Regulatory and policy solutions to support achievement of Sustainable Development Goal 6 of Safe & Affordable Water for All

Volume I of II

August 2021

Table of Contents

Executive Summary

Sri Lanka has committed to Sustainable Development Goal 6 (SDG 6): "by 2030, achieve universal and equitable access to safe and affordable drinking water for all." The government wishes to advance the achievement of this goal to 2025. The call for public comments at public consultations conducted in all provinces showed elevated public concern: 595 detailed written comments were received from members of the public and from officials who dealt with the problems of the public at the ground level; braving the health-related constraints, 261 persons presented their views in person at more than 10 consultations held across the island; more participated.

The written and oral testimonies confirm that many people and businesses do not have adequate quantities of drinking water throughout the year. There is also a high level of concern about the quality of water. People are worried about the water sources that supply their drinking water. Some water sources are the sites of serious conflicts about access and priority among uses. Concerns about the conservation of the water sources and deterioration of the quality of the source water abound. Industrial and commercial users also have unmet water and wastewater-disposal requirements, with detrimental effects on the economy.

Massive investments are required to improve the availability and quality of water, to ensure that neglected sewerage and septage needs are met, and that the services are sustainably and efficiently managed. Since the prioritization of the issue by the President, government has increased budgetary allocations, has assumed responsibility for loan repayments of the National Water Supply and Drainage Board (NWSDB) for 2021 (though claims are made by the Board for a longer period), and continues to provide guarantees so that the Board can obtain loans from domestic banks. The disjuncture between the Ministry and the Board on this matter indicates continued policy instability.

A stable policy and regulatory framework that provides incentives for efficiency will create the necessary stability for suppliers ranging from the NWSDB through local government authorities (LGAs) to community-based organizations (CBOs) to execute their business plans and will also reduce the cost of capital which will assume importance if the hope of loans that do not have to be repaid by the NWSDB is taken off the table. This will become increasingly important as sources other than the Consolidated Fund are likely to be drawn upon in the coming years.

When funds are efficiently deployed to build the purification plants, transmission mains, and the pipeline to homes and businesses, consumers benefit from greater availability of water and sanitation services (WSS), and from improved quality and reasonable prices. They will also benefit from regulatory actions to provide them with the tools to manage their water and sanitation needs through means including improved customer relations and understandable information. Suppliers will benefit by being able to execute business plans without the current uncertainty wherein tariff revisions are uncertain despite cost escalations caused by external factors such as currency depreciation and where unplanned discounts lacking a sound rationale may be suddenly decreed. The general public will benefit by not having to perpetually subsidize the NWSDB and its customers.

Traditional regulatory practices based on incentives and disincentives that have been designed for private investors in monopolistic conditions are irrelevant in the Sri Lankan context. Here, the suppliers are a state-owned business enterprise (SOBE), Local Government Authorities (LGAs), and Community Based Organizations (CBOs), none of which are likely to become more efficient in response to signals

such as lower rates of return on investment, or even budget cuts. The only remaining regulatory instrument is benchmarking regulation. But for this, it is necessary for multiple comparable units to exist.

It is recommended that the existing Regional Support Centers of the NWSDB be converted to separate, auditable units and that they, along with any LGAs supplying WSS and CBOs, be regulated at the provincial level by dedicated units under the Provincial Commissioners of Local Government under the legal authority of, and with technical support from, the Public Utilities Commission (PUCSL). The provincial units of the NWSDB, the LGAs, CBOs, water-bowser operators, and gully-bowser operators will be issued five- or ten-year licenses that will have differing obligations on the part of the licensees and will allow for enforcement of license conditions. Negotiations with the Ministry of Health to devise improved modalities to regulate the quality of water sold in containers, including bottles, is recommended, given the increasing prevalence of these modes of delivery.

If the hybrid PUCSL-provincial solution proves difficult to implement, an alternative solution that would require the concurrence of the Provincial Council is proposed. Here, regulation will be done directly by the PUCSL through two or three regional offices in addition to Colombo. Benchmarking regulation would still be the approach, except for the NWSDB being reconstituted into three or four units that each include production and distribution components plus a headquarters unit that will provide technical services to all.

The proposed WSS sector legislation will create new offenses related to operation without licenses, violation of license conditions, etc., which will replace the current registrations that lack meaningful enforcement provisions. The increased authority given through the license is balanced by strong procedural requirements for fairness on the part of the regulator. It is recommended that the proposed WSS sector legislation include authority to include provisions for forbearance, which will allow the regulator to reduce the burden of compliance especially on small and ancillary licensees while reserving the right to reimpose regulation if conditions change, following the procedures set out in the legislation and the licenses.

Operationalizing regulation at the provincial level achieves several purposes. The island wide consultations made evident that the problems of water and sanitation services (WSS) are different from province to province. With close to 5,000 CBOs managed by volunteers and a few part-time employees, it is not reasonable to expect them to interact with a Colombo-based regulatory authority. Even the NWSDB has decentralized its operations, without any external compulsion. Regional Support Centers (RSCs) are already operational at the provincial level. Working with and through the existing Provincial Council structures, regulation is brought close to where the suppliers and the consumers are. The optimal solution is also consistent with the Constitutional assignment of functions as interpreted by the Supreme Court in relation to the Water Services Reform Bill of 2003, in cases SC (SD) 24/2003 and 25/2003.

Operationalizing regulation at the provincial (or regional) level allows the use of benchmarking regulation, whereby it would be possible for the PUCSL to systematically collect, analyze, and present data that would allow comparison of the performance by provincial (or regional) units, and create incentives for improved efficiency in the absence of conventional regulatory tools. The provincial (or regional) regulatory units would interrogate the data submitted by regulated units in their areas and enter them into the templates provided by the PUCSL to complete the tariff determination procedure.

Similar processes would apply to quality indicators, including self-reported data as well as data collected on a random basis. All the data will be communicated in ways that are easily understandable and which may be used to exert pressure on low performers. This external pressure can used by the managers of the respective units to drive efficiency improvements.

As is common in regulatory practice, different classes of suppliers will be subject to different compliance requirements. For example, CBOs whose members/customers set their tariffs at an annual general meeting and water-bowser operators who operate in competitive conditions are likely to be exempted from tariff regulation through forbearance. Well-resourced large operators may be expected to adhere to SLS standards and levels of quality of customer service set out in their licenses. Small suppliers such as CBOs serving few households will be subject to the basic health and safety standards only and will be supported in various ways to improve quality by the Department of National Community Water Supply (DNCWS). Reactivation of water quality surveillance plans along with continued training, and gradual incorporation of stronger water quality standards including water safety plans into formal regulatory conditions by all supplier in all modes is recommended. Self-supply from wells cannot be disregarded. Provision of test kits can help ensure such users enjoy safe drinking water.

Various kinds of subsidies are needed to achieve SDG6. It is recommended that the subsidies currently granted be made explicit and tied to specific outcomes. For example, it is recommended that subsidies to suppliers such as LGAs and CBOs should be focused on one-time grants and low-interest loans through vehicles such as the Local Loans & Development Fund rather than on subsidies to households qualifying for assistance, which are difficult to implement. In the case of the NWSDB, the billing systems are already programmed to provide different rates and discounts to Samurdhi and similar recipients. It is proposed that the currently over-complicated NWSDB tariff design be simplified to replace cross subsidies with Treasury-funded targeted subsidies disbursed to qualifying customers through the billing system. This would be in addition to capital-cost subsidies disbursed in the form of simplified viability gap financing. As long as the regulator is kept informed of subsidies, it will be possible to realize the objectives of benchmarking regulation.

In addition to these policy recommendations directly related to utility regulation, the report makes a series of recommendations for policy changes necessary for the achievement of SDG6 by 2025. The consultations revealed the access to water sources is a serious constraint. Actions including revamping of the permits for extraction of surface water under the State Lands Ordinance, with or without amendments, and the enhancing the enforcement capabilities of Provincial Commissioners of Land are recommended.

With regard to groundwater, it is recommended that an expert committee be appointed to make recommendations on amendments to Water Resources Board Act, repositioning the Water Resources Board in relation to ground-level government bodies, and resourcing it adequately, among other measures. Renewed attention to the National Rainwater Harvesting Policy of 2005 is recommended, including the articulation of rainwater measures and groundwater recharging. Recommendations are also made for building the capacities of LGAs and CBOs, through the Sri Lanka Institute for Local Governance and the Department of National Community Water Supply (DNCWS), respectively. It is recommended that the proposed legislation to govern CBOs be revisited, keeping in mind the centrality of “community,” and leaving room for community initiative and leadership while focusing the mission of DNCWS on supporting the CBOs and building their capacity.

The rich insights yielded by the consultations, interviews, and research resulted in the recommendations which are listed and described in the individual chapters, and are also presented below, organized by agencies with primary responsibility. The Executive Summary must be read in conjunction with the recommendations given below. The recommendations are too numerous to be included in the present summary.

The necessity of a whole-of-government approach if the objective of achieving SDG 6 by 2025 is to be achieved is illustrated by the range of state agencies responsible for initiating action (in most cases with the support of other agencies) on the recommendations, if accepted.

State agency responsible for initiation of action	Number of recommendations
Ministry of Water Supply & State Ministry of Rural & Regional Drinking Water Supply Projects Development	22
Ministry of Finance	4
Provincial Ministries responsible for Local Government	3
Ministry responsible for subject of land	1
Public Utilities Commission	13
National Water Supply & Drainage Board	5
Department of National Community Water Supply	12
Board of Investment	2
Central Environmental Authority	1
Commissioner General of Land	2
Sri Lanka Institute of Local Governance	1
Water Resources Board	1
Provincial Commissioners of Local Government	3
Provincial Regulatory Units once established	3
Regulatory Authority after licenses issued	1
Provincial Commissioners of Land	1
Relevant District Secretaries	1
Local Government Authorities	1
Shared responsibility	14

Summary of Recommendations

No	Actions	To be taken by	Supported by	Chapter
Ministry of Water Supply & State Ministry				
1	Collect details of unserved areas from Divisional Secretariats and provide funding for Rainwater Systems or any other option suitable for them.	Ministry of Water Supply & State Ministry (hereafter denoted as Ministry)		1
2	Streamline bowser supplies along with quality assurance systems to serve unserved areas; use bowsers during drought to fill rainwater tanks where necessary.	Agency designated by Ministry		1
3	Considering major developments in the City of Colombo, the planned water supply projects and reservoirs in the Kelani River should be expedited.	Ministry	NWSDB	1
4	New septage treatment plants to be located taking into account transportation distance among other factors. Priority to be decided considering population density of LGAs, excluding the towns for which sewerage schemes are planned.	Ministry	NWSDB	1
5	Enact legislation for WSS sector, that when read together with PUCSL Act, would enable licensing & regulation of WSS suppliers	Ministry	PUCSL	3
6	Include provisions modeled on other utility regulation statues re licensing, renewal, offenses, etc. that when read together with PUCSL Act would provide a complete regulatory framework; licensing would at the level of province or 3-4 regions	Ministry	PUCSL	3
7	Include provisions for phased in benchmarking and quality regulation including provision for regulatory forbearance & flexibility within bands, with the more complex tasks being executed directly by the PUCSL in the first phase	Ministry	PUCSL	3

