way to go for any substantial coverage. The only check for water quality is through the public health inspector (PHI). In

addition NWSDB checks urban water quality regularly and rural (CBO) water quality biannually when samples are presented. NWSDB monitors effluent from its water treatment plants (WTPs) and waste water treatment plants (WWTPs).

- Capacity to construct sanitation infrastructure: Construction capacity for sanitation infrastructure is very low – construction and contracting, especially for specialized sewerage construction works. Labor turnover is very high, particularly for rehabilitation and maintenance work. As a result, there is excessive dependence on foreign contracting.
- There is a greater demand among the population for water supply services than for sanitation.

Group 3: Rural Water Supply

Group members

Arunasalam Kavitha, Department of External Resources

W.A. Weerakkody, Department of National Community Water Supply (DNCWS)

Duleep Gunawardena, Deputy General Manager (RWS), NWSDB

D.G. Gunadasa, Project Director (SL-P110, JICA), NWSDB

Kamal Dahanayake, Project Officer (Infrastructure), ADB

Facilitator: Katsumasa Hamaguchi, World Bank; and Samantha Wijesundera, World Bank

Presenter: Duleep Gunawardena, NWSDB

- Policy, planning, and strategy. Government's strategy for rural water supply is unclear. However, some participants noted that lack of strategy might not hinder operations in the field at the individual program level. Others stressed the importance of clear strategy so that the investment for rural water supply would be done consistently. Although rural water supply programs deliver a substantial portion of pipe connections, there is not enough financial support for CBOs for rural water programs' operation and maintenance. Urban water needs substantial investment; however, it is also important to continue investing in rural water supply programs.
- Institutional clarity. The roles and functions of NWSDB, DNCWS, and local authorities are somewhat overlapping regarding rural water supply, and they need clarification. The group discussion confirmed that DNCWS is the leading agency and has a clear mandate to oversee monitor, and give guidance to rural water supply in the country. However, DNCWS is a relatively new agency and needs technical and financial support to fulfill these functions. NWSDB can provide technical support to DNCWS. Coordination among DNCWS, NWSDB, and local authorities is highly important, and these three should work together toward the same objectives: deliver enough, safe water to rural people.

- Role of donors. Donors often claim that coordination among government agencies is lacking; however, they should also examine any lack of coordination among themselves. Donors should not compete to provide loans, but instead coordinate more among themselves for better government service delivery. Donors should consider pooling their funds and allocating them to utility agencies with a regional focus.
- Financial and technical sustainability. Diversification of CBO activities (microcredit, for example) should be encouraged to strengthen the CBOs' financial status. However, the CBO should make decisions for diversification to ensure ownership and sustainability. Too much cash in the bank account attracts various stakeholders' interests and makes CBO management difficult. The best practice to avoid problems is to turn the cash into assets that are useful for the CBO (vehicles, for example). But cash is needed operations and maintenance, such as pump replacement and the like.
- Opportunities for mutual learning among CBOs is highly important for their sustainable management. Some regions periodically hold a CBO forum, and the NWSDB's Regional Support Centre (RSC) hosts the forum secretariat.
- Water quality. Water quality is a major issue in rural water supply. Among other means of water supply, harvesting rainwater and storm water could be one of the solutions to provide clean water to rural beneficiaries (storm water harvesting may require some level of treatment).

Group 4: Sector Policy and Planning: Tracking service delivery outcomes

(Note: Because the discussion topic for this group was sector policy and planning, this group's discussion means were not consistent with the other groups' setting.)

Group members

Thilina Wijetunga, Deputy General Manager, NWSDB

R.A.A. Ranawaka, Assistant General Manager, NWSDB

T.H.A. Chandra Kumara, Assistant Director, ERD

R.D.R. Perera, AD, ERD

D.N. Siyambalapitiya, Director, Road Development Authority (RDA)

S. Mohanarajah, Director, Department of Irrigation

G.K.J. Samaratunga, Director, Mahaweli Authority

Facilitator: Eriko Yamashita, JICA

Presenter: Thilina Wijetunga, NWSDB

- National level coordination on water and sanitation policies. A national level apex body to decide project priorities and proper coordination among stakeholders (such as NWSDB, Road Development Authority (RDA), Ceylon Electricity Board (CEB),

Department of Irrigation, and others) is indispensable. Organizational reforms should be considered, if needed. Solid, long-term policies on water and the sanitation sector should be established, and a priority list for projects should be approved for a period of at least 10–15 years. Guidance should also be provided on how different stakeholders can manage necessary administration for providing infrastructure facilities, land acquisition requirements, and right of way. Currently, implementation delays (such as delays in procurement and land acquisition) hinder project efficiency, which should be addressed through improved intersector coordination.