No	Actions	To be taken by	Supported by	Chapter
8	Reconstitute the 11 RSCs of the NWSDB as self-contained units with own management & accounts (1 per province, with three in Western Province) OR	Ministry	NWSDB	3
8A	Alternatively, appoint a committee to propose 3-4 new licensable units that will be conducive for benchmarking regulation	Ministry	NWSDB	3
9	Identify what services are best provided by the central organization and the modalities; identify optimal arrangement for Western Province	Ministry	NWSDB	3
10	Include provisions on quality regulation, including offenses, in the WSS legislation that is to be prepared	Ministry	PUCSL & Provincial Councils	5
11	Broadly worded authority to regulate rates of return on investment and prices, along with explicit power to forbear from regulation should be included in the legislation. Authority to set prices based on benchmarks and cost - based formulas should also be included.	Ministry	PUCSL	6
12	Alternatively, [enact legislation to create a revolving fund from which CBOs may obtain low-interest loans] - Refer to recommendation 2 under Ministry of Finance	Ministry		8
13	Appoint expert committee to recommend science-based measures to conserve water sources	Ministry	WRB	9
14	Water-sharing modalities should be arrived at through a formal process that is buttressed by formal commitment in a credible forum as recommended in the Wijesekera Report	Ministry	Relevant Ministries, including Irrigation	9
15	Appoint an expert committee to make recommendations on amendments to Water Resources Board Act, repositioning it in relation to ground-level government bodies, and resourcing it adequately	Ministry	WRB	9

No	Actions	To be taken by	Supported by	Chapter
16	Update existing National Rain Water Policy and put adequate resources behind it to ensure effective implementation	Ministry	Lanka Rain Water Harvesting Forum	9
17	Include focus on rainwater as an integral element of recharging groundwater resources as part of WRB Act amendment	Ministry	WRB	9
18	Ensure community spirit of CBOs is safeguarded in draft DNCWS bill & it does not infringe existing laws	Ministry		10
19	Resolve friction between NWSDB & DNCWS by transferring all rural responsibilities to DNCWS	Ministry		10
20	Revisit the MOU between NWSDB and DNCWS, tightening the language and make the provision of technical services fee based.	Ministry	NWSDB & DNCWS	10
21	Review DNCWS resources and supplement as necessary at the same time as new law is enacted	Ministry		10
22	In the event the option of allowing CBOs to borrow from LL&DF is not accepted, establish a revolving fund for CBOs based on recommendations of CSIP 2020	Ministry	Ministry of Finance	10
Ministry of Finance				
1	Amend Local Loans and Development Fund Ordinance to streamline procedures, strengthen lending capacity [and allow CBOs to obtain loans for services normally provided by LGAs] - Refer to recommendation no. 12 under Ministry	Ministry of Finance	Ministry & Ministry in charge of Local Government	8
2	Required gully bowsers to be provided to LGAs with loans through the Local Loan and Development Fund (LL&DF).	Ministry of Finance	Provincial Commissioners of Local Government	1
3	Replace current grant formula with simplified Viability Gap Financing modality, based on business plans; keeping regulator informed	Ministry of Finance		8

No	Actions	To be taken by	Supported by	Chapter
4	If PPPs are being considered, provide VGF, keeping regulator informed	Ministry of Finance		8
Provincial Ministries in charge of local government				
1	Rescind Provincial Council Statutes on registration of CBOs, where they exist	Prov Ministry in charge of local government		3
2	Convert units dealing with CBOs under above statutes to regulatory units or create new units reporting to Provincial Commissioner of Local Government	Prov Ministry in charge of local government		3
3	Establish a water/septage engineering expertise cell at central Ministry with responsibility for local government or at SLILG	Prov Ministry in charge of local government	SLILG	11
Ministry in charge of subject of land				
1	Amend the SLO	Ministry in charge of subject of land	Commissioner General of Land	9
PUCSL				
1	Initiate recruitment and training programs for regional regulatory units now, before the legislation is approved; in the first phase (say seven years) regulate the provincial NWSDB units directly by the PUCSL, with provincial units observing	PUCSL	Provincial Commissioners of Local Government	3
2	Incorporate quality-related conditions in licenses that allow for periodic updating of standards and procedures through regulations	PUCSL	Provincial Councils	5
3	Design lighter conditions for small operators that require less frequent mandatory testing and less burdensome quality obligations related to customer service, after pilot testing	PUCSL	Provincial Councils	5
4	Consider imposing higher standards than those under health & safety laws & regulations for large operators	PUCSL	Provincial Councils	5
5	Licensees to be required to conduct periodic tests of water quality and effectively communicate results customers along with bills or	PUCSL	Provincial Councils	5

No	Actions	To be taken by	Supported by	Chapter
	otherwise, and to report such actions to the regulator			
6	Commission study of adoption and implementation of WSPs	PUCSL		5
7	Consider introducing regulations to regulate quality based on WSPs and modify licenses accordingly after around five years	PUCSL		5
8	Define the price/rate regulation method used in a five-year or such period in greater detail	PUCSL	Regulatory units in Provincial Councils	6
9	At inception, study the various market segments and decide on the form of regulation that will be applied to the different categories of suppliers	PUCSL		6
10	Appoint expert committee to build consensus on a uniform system of accounts for WSS sector, ideally preceded by the preparation of a draft by a consultant	PUCSL		7
11	Develop training programs for data reporting and analysis	PUCSL		7
12	Develop formula-based methodologies that can be used by provincial regulatory units to set tariffs	PUCSL		7
13	Devise ways to display efficiency and quality performance of regulated entities in contrast with benchmarks	PUCSL		7
NWSDB				
1	Give adequate weight to water requirements of hotels.	NWSDB		1
2	Consult private gully bowser operators and stakeholders such as hoteliers when upgrading septage treatment plants and extending sewerage systems.	NWSDB		1
3	Decide on extent of involvement in rural water distribution & billing; divest where so decided	NWSDB		10
4	Rescind decision on discontinuing bulk water supplies to CBOs	NWSDB		10

No	Actions	To be taken by	Supported by	Chapter
5	Enforce existing directives about fully consulting affected CBOs when extending boundaries of water supply schemes	NWSDB	DNCWS	10
DNCWS				
1	Negotiate remedial plans if any water sources used by CBOs fail to meet the CEA drinking water source standards	DNCWS	CEA	5
2	Arrange for periodic testing of dug wells in households that self-supply; and in cases that are unsafe, provide treatment kits	DNCWS		5
3	Resolve immediate problems regarding ownership of assets by CBOs, including establishment of a fund to pay compensation where necessary	DNCWS	Ministry	10
4	Ensure that the model Constitution developed by the WaSSIP is adopted by all registered CBOs	DNCWS		10
5	Ensure that expenditures on non-water related CSR type activities are subject to an upper limit and that strict reporting rules are enforced on such expenditures	DNCWS		10
6	Appoint an expert committee to make recommendations on where CBOs may deposit their reserves & develop guidelines on any micro-finance activities	DNCWS	Central Bank of Sri Lanka	10
7	Develop rules governing ownership of assets in CBOs, including at dissolution or merger	DNCWS		10
8	Assist CBOs to conduct their activities according to Constitution & prevent recurrence of events such as that reported by Angunakolapelessa Samagi CBO	DNCWS		10
9	Encourage all registered CBOs to register as societies under the Societies Ordinance No 18 of 1891	DNCWS		10
10	Conduct capacity building programs for CBOs according to recommendations by WaSSIP	DNCWS		10

No	Actions	To be taken by	Supported by	Chapter
11	Identify water supply schemes that have failed close to completion and provide resources to complete them; ensure an organization exists to operate the scheme	DNCWS		
12	Implement applicable recommendations on water quality in chapter 5 & in MOU with NWSDB	DNCWS	NWSDB	10
BOI				
1	Water supply requirements of export processing zones should be computed considering immediate and long-term demand projections. The requirements of fabric manufacturing must be given greater priority.	BOI may consider Public Private Partnerships (PPPs)	NWSDB	1
2	Separate industrial water supply systems to be developed for industries where large quantity of water is required. May include recycled wastewater.	BOI may consider PPPs	NWSDB	1
Central Environmental Authority				
1	Increase awareness of 2019 regulations for quality of water from sources that are used for production of drinking water	Central Environmental Authority		5
Commissioner General of Land				
1	Extend the applicability of the regulation of water sources under SLO permits to land controlled by Mahaveli Authority, Land Reform Commission, etc.	Commissioner General of Land	Mahaveli Authority, etc.	9
2	Modernize the permits issued under SLO, including enforceable terms, and enforce them without exception	Commissioner General of Land	Provincial Commissioners of Land	9
Sri Lanka Institute of Local Governance (SLILG)				
1	Serve as focal point for capacity development for water/septage/sewerage operations of LGAs	SLILG	Provincial Commissioners of Local Government	11
Water Resources Board (WRB)				

No	Actions	To be taken by	Supported by	Chapter
1	Modernize the WRB permits by including enforceable terms, create dispute resolution mechanisms	WRB		9
Provincial Commissioners of Local Government				
1	Formulate rules for takeover of CBOs by LGAs and make them consistent with modified rules for NWSDB takeovers of CBOs	Provincial Commissioners of Local Government	PUCSL	11
2	Create systems for effective recruitment, training and career advancement for technical personnel working on water/septage tasks at LGAs	Provincial Commissioners of Local Government	Chief Secretaries of Provinces	11
3	Initiate internship opportunities and relationships with relevant university and TVET programs to recruit technical personnel	Provincial Commissioners of Local Government		11
Provincial regulatory unit				
1	Regulate bulk water tariffs on avoided-cost basis or cost-based model as applicable	Provincial regulatory unit	PUCSL	10
2	Set price bands with ceilings for CBOs using NWSDB bulk water	Provincial regulatory unit	PUCSL	10
3	Random, unannounced quality tests to be conducted	Provincial regulatory unit	PUCSL	5
Regulatory authority after legislation has been enacted				
1	Simplify the currently overly complicated tariff structure in the context of ongoing regulatory activity	Regulatory authority after legislation has been enacted		8
Provincial Commissioners of Land				
1	Urgently complete the demarcation of catchment areas of water sources and conserve them	Provincial Commissioners of Land	Survey Department	9
Relevant District Secretaries				
1	In the interim, establish dispute settlement mechanisms for urgent problems such as Iranamadu and Rajangana	Relevant District Secretaries	NWSDB and Department of Irrigation	9
Local Government Authorities				
1	LGAs to ring fence their water and sewerage/septage operations & keep accounts separate	LGAs seeking licenses	Provincial Commissioners	4

No	Actions	To be taken by	Supported by	Chapter
			of Local Government	
Recommendations with shared responsibilities				
1	Coordinate all recommendations below with those of Committee to prepare a Strategic Mechanism for implementing a Common Watershed Management Approach	Ministry, Ministry in charge of subject of land, Commissioner General of Land, Central and Provincial Ministries in charge of subject of land, Provincial Commissioners of Land, Relevant District Secretaries, WRB		9
2	Provide a substantial discount in the bill for 15 units used by all subsidy-eligible households, paid by Treasury	Ministry of Finance and State Ministry in charge of Samurdhi		8
3	Identify the subset eligible for low-income subsidies	Ministry of Finance and State Ministry in charge of Samurdhi	NWSDB	8
4	Conduct tailored capacity-building programs	Ministry, DNCWS, PUCSL		5
5	Current promotion of WSPs should be continued & additional resources devoted to related capacity building	NWSDB, DNCWS, LGAs		5
6	Provide adequate resources for enforcement of SLO permits and conservation of water sources, including springs	Central and Provincial Ministries in charge of subject of land	Commissioner General of Land & Provincial Commissioners of Land	9
7	Enter MOU with Food Control Administration Unit of Ministry of Health on a cooperative arrangement to regulate suppliers of water in containers, including bottles	PUCSL and Provincial Councils	MOH	5
8	Licenses to be issued to provincial units of NWSDB and LGAs, describing all the services they are permitted to offer	PUCSL and Regulatory units in Provincial Councils		4
9	CBOs to be issued licenses that reflect their mode of operation	PUCSL and Regulatory units in Provincial Councils	DNCWS	4

No	Actions	To be taken by	Supported by	Chapter
10	Bowser operators supplying drinking water to be issued licenses with tariff forbearance conditions	PUCSL and Regulatory units in Provincial Councils	Medical Officers of Health & Sri Lanka Standards Institution	4
11	Conduct consultations on the issuance of licenses to bowser operators supplying water for purposes other than drinking	PUCSL and Regulatory units in Provincial Councils	Provincial Commissioners of Land & Water Resources Board	4
12	Include provisions to allow competition-law based interventions to prevent discrimination at key points in the supply chain, such as access to bulk water	PUCSL and Regulatory units in Provincial Councils		4
13	Issue licenses to private gully bowser operators with forbearance conditions	PUCSL and Regulatory units in Provincial Councils		4
14	Initiate discussions that may lead to licensing of suppliers of drinking water in containers and/or an MOU with the Food Control Administration Unit of the Ministry of Health	PUCSL and Regulatory units in Provincial Councils	Food Control Administration Unit of Ministry of Health	4

List of Abbreviations

AE	Area Engineer
ADB	Asian Development Bank
BOI	Board of Investment of Sri Lanka
CEA	Central Environmental Authority
CKDu	Chronic Kidney Disease
CMC	Colombo Municipal Council
CBO	Community Based Organizations
CSIP	Comprehensive Strategic Investment Plan
DNCWS	Department of National Community Water Supply
DS	Divisional Secretariat
FSM	Fecal Sludge Management
FCAU	Food Control Administration Unit
LGA	Local Government Authority
LL&DF	Local Loan and Development Fund
MRI	Medical Research Institute
MOU	Memorandum of Understanding
MDG	Millennium Development Goal
MOH	Ministry of Health
MC	Municipal Council
NPD	National Planning Department
NWSDB	National Water Supply and Drainage Board
NRW	Non-Revenue Water
O&M	Operations and Maintenance
PS	Pradeshiya Sabha
PC	Provincial Council
PHI	Public Health Inspector
PPP	Public Private Partnership
RBROR	Rate base rate of return
RSC	Regional Support Centers
RPI	Retail Price Index
RO	Reverse Osmosis
RWS	Rural Water Sector

SLILG	Sri Lanka Institute of Local Governance
SLO	State Lands Ordinance
SOBE	State-Owned Business Enterprise
SCI	Statement of Corporate Intent
SDG	Sustainable Development Goal
TVET	Technical and Vocational Education and Training
VGF	Viability Gap Financing
WSS	Water and Sanitation Services
WQS	Water Quality Surveillance
WRB	Water Resources Board
WSP	Water Safety Plan
WaSSIP	Water Supply and Sanitation Improvement
WACC	Weighted Average Cost of Capital
WB	World Bank

Preface

In 2003, a Water Services Reform bill was gazetted with the intention of advancing the national policy objectives regarding water services. It was challenged on the ground that water and sewerage services had been provided by local authorities who came under the authority of the Provincial Councils whose views had not been sought. The Supreme Court ruled in favor of the petitioners. The reforms stalled.

In view of the urgent need for coordinated actions to achieve the SDG targets and national policy objectives in a timely manner, the Ministry responsible for the subject of water supply and the Public Utilities Commission (PUCSL) decided to conduct consultations in all the provinces. LIRNEasia was selected on a competitive basis to compile the evidence and prepare analytical recommendations, including on effective co-regulatory mechanisms that would include the Provincial Councils.

Newspaper notices were published, and active efforts were made by the PUCSL to make all interested parties aware of the consultations and to solicit written and oral comments. A guidance questionnaire was developed by LIRNEasia, translated into all official languages, and circulated widely.[1] In all, 595 written submissions were received (summaries available in Volume II of the Report). The consultations commenced in Kurunegala, the capital of the North Western Province, in August 2020.

Due to pandemic conditions since March 2020, the schedule of the subsequent consultations had to be adjusted, but in the end, consultations were conducted in all nine provinces (with additional opportunities for interaction provided in locations such as Wekandawala in the Southern Province, Bakamoona in the North Central Province and Kilinochchi in the Northern Province. In all, 261 persons representing CBOs, LGAs, regional support centers of the NWSDB, various government ministries, departments and agencies, private enterprises and organizations representing them, and others made oral presentations and responded to questions from the expert panel.

In addition, meetings were held with relevant government organizations such as the NWSDB, the DNCWS, the WRB, the Department of the Commissioner General of Land, etc. Valuable insights were gathered from a meeting at the University of Jaffna and an expert forum convened in Colombo.

Following the completion of the consultations in the North Western, Southern and Central Provinces in 2020, which provided a fair cross section of conditions, an interim report was prepared by the consultants, translated into all official languages and widely distributed in addition to the guidance questionnaire in order to elicit more informed contributions.

The analytical insights in the report were shaped by the written and oral contributions from people, businesspersons, and government officials who deal with the people's problems at the ground level every day. We are grateful to all who shared their knowledge and experiences to help develop this report which we earnestly hope will make a significant contribution to help Sri Lanka reach the SDG 6 by 2025. We are also thankful to the leaderships of the PUCSL and Ministry of Water Supply who participated in all the consultations, even under difficult circumstances. In particular, we thank the officials of the PUCSL and in the provinces who facilitated the consultations and the interpreters and translators who made it possible to reach all who needed to be reached.

[1] See Volume II of the Report.

The participation of Deputy Team Leader Eng. Lal Premanath, who was a co-author of the Comprehensive Strategic Investment Plan (CSIP) 2020,[2] was of great value because it provided continuity with the previous work. In the end, it is investment that gives people and organizations clean water at affordable prices when they want it. Policy and regulation provide the conditions for investment and efficient supply of services.

The draft of this report was completed in June 2021 and circulated to the Ministry of Water Supply, the NWSDB, the DNCWS and other important stakeholders. Meetings were held to obtain feedback and further revisions made.

The lead author of the report was Team Leader Professor Rohan Samarajiva, with major contributions in Volume I from the Deputy Team Leader, Eng. Lal Premanath. Input from too many to be named at the Expert Forum and in other settings helped improve the quality of the end product. Volume II was compiled by Gayashi Jayasinghe. The lead author takes responsibility for the report including any inadvertent errors.

[2] Hiejen, H.; Premanath, L. (2020). *Final Report (Volume I) Comprehensive Strategic Investment Plan and Road Map for the Water Supply and Sanitation Sector in Sri Lanka.*

1.0 Drinking-water & sanitation problems

If the supply of water and sanitation services is adequate to meet the demand, Sri Lanka would have already met the challenge set out in Sustainable Development Goal 6, "by 2030, achieve universal and equitable access to safe and affordable drinking water for all." There would be no necessity for the President to assign the third-highest priority to drinking water, after land and human-elephant conflict.[3] The problem is deep, intertwined with others, and has many facets. It is best depicted with these evocative testimonies at the country-wide public consultations conducted for this report:

Box 1.1 Stories from across the island

Islands in the North: Lacking water, but surrounded by water

People living in the islands off the Jaffna Peninsula face great difficulties obtaining drinking water throughout the year, but especially during the many months when rain is scarce. There is sufficient rain for drinking water needs only in November and December.

Rev. Fr J. A. Arulthasan from the Island of Delft described how families had to survive on 15-20 minutes of brownish water that is available every other day. The water is clean and is suitable for drinking at the source. The brown color is due to the corrosion of the distribution pipes which have not been upgraded for over 100 years. The quantities are inadequate for bathing. The Pradeshiya Sabha provides 3,000 liters of water from sources in the island at LKR 1,500. This is slightly saline and is not available during the dry season. Private suppliers use bowsers and tractors to supply water (in some cases Reverse Osmosis (RO) water). 1,000 liters is priced at Rs. 1,100.

There are 6,000 people in 1,350 households on the island. Around 2,000 have left the island in the last 5 years. Many families that can afford to move to the main island and Jaffna peninsula have already left, leaving only the families that cannot afford to buy or rent.

When there is little or no rain, alternative methods are used to supply water in Velanai Island. Households in Maankupan, Velanai Island receive 6 liters of water a day from the Provincial Council. This water is distributed by bowsers which come to key public locations from where the people collect water. The bowsers are cleaned with chlorine once a month. This water is not subjected to regular water quality tests. RO water projects are operated with the support of the Sri Lanka Navy and the NWSDB. Currently, the total water supply is limited to 1,000 liters per day and this capacity is insufficient to meet the water demands of the island.

Hardness and high salinity of the water is another issue. This is perceived to have led to an increase in CKDu patients. Many are leaving the islands due to water issues, leading to a drastic population decline.

Groundwater pumped out using electric motors is the main source of drinking water in the area. The lack of controls on the number of wells in the region has led to a decline in groundwater availability. RO water has been recommended as a suggestion to improve the water quality of the region. However, it

[3] https://mfa.gov.lk/the-policy-statement-made-by-h-e-the-president-at-the-inauguration-of-the-first-session-of-the-ninth-parliament/

does not solve the major underlying problem facing the community – lack of water sources in the region.

Rainwater harvesting was suggested as a possible solution by representatives of Kayts Island. But there is little support for rainwater harvesting from others because of long periods without rain in the region.

Deep South: Unfit for consumption but no alternative

The inhabitants of the Wekandawala Janapadaya in Weeraketiya in the Hambantota District are experiencing serious difficulties in obtaining safe drinking water. The original families in the colony had been resettled in the current location when the Murutawela Reservoir, the source of drinking water for the town of Weeraketiya as well as water for agriculture in the region, was constructed. They had to go to Gajanayagama, Gonadeniya, or Bibula to obtain drinking water.

A community-based organization was established to fill this need in 2000 for 521 households. Originally, water was drawn from a well, and then a tube well, but these sources had to be discontinued because they could not meet the needs of the increasing population that had to be served, now amounting to 600 households. In addition, the water was exceedingly difficult to purify, with pipes having to be replaced frequently as a result of calcification.

A channel from the Murutawela reservoir was then used as an alternative source. During drought periods a leak between the reservoir gate and a distribution channel was the source. Furthermore, it was considered unsafe. The Public Health Inspector stated that instructions had been issued to desist from using the water source because of the detection of diarrheal symptoms in 200 to 300 children. Even though they are asked not to drink from the tap, they do. The adults drink bottled water which costs LKR 4 a litre. Many more families want connections, even at the cost of LKR 35,000 for a non-member.

The leaders of the CBO had asked to continue using the water for purposes other than drinking because there was no alternative. The quantity and quality of groundwater in this area was inadequate as a source of drinking water for the community. During the visit to the location, it was observed that the slow sand filter was not operating properly and was being replaced. The consultation also revealed that chlorination practices were unsatisfactory, with excess chlorine at certain times of the day and less than what was required at other times. The CBO personnel required additional training.