- Formulation and planning. Water supply project formulation and planning should consider all intersector components: networks (what roads lines are involved); the timing of proposed programs and projects and their implementation period, geographical coverage, and distribution to avoid overlapping projects; funding method; and overall management with all relevant stakeholders.
- Funding arrangement for programmatic lending. The Ministry of Finance Budget Department should first set the targets for the sector budget allocation, including established timelines. Funding allocation and defined priorities will allow for more efficient, effective use of the limited resources. The criteria for project priorities should be clearly set and consider project benefits, such as the number of population/area and special cases.
- Water resource management. A central body should be defined or established that decides on water abstraction rights and coordinates its management among sectors. For example, policies for water resource sharing at the river basin-level are currently lacking. Water resource management policies should emphasize the importance of securing drinking water. Pollution control for existing water resources is an urgent issue that needs addressed.
- Donor coordination and tracking progress toward Sustainable Development Goals. Donors should support an integrated development approach.

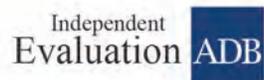
Appendix E. Workshop Participants

No.	Organization	Name	Title
1	National Water Supply and Drainage Board (NWSDB)	D.G. Gunadasa	Project Director, A'pura North Water Supply Project Phase I
2	NWSDB	D.P.M. Chandana	Project Manager, World Bank project
3	NWSDB	K.T.P. Fernando	Deputy General Manager (Projects Coordination)
4	NWSDB	Wasantha Illangasinghe	Project Director, Kandy City Waste Water Management Project
5	NWSDB	Duleep Goonawardene	Deputy General Manager, Rural Water Sanitation
6	NWSDB	D.S.D.Jayasiriwardane	Additional General Manager, Sewerage
7	NWSDB	P.H. Sarath Gamini	Project Director, Greater Kandy Water Supply Project
8	NWSDB	M.M. Umar Lebbe	Assistant General Manager, Japanese Projects Unit
9	NWSDB	P. Ramawickrama	Project Director, TNCWSP
10	NWSDB	B.S. Wijemanna	Deputy General Manager/Project Director, GCWRP
11	NWSDB	U. Rathnapala	Project Director, Eastern Province Water Supply Project
12	NWSDB	T.S. Wijetunga	Deputy General Manager, ADB projects
13	NWSDB	R.A.A. Ranawaka	Assistant General Manager, TRC
14	NWSDB	K.A. Anzar	Chairman, NWSDB
15	NWSDB	G.A. Kumararathna	General Manager, NWSDB
16	Mahaweli Authority of Sri Lanka	G.K.J. Samaratinga	Director, Water Management Secretariat
17	Ministry of City Planning and Water Supply	N.D. Heetiarachchi	Secretary, Ministry of City Planning and Water Supply
18	Ministry of City Planning and Water Supply	L. Mangalika	Additional Secretary, Ministry of City Planning and Water Supply
19	Dept. of National Community Water Supply	W.A. Weerakkody	Assistant Director, Development and Planning
20	Department of Irrigation	S. Mohanarajah	Director of Irrigation, Water Management, and Training
21	ERD	T.H.A. Chandra Kumara	Assistant Director, Deduruoya WSP/Ruwanwella WSP
22	Department of External Resources	Arunasalam Kavitha	Assistant Director, World Bank and International Monetary Fund Division
23	Department of External Resources	R.D.R. Perera	Assistant Director
24	Road Development Authority	D.N. Siyambalapitiya	Director, Planning

No.	Organization	Name	Title
25	International Water Management Institute	Herath Manthirithilake	Head, Sri Lanka Development Initiative
26	CMC	Kumudinie Amarasinghe	Director, Project Management Unit
27	AFD	David Bekok	Project Officer, AFD
28	JICA Sri Lanka	Kiyoshi Amada	Chief Representative, JICA Sri Lanka
29	IEG, World Bank (Washington, DC)	Ramachandra Jammi	Senior Evaluation Officer, IEG, World Bank Group
30	IEG, World Bank (Washington, DC)	Katsumasa Hamaguchi	Evaluation Officer, IEG, World Bank Group
31	ADB (Manila)	Au Shion Yee	Evaluation Specialist, IED, ADB
32	ADB Consultant	Jon Cook	Consultant
33	ADB Sri Lanka	Kamal Dahanayake	Project Officer
34	ADB Sri Lanka	Donald Sinclair	Associate Project Officer, ADB Sri Lanka Resident Mission
35	World Bank Sri Lanka	Samantha Wijesundara	Consultant, Water and Sanitation Specialist
36	JICA (Tokyo)	Eriko Yamashita	Evaluation Officer
37	JICA (Tokyo)	Tatsuya Asami	OIC for Sri Lanka water sector in headquarters
38	JICA Sri Lanka	Takuya Manabe	Representative, JICA Sri Lanka Office
39	JICA Sri Lanka	M.G. Hemachandra	Project Specialist, Water, JICA Sri Lanka Office
40	International Water Management Institute (IWMI)	Herath Manthirithilaka	Head, Sri Lanka Development Initiative, IWMI

Toward Sustainable Water and Sanitation Services in Sri Lanka

This joint case study reviews the experience of the Asian Development Bank (ADB), the Japan International Cooperation Agency (JICA), and the World Bank in supporting Sri Lanka as it moves toward its goals for sustainable and equitable provision of water and sanitation services to its people. The case study looks back at collective experience of the three institutions over the 10-year period 2007–16, and at alignment with the country's sector and larger economic goals.



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