Wekandawala's problems are serious, but others have it worse. Ajith, a farmer from the Thelambuyaya Grama Niladhari Division, spoke at the consultation. Thelambuyaya has four villages, of which three do not have even what the people of Wekandawala have. The water from the wells is not drinkable. Agriculture adds a large amount of agro-chemicals. Eighty households lack water. The Murutawela reservoir and the Udawalawa channel provide water for agriculture. Even that water supply ceases at certain times of the year. Then they have no alternative but to bathe using water that had been used for bathing buffaloes. Sometimes, this water is used even for drinking.

This chapter documents the gap that must be bridged between the supply and demand of drinking water, industrial water, and sewerage and septage services.

1.1 Gap between supply and demand in drinking water

The Report on Water Demand Projections of the Comprehensive Strategic Investment Plan (CSIP) 2020[4] estimated the coverage in water and sanitation services (WSS) as at end 2019. In water supply, the National Water Supply and Drainage Board (NWSDB) has given 2.56 million connections in all, which includes 191,000 non-residential connections as well.[5] The new connections reported for 2020 were 122,733. In 2020, the NWSDB was supplying 41.3 percent of the population with piped water. Community Based Organizations (CBOs) and Local Government Authorities (LGAs) provide water to a further 12 percent, with over 10 percent being served by more than 4,000 CBOs. An estimated 38.7 percent of the population depends on self-supply at a basic level from protected dug wells, rainwater harvesting systems, and nearby public point sources including hand pumps.

Considering the number of connections as reported in NWSDB Corporate Plan 2020-2025 and the 2019 population, 2020 water supply coverage is computed as follows:

Table 1.1 Water Supply coverage as percentage of population

	End 2018	End 2019	End 2020
NWSDB	38.3	40.0	41.3
CBO/LGA	11.3	12.0	12.0
Total Served by Piped Water	49.6	52.0	53.3
Self-supply	41.5	40.0	38.7
Total Served	91.5	92.0	92.0

Therefore, the total piped water supply coverage was 53.3 percent and the total unserved was 8 percent at end 2020. However, in some areas covered by piped water supply, especially those supplied by CBOs, the quality of water does not meet the SLS 614 standard. During drought, shortages are experienced. Some of the protected dug wells, rainwater harvesting systems, and hand pumps are not capable of providing uninterrupted supply at appropriate levels of quality.

At the North Western Province Consultation, several Divisional Secretaries highlighted the exhaustion of some protected wells and difficulties in using others due to high levels of acidity. During drought, they had to arrange bowser supplies to some areas. Some private bowser services were also in operation, though experiencing difficulties in sourcing good-quality water. In areas with CKDu [Chronic Kydney Disease of unknown etiology] patients, reverse osmosis (RO) plants were playing an important role, many operated by private firms subject to no oversight. In many of these areas, the Navy supplies RO water free of charge. A similar situation was reported from the Northern and North Central Provinces.

In the Northern Province, bowser supplies are mostly provided by the private sector, with some supplies being provided under disaster management programs. Some LGAs assert authority over bowser operations. A bowser operator who was drawing water from wells on his own land with approval from the Water Resources Board reported obstruction by the Karainagar LGA, indicating that the lack of a

[4] Hiejen, H.; Premanath, L. (2020). *Final Report (Volume I) Comprehensive Strategic Investment Plan and Road Map for the Water Supply and Sanitation Sector in Sri Lanka.*

[5] NWSDB (2021). Corporate Plan 2020-2025. Central Bank of Sri Lanka (2021). *Annual Report 2020*, p. 91, reports a rounded-up number, 2.6 million.

clear regulatory arrangement was causing significant problems. He welcomed licensing that would eliminate the uncertainty that he now faced. Many intervenors raised the issue of perceived poor quality of water supplied by bowsers.

CBOs play an important role in the supply of water. Currently there are more than 4,350 CBOs. The Department of National Community Water Supply (DNCWS) data base estimates that they serve 570,000 households. Some CBOs appear to be functioning well with built up reserves. Others are in difficulties. Some have failed and have been taken over by LGAs. Many have difficulties in managing treatment processes and in setting aside the funds needed for maintenance and expansion. LGAs participating in provincial consultations spoke of deteriorated equipment and inability to expand supply, indicating lack of investment funds.

At present, NWSDB operates over 350 water supply schemes throughout the country, servicing a total of 2.36 million domestic connections, as at the end of 2020. During Provincial Consultation meetings NWSDB spoke to the status of these water supply schemes. A few schemes have reached maximum capacity. Customers in these schemes get a few hours of supply; new connections have been suspended. For example, at end 2020 the Galle and Ambalangoda schemes had waiting lists of 7,500 and 6,500, respectively. In the Galle service area, those in the higher elevations receive water only when supplies to the lower areas is physically shut off. Though not supported by formal evidence and numbers, concern is building about the effect of new buildings equipped with large tanks and pumps reducing supply for older connections. Even companies well established in the export zones managed by the Board of Investment (BOI) expressed concern about their water supplies being affected during the dry season.

Development of new water supply systems is constrained by lack of access to water resources. Identification of water resources and planning is a necessity for the large schemes operated by the NWSDB, but increasingly also for CBOs as local water sources are becoming increasingly affected by climate change and human encroachment.

1.1.1 Actions to Reach Sustainable Development Goal (SDG) 6

SDG 6, “clean water and sanitation for all,” sets out universal access to water suitable for drinking and sanitation services by 2030 as a global commitment. Sri Lanka has joined this commitment. Perhaps more than any other, the current government of Sri Lanka has raised the priority given to safe drinking water for all. It wishes to advance the achievement of SDG 6 to 2025.

Goal 6 seeks to achieve universal access to water supply and sanitation, and to reduce by half the amount of wastewater that is not treated. The concept of safely managed services has been introduced with more stringent technical indicators. The earlier Millennium Development Goals criteria are now relegated to the provision of a ‘basic’ service.

Table 1.2: SDG 6 components

MDG/SDG	Service Ladder	Progressive realization
SDG 6.1	Safely managed drinking water	Improved facility located on premises, available when needed, and free from contamination.
	Basic water	Improved facility within 30 minutes round trip collection time

SDG 6.2	Safely managed sanitation	Private improved facility where fecal wastes are safely disposed on site or transported and treated off-site; ++ a handwashing facility with soap and water
	Basic sanitation	Improved facility which separates excreta from human contact (private, NOT shared)

For water supply, achieving SDG 6.1 will mean that safely managed services are provided with new schemes, and that existing schemes are gradually upgraded to meet the SDG 6 criteria. The highest priority is to serve the unserved 8 percent.

The next priority is to upgrade the existing systems to the drinking water quality standards. Water safety plans including water quality surveillance systems are to be established. Some of the systems managed CBOs and LGAs and a few NWSDB schemes may need remediation. Some of the households who self-supply may require household treatments.

To overcome shortages during drought, water source improvements in the existing schemes and new water supply systems in place of self-supplies may be required. Most existing water supply schemes will require augmentation because of increased population and use. Schemes that have reached maximum capacity require immediate improvements. (See Box 1.2)

Box 1.2 What is being done about capacity constraints

NWSDB is operating and managing both Ambalangoda and Galle Integrated water supply schemes.

The Ambalangoda Area Engineer (AE) is responsible for distributing water to the Divisional Secretariat (DS) divisions of Ambalangoda, Balapitiya, Hikkaduwa, Elpitiya and parts of Karandeniya and Baddegama. The water source for this integrated scheme is Gin Ganga at Baddegama. This scheme has two water treatment Plants at Baddegama each with a capacity 18,000 M3/day. The previous (1980) treatment plant's capacity was reduced to 12,000 M3/day due to some defects.

The Ambalangoda AE Zone had a waiting list of 6,500 at the end of 2020. During the past five years, few connections were given (50-75 per year). Therefore, the waiting list kept growing. It was not possible to obtain water for the new constructions. NWSDB has proposed augmentation of the old water treatment plant by 6,000 M3/day to restore the original capacity of 18,000 M3/day to cater for the immediate requirement and a major augmentation to cater to expected 2030 demand. Government has agreed to both proposals. Funds were allocated in the 2021 budget for improvements to the old plant. NWSDB has commenced connections and expects to eliminate the waiting list by end 2021.

The Galle AE is responsible for distributing water to the DS divisions of Galle Four Gravets, Bope-Poddala, Akmeemana, and parts of Baddegama and Imaduwa. Ginganga at Wakwella and Hapugala are the water sources.

The Galle AE Zone had a waiting list of 7,500 at end 2020. During the past five years only 125-150 connections were given per year. Therefore, the waiting list grew. As a solution, NWSDB has proposed a

new package treatment plant of 10,000 M3/day at Hapugala, for which funds were allocated in the 2021 budget. Work is ongoing and a 2,500 M3/day unit was commissioned on 21 May 2021. It is expected that the waiting list will be zeroed out this year and new connections can be given on request from that point.

CSIP 2020 has identified immediate efficiency gains NWSDB may achieve in existing and on-going schemes, accelerated reduction of non-revenue water, and savings through energy-smart investments. It formulated two investment programs for water supply and water resources. To ensure more responsible use of treated water, a demand-management campaign is included as part of the NWSDB activities for the next decade.

CSIP has formulated four packages to provide community based, Divisional Secretariat-led investment opportunities in water supply and sanitation.

1.2 Gap between supply and demand in non-domestic water

Non-domestic water users may be categorized as:

1. Government organizations
2. Hospitals
3. Schools
4. Commercial organizations
5. Hotels
6. Shipping, including fishing boats
7. Industrial establishments
8. Economic zones, including those managed by the BOI

In the planning of water supply schemes, demand from all categories is added to the domestic demand which is computed depending on the level of urbanization. Most water supply schemes in operation will have capacity to meet non-domestic demand. In the few schemes with shortages, reduced quantity of water will be supplied to non-domestic consumers.

According to the government's economic policy framework, the development of tourism, export of diversified goods and services, fisheries, agricultural development via advanced technology, and construction are priority areas.[6] Construction activities are expected to expand with the acceleration of government-initiated development projects such as the Central Expressway and the Colombo Port City, the elevated road from the New Kelani Bridge and the underground road connecting the Port City to the South. Water supply and sanitation are essential for the success of these plans.

The Southern Coastal Belt will become a tourism area, well connected by rail and road to Colombo. Therefore, a greater number of hotels will also be built in the region. Provinces have made development

[6] http://www.doc.gov.lk/images/pdf/NationalPolicyframeworkEN/FinalDovVer02-English.pdf

plans as well. In addition to the provincial plans, economic zones and other developments require water supplies for their operations.

During the North Central Provincial Consultation, the Director of the Business Forum Anuradhapura District explained the shortage of water supply to hotels in Anuradhapura, where he stated that hotel owners had to depend on bowser supplies. He objected to expanding supplies to domestic customers without fulfilling the needs of the hotels. During the Uva Provincial consultation, the Ella Velanda Sangamaya indicated that 60 percent of the member hotels are outside the areas served by the NWSDB's Demodara project serving Badulla, Hali Ela and Ella. They have to arrange their own water supplies with great difficulty. At the Southern Provincial Consultation, hoteliers in Hikkaduwa also complained of difficulties in obtaining adequate water supplies.

From the Dikwella Fisheries Harbor, an operator of multi-day fishing vessels spoke of having to supply crews with costly bottled water because of doubts about the quality of the water that was available.

During the Western Provincial Consultation, the BOI and investors highlighted the additional requirements for them to expand industrial activity. During the dry season, they have to fall back on bowsers. Ansel Lanka reported spending LKR 32 million on bowser services. This is a problem because their customers and partners do not consider them viable and reliable. There is concern that new construction in Colombo will result in reduced supply for the zones. Teejay Lanka explained that the apparel industry requires fabrics. Currently only 25 percent of the demand is produced locally. The main reason for this is the lack of water. An LKR 5 billion investment was lost to India due to the lack of water. ATG Group of Companies indicated that drinking water should not be used for industrial use. All industrial zones have water sources near them, and can develop their own water sources because many factories do not require drinking water quality.

1.3 Gap between supply and demand in sewerage & septage services

1.3.1 Sanitation

Sanitation coverage has always been relatively high in Sri Lanka. The Ministry of Health, through the Public Health Inspector (PHI) system, has promoted the construction sanitary latrines. PHIs and Public Health Midwives have helped create awareness of proper use of sanitary latrines and of the health impacts of improper disposal of human excreta. The fact that most people are literate has also helped. The exception has been the poor provision of facilities in the estates. A representative of the Plantation Human Development Trust said at the Uva consultation that 8,000 new toilets were needed in his area alone.

In 2019, 92 percent of the population had access to private latrines. Some 2.1 percent of households are connected to sewerage, mainly in the Colombo Municipal Council (CMC) area, Dehiwala Mt Lavinia, Kolonnawa, Moratuwa, Ja Ela, Hikkaduwa, Kataragama, Kandy and Kurunegala. In the estates people make use of shared or public toilets. Such facilities are used by around 6 percent of the population. Only 2 percent of the population does not have a decent latrine or only a temporary one. In remote rural areas and in estates occasional open defecation will occur.

1.3.2 Colombo sewerage system

The sewerage system of Colombo, managed by the CMC, has been in operation since 1910. Though extended and upgraded, it has not kept up with the growth of the Greater Colombo area. In areas not

served by the sewerage system, the CMC transports the fecal waste using gully bowsers to the treatment plants. The CMC gully bowser charges are lower than those of the private operators.

At the public consultation for the Western Province, it was stated that untreated sewerage is discharged through two outfalls in Mutwal and Wellawatte, some 1.5 km into the sea. Upgrading of pipelines, pumps and outfalls were completed in 2020. A new sewerage treatment plant at Wellawatta is under construction.

1.3.3 Wastewater management in industrial zones

In Export Processing Zones under the BOI, sewerage and wastewater treatment is part of the provided services. The NWSDB or a private operator manages the schemes. Properly treated effluent is discharged.

During the Western Provincial Consultation, the BOI and Investors highlighted the challenges they faced in disposing of industrial waste, including the unacceptability of having only one processer of hazardous material, Insee Cement. This is perceived as resulting in monopoly pricing and constituting a vulnerability. Representatives of BOI companies spoke of the need for a central treatment plant within the zone.

1.3.4 Wastewater management in the hotel sector

With new hotels coming up, regulatory authorities have decided to enforce stringent environmental regulations on the hotel industry. Tolerance limits for industrial and domestic effluents discharged into the sea were defined in 1990. To comply, most coastal hotels were compelled to set up treatment plants for effluents to comply with standards before discharging into the sea or the coastal environment.

During the Southern Province Consultation, the representative of the Hikkaduwa Hoteliers Association explained that sewerage collection system serves only some hotels. Others will have to transport the septage to Hikkaduwa Sewerage Treatment Plant which is almost at capacity and allows only limited disposal slots.

Considerable enthusiasm was expressed by the Ella Velenda Sangamaya for a septage treatment plant (SPT), even extending to offers of voluntary contributions. This was because members were being repeatedly taken to court by the PHIs for various infractions. The NWSDB Corporate Plan has given priority to Ella for a decentralized wastewater treatment plant because of the area’s importance as a tourist destination.

1.3.5 Wastewater Treatment and Septage Management

For sanitation to be safely managed, attention must be paid not just to the state of sanitation in the home or the premises, but also to the flow of the wastewater through the environment.

Fecal Sludge Management (FSM) will be more important for quite some time as the large majority of households will have on-site sanitation where the cesspit or septic tank has to be emptied every few years. With 92 percent sanitation coverage, the time is right for action on the treatment of wastewater and septage in treatment plants. In Chilaw, Mannar, Puttalam, Kilinochchi, and Vavuniya septage treatment systems are being introduced. Few more septage treatment systems are at the implementation stage. Sewage collected by gully bowsers from septic tanks should no longer be dumped at some remote locations, as admitted even by some Chairmen of Pradeshiya Sabha at the

consultations. There were allegations that waste was sometimes dumped into streams and rivers. The waste will now be treated.

At the Sabaragamuwa Provincial Consultation, Chairmen of a few LGAs explained the septage requirements in their areas considering the distance of transport. They questioned the value of shared facilities because of costs and the time spent on the road by the few gully bowsers (or tractors set up as gully bowsers). There is value in LGAs cooperating to operate gully bowsers and disposal facilities, including entering swap arrangements. Unhappiness was expressed by those who do not own the equipment about having to pay rental charges. The Provincial Commissioner of Local Government may wish to initiate collective initiatives by using as examples and catalysts the few LGAs such as Balangoda Urban Council that currently operate effective fecal sludge disposal facilities integrated into composting systems.

However, compost that includes any material sourced from fecal sludge management systems is not permitted to be used in organic agriculture. There is no obvious role for Central Government agencies in this activity, other than the provision of technical expertise in the construction and operation of disposal facilities.

Private gully bowser operators in Colombo appreciated having CMC facilities to take their loads to. However, the facilities had limited hours and were closed on certain days which caused considerable difficulties. Concerns were expressed about the recent doubling of dumping charges from LKR 0.25 per liter to LKR 0.5. Such increases may lead to illegal dumping in waterways, it was stated. Fears were expressed about rumors that the septage facilities would be tendered out to the private sector.

Table 1.3 Sanitation coverage as percentage and target for 2030

	End 2019	Target 2030
Sewerage	2.1	6.3
Household (On-Site)	89.9	93.7
Household (Safely Managed)	9.0	43.5
Unserved	8.0	0.0
Total Safely Managed	11	49.8

Source: CSIP Report

To achieve SDG 6.2 in sanitation, universal access must be provided; the amount of wastewater that is not treated must be reduced by half, by 2030.

New sewerage schemes and augmentations of existing schemes were identified and prioritized in the CSIP 2020. NWSDB has identified the required augmentation of existing Sewerage Treatment Plants, including the one at Hikkaduwa that attracted complaints at the Southern Province consultation.

1.4 Concerns about quality of drinking water

The SDG target 6.1 is “by 2030, achieve universal and equitable access to safe and affordable drinking water for all.” The safety of drinking water can be ascertained through technical means. But that by itself is not enough. The users must perceive the water to be safe; they must trust the indicators of water quality.

Across the country, there is deep concern about the quality of drinking water available for consumption. It is possible that concerns about CKDu are driving the heightened concerns, especially in the North Central and North Western Provinces, where the fears are most intense. In these areas, it appears that suppliers of RO water are denigrating the quality of other suppliers of drinking water including the NWSDB and CBOs. Addressing the concerns of the public will have to go beyond the necessary technical actions to the establishment of credible nationwide quality testing systems accompanied by effective communication. There may be value in customizing testing for different provinces, for example giving greater weight to testing for fluorides in the water in regions with excess fluorides in groundwater,[7] which appears to be correlated with incidence of CKDu.

What matters to consumers is the quality of the water at the end point of the supply chain, be it the household tap or the well or rainwater tank, the tank filled by the bowser, or even the bottled water purchased from a retailer. To effectively address their concerns, quality reports should be in an easily understandable format, indicating whether the tested sample falls within the safe ranges or not.

Eliminating or reducing the information asymmetry should be the objective. Is the water that is to be consumed, safe to drink? Will boiling the water suffice? Test results are good to the extent they are trusted. Sometimes, they care about what they can directly observe, such as turbidity and taste, more than about test results. The concern for safety is sometimes over-ridden by considerations of taste.

Several who spoke at the consultations reported resistance to chlorination. From unsystematic observations, it appears that some CBO personnel apply chlorine inappropriately, resulting in surfeit at times, and deficit at others. At the consultation in Bakamoona, in the North Central Province, those receiving water from an old NWSDB water-supply scheme spoke of water that was suitable for bathing, but not for drinking (paneeya jalaya nova, naneeya jalaya) despite the NWSDB's claimed adherence to SLS standards.

Suppliers need to be able to diagnose any sources of pollution affecting their supply chain. The identification of vulnerabilities can be done according to the applicable Water Safety Plan (WSP) if one exists. Testing may be done at source, on the output of the purification plant, and at the end point. Bowser suppliers will need information on water quality at source and in the bowser. Here, the reports can be more detailed, though it would be necessary to graphically depict whether the tested sample falls within the safe ranges on the different measures, or not. Speakers at the North Western and Northern Province consultations highlighted the need for quality maintenance through the supply chain, including the use of stainless-steel tanks and dedicated use of bowsers.

Because penalties are likely to be imposed (even if not in the first instance) if the test results used by regulators fall outside the acceptable ranges, testing done for regulatory purposes must meet strict standards, for example, the tests being conducted in accredited labs and the provenance of the samples being recorded with safeguards in place for security. Here, the reports must be detailed, and a qualified professional must be able to testify to the veracity of the procedure and the results.

[7] Saurabh, L; Sunderrajan, K.; Samuel, R.; Nischal, H.; Pradeep, B. (2016). Monitoring of fluoride in water samples using a smartphone. *Science of the Total Environment*, vols. 551-552: 101-107. https://doi.org/10.1016/j.scitotenv.2016.01.156

Water quality is of central interest to those responsible for public health. While the original focus was on causal factors for the spread of diseases such as dysentery and gastroenteritis, attention is now shifting to diseases such as CKDu. Here, the interest is in specific tests (usually conducted by the Medical Research Institute ((MRI), according to intervenors). The testing is reactive in most cases, where the PHIs or regional health officials act in response to a worrisome pattern of symptoms being observed. Prompt identification of sources of contamination is needed for remedial action. Public health officials expressed concerns about the water sources used by bowser operators, and about whether the bowsers were used safely and only for the transport of drinking water.

Abnormal events such as floods, extended droughts or other disasters bring up new risks and require changes in testing procedures.

In 2012, a joint Cabinet Memorandum by the ministries in charge of health and water supply to formulate a National Water Quality Surveillance (WQS) system was approved. An MOU formalizing the detailed terms and responsibilities between the NWSDB, and the Ministry of Health (MOH) was also signed. Accordingly, WQS Committees were established at National and District level. In addition, circulars were issued by the Director General of Health Services and the NWSDB providing instructions to all district and divisional officers. This WQS system was functioning from 2012 onward with good results. Watershed/catchment management plans including measures to control pollution of water sources were initiated. In addition, the drinking water supply projects implemented at district level by various agencies were coordinated. However, at present, few follow the agreed WQS mechanism. The WQS Committees are dormant.

The provincial consultations revealed that access to testing varies widely by region. The NWSDB has the most sophisticated testing facilities. It has agreed to provide a specific number of tests per CBO free of charge, but this does not appear to be uniformly implemented across the regions. The need for three trips per test was mentioned by some CBO representatives. In many cases, the travel and time costs of obtaining the test are considerable, even if the test itself is provided free of charge, which was not always the case. Because most CBOs are in remote locations relative to the provincial capitals or major cities where the test facilities are located, the CBO office holders (mostly volunteers) must spend considerable time and money to get their water samples tested. Naturally, these difficulties lead to the testing frequency being reduced.

Efforts have been made to bring testing facilities closer to the users. Mobile testing labs have been acquired on various occasions (two recently, but previous mobile testing labs have also been reported) for the DNCWS and for the NWSDB. Mobile testing vehicles can reduce the costs that CBO officials have to incur. However, it is possible that the mobile labs are not being operated at optimum efficiency. In addition, few CBO cluster labs were introduced by DNCWS in few districts with the support of the Water Supply and Sanitation Improvement (WaSSIP) Project. These labs were established at large CBOs which did the testing for other CBOs for a fee.

Bottled water is currently regulated by the Food Control Administration Unit of the Ministry of Health.[8] While there appears to be a rigorous process followed for registration of bottled water suppliers, the modalities of enforcing conditions for ensuring maintaining water quality could not be ascertained due

[8] http://eohfs.health.gov.lk/food/index.php?option=com_content&view=article&id=12&Itemid=153&lang=en

to time constraints. Credible enforcement would be a necessary condition for alleviating widespread concerns about the quality of bottled water.

1.5 Insights gained from consultations

Many insights were gained from the consultations which informed the recommendations described in the following chapters. Here described are a few illustrative insights that informed the thinking and approach. They are somewhat general in nature, compared to the highly specific recommendations in the subsequent chapters.

Actions	To be taken by	Supported by
Collect details of unserved areas from Divisional Secretariats and provide funding for Rainwater Systems or any other option suitable for them.	Ministry of Water Supply (hereafter denoted as Ministry)	
Streamline bowser supplies along with quality assurance systems to serve unserved areas; use bowsers during drought to fill rainwater tanks where necessary.	Agency designated by Ministry	
Give adequate weight to water requirements of hotels.	NWSDB	
Water supply requirements of export processing zones should be computed considering immediate and long-term demand projections. The requirements of fabric manufacturing must be given greater priority.	BOI may consider Public Private Partnerships (PPPs)	NWSDB
Separate industrial water supply systems to be developed for industries where large quantity of water is required. May include recycled wastewater.	BOI may consider PPPs	NWSDB
Considering major developments in the City of Colombo, the planned water supply projects and reservoirs in the Kelani River should be expedited.	Ministry	NWSDB
New septage treatment plants to be located taking into account transportation distance among other factors. Priority to be decided considering population density of LGAs, excluding towns for which sewerage schemes are planned.	Ministry	NWSDB
Required gully bowsers to be provided to LGAs with loans through the Local Loan and Development Fund (LL&DF).	Ministry of Finance	Provincial Commissioners of Local Government
Consult private gully bowser operators and stakeholders such as hoteliers when upgrading septage treatment plants and extending sewerage systems.	NWSDB	

2.0 Rationale for regulation

Chapter 1 described the WSS problems faced by people and businesses, drawing from official documents and from the testimony of affected people and businesses. Officials who dealt with water-related problems at the ground level shared their knowledge. The specificities of the problems described at consultations conducted across the country fleshed out the story told by the official data.

State officials as well as citizens volunteering their time and energy have sought to solve these problems in different ways, along with political authorities at all three levels of government. If it was simply a matter of commitment, they may have solved the problems by now. As illustrated by the water supply scheme completed by the Karuwalagaswewa Pradeshiya Sabha (Box 2.1), it takes leadership, money, and the ability to effectively manage the money to get safe, clean water flowing through the pipes, available on demand.[9] The precondition of access to water sources must also be satisfied.

Box 2.1 Under-budget piped water scheme for a remote village[10]

Karuwalagaswewa, in the Puttalam District, is one of the more remote and deprived localities in Sri Lanka. According to the Chairman of the Karuwalagawewa Pradeshiya Sabha (PS), their biggest problem is wild elephants who destroy crops and make life difficult for the villagers. Next is drinking water. Several attempts had been made to solve the drinking water problem, but none succeeded until 2021. The current chairman of the PS recounted the barriers he had to surmount in obtaining a loan from the Local Loan and Development Fund (LL&DF), statutory body established under the Local Loans and Development Ordinance No. 22 of 1916. The LL&DF provides long-term loans to Municipal Councils, Urban Councils & Pradeshiya Sabhas for their capital investments at concessionary rates of interest. Funds are provided in response to proposals that are evaluated and approved by a management board.

To be considered for a loan he had to present a proper proposal, including estimates. The engineer who was asked to prepare the proposal originally asked for LKR 85,000, but did it free of charge in the end. Only LKR 21,000,000 was approved, not the full estimated cost of LKR 28,500,000. He was advised it was too risky to proceed, but he mobilized local resources and closely supervised the work, resulting in the actual costs being even lower than the loan amount. A sum of LKR 4,000,000 was returned to the LL&DF. He had come up with an innovative solution to run pipes under roads without damaging the roadbed. Otherwise, the Road Development Authority would have to be paid LKR 45,000 per cut, for 13 cuts.

As communicated by many who participated in the consultations, money is not always available. The people who had to leave the Jaffna islands for lack of water, those who could not fully enjoy their newly built homes in Galle and Ambalangoda because of waiting lists, and the factory managers who had to scramble to find bowsers to transport water to meet export commitments have direct experience of the money being slow to be deployed. Even when the funds have been mobilized and transmission mains and tanks constructed, as in the case of the Jaffna water supply scheme described in Chapter 9, the

[9] https://www.youtube.com/watch?v=T3nzVdtivzs

[10] The Director General of the Department of National Community Water Supply challenged the account of the Karuwalagaswewa water scheme at a meeting at the Ministry of Water Supply on Mon 8 July 2021. The accuracy of the statements in the report were additionally verified in response. Bathiya Siriwardene, Management Officer at Karuwalagaswewa PS, confirmed the water scheme was in operation over a phone call on 11 August 2021.

backtracking on the consent given for the use of water from the Iranamadu Tank has frustrated efforts to solve people's problems. Capacity is required not only to get the systems built, but also to ensure that they are operated and maintained in a way that produces safe water supply continuously. This will be discussed in greater detail in chapters 10 and 11.

The purpose of this chapter is to describe how formal utility regulation can contribute to solving the water and sanitation problems that have been identified and meet the SDG 6 commitment. The regulatory solution is described in Chapters 3-7.

2.1 What is regulation?

Regulation has been defined as the sustained and focused control exercised by a public agency over activities that are valued by a community. It restricts certain behaviors and prevents the occurrence of certain undesirable activities. It also may be used to enable or facilitate desirable outcomes.[11] Many of the routine activities of state agencies such as issuing permits for transporting lumber fall within this definition. Yet, it is common to talk about regulation as a set of practices undertaken by specialized regulatory agencies and not as what happens across the whole of government. The practices that fall within this narrow definition are formalized, primarily through the instrument of licenses and associated procedures. It may be said that formal regulation recognizes the strength of the discretionary authority that is exercised and builds in safeguards against undue use of that authority. It is administration done with extra care. From this point the discussion will be limited to formal regulation applied to public utilities.

2.2 Why is regulation good for consumers?

It was once thought that objectives of universal access, fair prices and good quality could be achieved by the direct provision of utility services by state enterprises. When that proved unsuccessful, utility regulation came to be seen as the way by which the above objectives could be achieved through state-owned or private utility service providers. Common justifications for utility regulation include the desire to control market power, facilitate competition, promote investment or system expansion, or stabilize markets.

Markets for piped water and sanitation services are natural monopolies within the capacity of the built systems. They cannot be served efficiently by multiple competing firms. Due to the large investment required to set up a distribution network and the declining cost of serving each new customer, these services are most efficiently provided by a single firm.[12] But this does not mean that niche providers cannot exist. For example, bowser operators can co-exist with piped-water suppliers, to the extent that they fulfil certain specific forms of demand. In many parts of Sri Lanka, bottled-water suppliers and RO water suppliers are supplying certain market niches in many cases in parallel with piped-water suppliers. But it must be conceded that the piped-water supply dominates, and that if issues of trust, quantity and quality are addressed at the right price points, it may quickly displace the niche suppliers.

---

[11] Baldwin, R.: Cave, M. (1999). *Understanding regulation: Theory, strategy and practice*. Oxford: Oxford University Press, p. 2.

[12] During the consultations, separate pipelines for drinking water and water for other purposes were advocated. This is uncommon but was tried out for new housing developments in the Netherlands, but has failed to catch on, most likely due to cost factors which are even more pronounced in developing countries.

The economies of scale associated with a natural monopoly serve as a barrier to competition (as qualified above), giving the incumbent supplier market power or the ability to charge higher prices, fall short on quantity, not place weight on good quality, or not supply to low-revenue and/or high-cost market segments. These outcomes are detrimental to consumers and provides a rationale for regulating the industry. However, if the monopoly supplier is a state-owned business enterprise (SOBE) it may be argued that it is more straightforward to simply direct that prices be lowered, quantity be provided, quality be improved, and connections given.

Yet, it has been well-established that SOBEs do not necessarily follow such directions. Political authorities are at a disadvantage in terms of information about the supply of WSS services. Their efforts to interfere in the operation of SOBEs lead to cost inflation and other distortions. The inefficiency of SOBEs may also increase risk to creditors and investors (when private investment is permitted). This leads to higher costs of capital which reduces coverage and quality of service, especially in circumstances where state resources are constrained.

Regulation of SOBEs poses special difficulties. Regulation must be backed up by sanctions (though they should be used sparingly). The PUCSL Act includes provisions for the imposition of substantial penalties when license conditions are violated, and regulatory directions are not followed. Yet, financial sanctions are meaningless against SOBEs; state funds are transferred from one state agency to another. Substantial financial penalties will most likely result in lower investment, leading to reduced coverage and quality. Ministers tend to be protective about SOBEs under their ministries.

Effective regulation requires accurate information for evidence-based decision making. Therefore, information is described as the oxygen of regulation and all regulatory statutes and licenses contain strong powers to ensure accurate information is provided to the regulator. It is also the reason most regulators experience great difficulties in extracting the information needed for their work.

However, it is possible to develop innovative regulatory solutions to the above problems and help achieve the objectives of universal access, reasonable prices and good quality. The regulatory solutions must be complemented by policy interventions. The first among these is the creation of conditions for efficient functioning of the suppliers of utility services, including adequate investment at the lowest possible weighted average cost of capital (WACC). Unless there is adequate investment, all the regulation in the world cannot produce universal access, reasonable prices and good quality.

2.3 Why is regulation good for suppliers of services?

In administrative law, it is expected that state agencies will act within the scope assigned to them by law and that they will act according to the principles of natural justice. If they do not, aggrieved parties may seek remedies from the courts under the broad writ jurisdiction as set out in the Constitution.[13] But in many countries, these general remedies are seen as inadequate, especially for long-term investments where the investor has less negotiating power than the state and the legal system is not functioning at the optimal level.

The risk of the investment being subject to administrative expropriation leads to increased cost of money. Administrative expropriation describes the phenomenon of the investor being prevented from making a reasonable return on investment per expectation at point of investing, usually through a series

[13] Article 140.

of actions or inactions (not decisive when each is taken alone), resulting in de facto expropriation of the investment, an example being the delay in approving reasonable tariff revisions due to political considerations. Now that risks of direct expropriation are minimized by investment treaties and investment guarantees (e.g., Multilateral Investment Guarantee Agency of the World Bank Group),[14] administrative, or creeping, expropriation is the principal threat.

It is in this context that private investors, especially foreign investors, demand formal regulation by an independent agency. When Shell invested in the household gas sector in Sri Lanka in the 1990s, the government promised to establish a formal regulatory arrangement, but reneged on the commitment.[15] The Telecom Regulatory Commission was made into a proper regulatory agency by amending the Sri Lanka Telecommunications Act, No. 25 of 1991, in 1997 as part of the actions taken to introduce competition in the form of licensing two operators in addition to Sri Lanka Telecom.[16]

Herein lies a paradox. Why would companies want an external agency to exercise control over it? The reason is that the choice between regulation and no regulation is not available. What is available is a choice between formal regulation based on the Act and licenses, and informal regulation by one or more (usually more than one) government agencies such as the Ministry of Finance and the line Ministry. In formal regulation, it is not only the freedoms of the regulated utility that is constrained; the discretionary powers of the regulator are also bounded. Once formal regulation is established, the regulated entity is insulated from regulatory actions by several state agencies. In its modern form, the license issued to a utility imposes obligations on the regulator as well. The formalization of the relationship and the bounding of the discretionary power of the state is why entities that make long-term investments in utility industries seek to be subject to independent regulation.

But what if no private investment is involved, as is the case in the present Sri Lanka WSS sector? More than anyone else, the management of the NWSDB know what it is like to function under informal regulation. The last tariff increase was in 2012, when one US Dollar was worth around LKR 130. Simply based on cost escalations on imported material such as cement and PVC pipes, one could make the case for a tariff revision. But instead, what the NWSDB got in late 2014 was directive ordering a 10 percent discount on the bills of all who consumed less than 25 units (that meant around 75 percent of all residential customers). It is difficult to plan or to execute a plan when tariff revisions are uncertain and when across the board discounts can be decreed without an evidentiary process. What happens in these situations is that regular maintenance and service augmentation gets postponed, sometimes leading to service outages, waiting lists, and higher costs. This then leads to allegations of inefficiency and insensitivity to the customer, which provides a further rationalization for delays and denials of tariff increases, which leads to further deterioration of service.

2.3.1 Current situation

The present outlook in terms of availability of funds for capital investments in WSS appears good, with the 2021 budget allocating LKR 76 billion and LKR 101 billion for development expenses by the Ministry of Water Supply for 2020 and 2021, respectively; and LKR 2.6 billion for 2020 and LKR 4 billion for 2021

[14] https://www.miga.org/

[15] Biller, D; Nabi, I. (2013). *Investing in Infrastructure: Harnessing Its Potential for Growth in Sri Lanka*. Washington DC: World Bank, p. 94.

[16] Samarajiva, R. (2000). The role of competition in institutional reform of telecommunications: Lessons from Sri Lanka, *Telecommunications Policy*, 24(8/9): 699-717.

for development expenses by the State Ministry of Community Water Supply; in both cases significantly higher than the amounts allocated in 2019. In line with recent practice, the funds for projects executed by the NWSDB will, in addition, include public guaranteed debt amounting to LKR 102 billion in 2019 and LKR 138 billion in 2020.[17]

In previous practice, funds needed for capital investments by the NWSDB were allocated from the Consolidated Fund and from domestic commercial banks as loans guaranteed by the government. The NWSDB prepared project proposals which were approved by the National Planning Department with various conditions attached. The NWSDB was expected to repay the loans from its own funds.

The grant from Treasury covered 50 percent of the capital cost of urban water supply projects and 75 percent of rural water supply project. The grant covered 100 percent of the cost of sewerage projects and water supply projects intended to reduce CKDu incidence. The NWSDB had to raise the remaining 25 or 50 percent of the cost of rural and urban water projects internally. Given the demands from the rather high proportion of personnel costs (50.4 percent),[18] it is possible that NWSDB is raising the counterpart funding from banks.

The expectation is that the revenue collected from various classes of customers will cover all operations and maintenance (O&M) costs, the costs of paying salaries and benefits to approximately 10,000 employees, repayment of loans and sums owed to Treasury, and some of the investment requirements as described above. Because tariff revisions are delayed (the last revision was in 2012), it was reported that the repayments of loans have had to be looked after by Treasury.[19] The Secretary of the Ministry of Water Supply stated that repayments will not be the responsibility of the government after 2021.[20]

According to the 2017-2020 SCI signed between the NWSDB and the Ministry of Finance states that in 2015, the government converted all previous loans from Treasury to equity. This was done to position the Board to independently raise funds for expansion.[21] This suggests that the debt now owed by the NWSDB is limited to that owed to domestic commercial banks and multilateral development finance agencies. The status of the Treasury funds used to cover losses incurred by NWSDB in various years (for example, a loss of LKR 1.2 billion was incurred in 2019)[22] requires clarification.

Multilateral development finance agencies include provisions to manage risk in their extensively negotiated loan agreements. The repayments are usually managed through the External Resources Department of the Ministry of Finance and can be made on schedule independently of the financial health of the NWSDB at that time. But repayments of loans taken from domestic commercial bank are a different matter. Unfortunately, it is not unusual for Sri Lanka government organizations, especially when backed by Treasury, to delay payments on locally obtained loans. It is likely that this known risk is factored into the terms of such loan agreements.

---

[17] Central Bank of Sri Lanka (2021). *Annual Report 2020*. p. 162.
[18] Hiejen, H.; Premanath, L. (2020*). Final Report (Volume I) Comprehensive Strategic Investment Plan and Road Map for the Water Supply and Sanitation Sector in Sri Lanka*, p. 150.
[19] Hiejen, H.; Premanath, L. (2020). *Final Report (Volume I) Comprehensive Strategic Investment Plan and Road Map for the Water Supply and Sanitation Sector in Sri Lanka*, p. 152.
[20] Comments made at meeting on 8th July 2021 at the Ministry.
[21] NWSDB and Ministry of Finance. Statement of Corporate Intent, 2017-2020, p. 3.
[22] Central Bank of Sri Lanka (2021). *Annual Report 2020*, p. 91.

If the NWSDB can be assured of periodic tariff revisions shielded from political exigencies, it will be able to attract the necessary funds from domestic sources on reasonable terms. Such stability is indispensable for the raising of funds through bonds and similar financial instruments and for keeping the weighted average cost of capital (WACC) at reasonable levels. Many WSS systems throughout the world have been funded using bonds and similar financial instruments that have low interest rates. The interest charged is low because the lenders believe the risk of default are close to zero because they are lending to government and because the steady revenue streams produced by the financed water schemes will assure repayment.

These assumptions may not hold when the borrowing entity is unable to adjust its tariffs to cover costs which increase due to reasons outside its control such as increases in the cost of an input such as electricity (said to amount to 28.43 percent of cost of sales)[23] or when scheduled tariff reviews are postponed due to political considerations. Setting in place a formal regulatory system based on licenses and associated legal instruments is a distinct improvement on the current informal arrangement. However, it does not eliminate the possibility of political pressure being brought to bear on the regulator or on the state-owned utility. How can this risk be managed?

The Constitution requires the concurrence of Provincial Councils to any legislation on WSS.[24] The problems experienced by people with regard to WSS vary widely across the country and effective solutions will have to be tailored to those different conditions. For these reasons, this report proposes a cooperative regulatory arrangement whereby the PUCSL will provide the technical expertise and the data analysis needed for benchmarking regulation that will be operationalized by units located within the Provincial Councils, more fully explicated in Chapter 3 below. This hybrid, decentralized solution will also provide some safeguards against undue political interference in the regulatory process.

Currently, the NWSDB seem to have excluded the cost of money from its financial scenarios. Its 2020-25 Corporate Plan states: "Since Treasury is considering the financing of these projects by treasury funds, **the loan repayment involved with capital investment is not taken into consideration**."[25] This is highly unusual, especially because NWSDB is, even this year, borrowing from commercial banks. It was directly contradicted by the Secretary of the Ministry of Water Supply, who said that the government would not be responsible for loan repayments after 2021.[26]

2.3.2 Prospects

Strained public finances in the context of the pandemic and the associated economic downturn may compel a shift away from this unique and apparently unsupported assumption of loans that do not have to be repaid. Instead of relying on public guaranteed debt, it may be necessary to go to other sources of funding such as bonds and PPPs, as discussed in the CSIP. As pointed out in the CSIP, much has to be done in advance (as much as two years in advance) to prepare the NWSDB for these low-cost forms of financing normally associated with water utilities.

[23] NWSDB and Ministry of Finance. Statement of Corporate Intent, 2017-2020, p. 3.
[24] Judgment on Water Sector Reforms Bill. Cases SC (SD) 24/2003 and 25/2003. However, the Secretary of the Ministry of Water Supply indicated at meeting on Ministry on 8th July 2021 that he did not believe there was a role for Provincial Councils in water supply.
[25] NWSDB (2021). Corporate Plan 2020-25, p. 47.
[26] At meeting at Ministry, 8th July 2021.

The CSIP recommendations include the signing of the Statement of Corporate Intent (SCI) for 2020-22, which does not appear to have been done as of May 2021. Cleaning up the balance sheet and setting in place a stable regulatory environment that would make it possible to make accurate projections of revenues are among the actions undertaken, and hopes expressed, at various times.

A stable regulatory environment will reduce the risks for bondholders and investors. They can be more certain that business plans can be followed, and that repayments or dividends can be declared because tariff revisions will be conducted as scheduled and will be based on methodologies that are based on objective data and have been adopted after broad consultation.

The NWSDB will be able to execute its business plans if it is given a stable regulatory environment. If Treasury ceases to give it grants that do not have to be repaid or does not continue to take on loan repayments on its behalf, the benefits will be much greater.

The recent statement by the Secretary to the President that the government will henceforth be looking primarily at the World Bank (WB) and the Asian Development Bank (ADB)[27] suggests that formal regulation will be essential. The lending procedures of these DFIs, hitherto considered too cumbersome and protracted, usually include conditions that require independent regulation and assurances that revenues will be adequate to cover operational and other costs.

Bonds may be too complicated for any but the largest LGAs. For most LGAs, the appropriate source of capital would be the LL&DF, which may also be a source for CBOs if the government so decides. Alternatively, CBOs will have to obtain loans from the proposed revolving fund. In either case, loans have to be repaid, even if given at low interest. WB and ADB funds may be used to capitalize and strengthen the proposed revolving fund. Having a stable regulatory environment and assurance that actual costs will be reflected in the tariff formula will be helpful in this regard.

[27] *Sunday Times* (2021 May 23). No more big loan projects. http://www.sundaytimes.lk/210523/news/no-more-big-foreign-loan-projects-444812.html

3.0 Regulatory solution appropriate for Sri Lanka

Chapter 1 described the challenges of meeting SDG 6 target within Sri Lankan conditions: “by 2030, achieve universal and equitable access to safe and affordable drinking water for all.” Public consultations across the country revealed that WSS supply is tightly connected to specific geographic and social conditions that vary from Province to Province, and indeed, from District to District.

Chapter 2 showed that the problems cannot be solved by simply throwing money at them (even if there is money to throw); that a stable regulatory framework can do much to enable efficient investment which is the necessary condition for the availability, price and quality objectives uppermost in the minds of the public and the government; and that formal regulation also has the potential to provide the sufficient conditions for the achievement of those objectives by reducing uncertainty for suppliers in what is expected to be lean times in terms of financing.

The purpose of this chapter is to outline the specific form of a regulatory solution responsive to the Constitutional mandate to involve the Provincial Councils. The Constitution, as interpreted by the Supreme Court in relation to the Water Services Reform Bill of 2003, in the judgment on cases SC (SD) 24/2003 and 25/2003, recognizes the decentralized nature of WSS provision. It is necessary to involve the Provincial Councils in a hybrid model of regulation or obtain their concurrence to a centralized solution.

The WSS problems experienced by people and businesses vary widely across the country and effective solutions will have to be tailored to those different conditions. For these reasons, this report proposes a cooperative regulatory arrangement that can be gradually phased in whereby the PUCSL will provide the technical expertise and the data analysis needed for benchmarking regulation that will be operationalized by units located within the Provincial Councils. This hybrid, decentralized solution designed for the specific ground conditions in Sri Lanka will also provide some safeguards against undue political interference in the regulatory process.

3.1 The centrality of licenses

As described above in Chapter 2, formal regulation is organized around licenses. In the modern context, a license is a legal instrument that sets out the rights and obligations of both the licensee and the licensor, who also represents the interests of the public at large. License conditions which reflect public-policy objectives embody the obligations of the licensees to provide services with the desired availability, price and quality, while minimizing risks to the supplier.

The violation of license conditions should carry consequences. By defining the powers of the licensor to modify, renew or not renew a license and to enforce license conditions and by setting out procedures for those actions, the legal instrument provides certainty, thereby providing a benefit to the management who can execute their business plans in a rational manner. However, those employed by the licensees will also benefit from the reduction of risk. Devising and implementing rational human resource planning is not possible when the organization is captive to the vagaries of politics.

When the rules do not exist or are opaque, the functioning of the enterprise depends on understandings and transactions between management and decision makers in Treasury and elsewhere. The professional work of the employees will be negatively affected.

A license allows suppliers to make and execute business plans by reducing uncertainty. Therefore, they must be a duration longer than the one year favored by many administrators for various registrations and permits. For major licenses that involve large investments, it is recommended that the license be for ten years. The duration may be shorter, in the range of five years, for others.

A licensing framework would necessarily have to include procedures for the issuance of new licenses, modification of licenses, their renewal and cancellation. Clear rules and their proper implementation will contribute to stability in the sector and to consumer welfare if done properly. The licensor may not interfere in the activities of the licensee other than through formal procedures consistent with the principles of natural justice. The law would also include offences for engaging in the licensed activities without a license.

That the fair thing to do is to treat similarly those who are similar is common sense. Non-discrimination is also recognized in the Constitution. Suppliers who belong to a class, such as CBOs who are engaged in all phases of water production should be treated the same; their licenses should be the same, with strong justifications provided for any exceptions. Otherwise, there may be Constitutional challenges. The NWSDB offshoot (successor to the Regional Support Center (RSC)) in a province would be treated differently from a small CBO, but most CBOs would be issued identical licenses.

3.2 The value of decentralization

Sitting in Colombo, the problem may appear to be one of improving the performance of the SOBE that currently absorbs most of the financial and attention resources of the state. But more than half the population is currently unserved by the NWSDB and is mostly in sparsely populated areas that are expensive to serve. There is no doubt that the NWSDB's role in serving the presently unserved or ill-served is central. But it does not mean that it has to do the job all by itself or with a one-size-fits-all solution.

The LGAs which were among the original suppliers of WSS[28] have mostly been supplanted by the NWSDB in the urban centers, but they are the third layer of the state, the one which is closest to the people. Ideally, they should take back the responsibilities of distribution and billing emulating the Municipal Councils (MCs) of Kurunegala (which relies fully on bulk water supplied by the NWSDB) and Kandy (which has its own purification plants, but obtains some bulk water from the NWSDB). This would allow the NWSDB to focus its energies on the hard tasks of negotiating access to water sources, purifying the water, supplying bulk water through transmission mains and otherwise.

But as shown by the decision by one of the well-established and resourced LGAs in the country, the Bandarawela MC, to handover of all water functions to the NWSDB, the ideal is unlikely to be achieved in the short term. Chapter 11 describes the reasons for the atrophying of the capabilities of LGAs and recommends short-term solutions.

In the hard-to-serve areas away from towns, it is still mostly self-supply or supply by CBOs which commenced their activities more or less independently of government (some were assisted by projects and grants) but have now mostly been brought under government oversight. CBOs are small, village-based organizations dependent on voluntary contributions of citizens in addition to varying project and

[28] The waterworks built and operated by the colonial government were transferred to the Colombo Municipal Council in 1908 by Colombo Waterworks Ordinance, No, 18 of 1907.

state contributions, which provide services in areas considered marginal and difficult by the NWSDB and at considerably lower cost. Their leaders had to make a special effort even to participate in the public consultations held in provincial capitals. It would be unreasonable to expect them to directly interact with a Colombo-based regulatory entity such as the PUCSL.

The 2010 National Drinking Water Policy included a policy principle that "The operational responsibilities will be decentralized to the lowest appropriate level with due consideration to management capacity." This is consistent with Sri Lanka's status as a country with very few areas with water deficit, where it makes no sense to transport water or liquid waste over long distances. Without any external compulsion, the NWSDB has decentralized its operations into nine regional support centers. If it is accepted that operations need to be close to the end user, regulation should also be close to the end user.

The LGAs and CBOs are likely to welcome a decentralized form of regulation. The NWSDB is unlikely to support it and continues to question the rationale. The leadership of the NWSDB places priority on greater certainty regarding revenues (management) and on making the organization more efficient (Chairman).[29]

The main reason the management of the NWSDB should consider supporting formal regulation would be the perception that such an arrangement would be superior to the current uncertain environment under the informal regulatory authority, which had failed to yield a tariff revision since 2012 and had in fact reduced the revenue stream by giving 75 percent of residential customers a 10 percent discount on their already cross-subsidized bills. If they are to acquiesce to the imposition of formal regulation, they would need an assurance that procedurally correct, and evidence-based, tariff revisions can be assured and that thereby the organization would be able to execute its business plans in a rational manner.

Because political authorities are the final decision makers in a democracy, it is difficult to provide an absolute guarantee that technically required but politically unpalatable actions will be taken in the absence of a change in the political culture. However, decentralized regulation involving nine Provincial Councils may increase the likelihood of the right thing being done.

Assume that all nine regulatory units located within the Provincial Councils issue the first tariff determination at the same time and that the next revision is due in three years. For whatever reason, three of the nine units fail to keep to the schedule. Foreseeing this possibility, language could be inserted into the licenses that specify a default outcome in the absence of, or a delay in, issuing a tariff determination.

For example, it may be stated that the Regional Units established as successor to the NWSDB's RSCs in those three Provinces could revise their tariffs on an interim basis, using a formula given in the previous tariff determination. This could be based on the tariffs approved in the six provinces that did issue determinations or on the basis of its own calculation of the tariff it was due, based on the formula given by the PUCSL.

This is not foolproof because the government in power, if it wishes to delay the tariff revision, could order the NWSDB units in the dilatory provinces to desist from activating the default procedure. Alternatively, the ruling party in the center could prevent any of the provincial units from issuing tariff

[29] Meeting with Chairman, General Manager and leadership team of NWSDB, 6th July 2021.

determination, which could frustrate the default solution if it depended on tariff determinations being completed in any province. A legally binding agreement with a foreign investor will assist the regulator in resisting political pressures. The annual tariff rebalancing for the newly privatized Sri Lanka Telecom over 1998-2002 that the government had committed itself to in the Shareholders' Agreement with NTT was helpful to the not-fully-independent regulator in negotiating the timing of the tariff revision announcements. They were delayed in some cases, but delivered.[30]

In the same way that the regulator can derive diagnostic information about the performance of the Provincial Units, so can the managers of the units. Instead of simply asking the staff to make changes and become more efficient, the managers can now justify internal reforms by pointing to the external pressures that are evident for all to see.

3.3 Benchmarking regulation

Effective regulation requires accurate information for evidence-based decision making. Therefore, information is described as the oxygen of regulation and all regulatory statutes and licenses contain strong powers to ensure accurate information is provided to the regulator. It is also the reason most regulators experience significant difficulties in extracting the information needed for their work.

Benchmarking or yardstick regulation provides a solution.[31] Here, the performance of the regulated entity is compared with others either to serve as leverage in extracting information or to "name and shame." For example, certain cost elements needed to set prices may be withheld by the regulated entity. The regulator may announce that benchmark data will be used instead unless the regulated entity provides the information forthwith. Or the regulator may name and shame the regulated entity by showing how inefficient or negligent it is by comparing its indicators with those of comparators.

The first response of the incumbent operator is usually a challenge to the appropriateness of the benchmarks. This is especially common against the use of foreign benchmarks: the market characteristics are different; the geography is easier to serve; the population density is higher and so on. The use of domestic benchmarks is less problematic. Here, an integrated, nationwide monopoly would be reconstituted into broadly comparable units, which would have separate legal personalities, and issued separate licenses. The information used for benchmarking regulation will be derived from within the country rather than from abroad. This need not be limited to matters directly affecting consumers, but may also generate information on elements affecting cost of supply.[32]

To constitute comparable units is not easy even within a country. Population density, geographical factors affecting cost of production, the mix of profitable and unprofitable customers, etc., may vary

[30] Samarajiva, R. (2000). The role of competition in institutional reform of telecommunications: Lessons from Sri Lanka, *Telecommunications Policy*, 24(8/9): 699-717.

[31] An early application of benchmarking in Sri Lanka was Ovitigala, O.V.T.S.P. (2007). *Benchmarking Performance of Pipe Borne Drinking Water Supply Industry in Sri Lanka*, dissertation for MBA in infrastructure, University of Moratuwa.

[32] For example, there is value in establishing a database of items such as the costs of pipes and construction of similar civil works that can contribute to tariff methodologies and can also improve procurement processes. Competition is supposed to bring down the costs of reformed public utility industries. In the WSS sector, regulation will have to play a role in reducing costs because competitive forces play a marginal role.

widely.[33] Therefore, a simple divestiture based on equal distribution of customers or geographical area is not advisable. Divestiture that follows prior administrative boundaries may yield non-comparable units, but comparison may be achieved using statistical techniques.[34]

For benchmarking regulation to be effective, it is vital that the units are autonomous. Otherwise, there could be collusion in terms of resisting information requests and lack of responsiveness to "name and shame" regulation. The failure to complete the CEB reorganization by making the business units truly autonomous has resulted in a diminution of the flow of needed information from within the CEB, despite the inflation of management titles and costs. Unwavering focus on information flows from the design stage is essential for the efficacy of benchmarking regulation.

Given the parameters set by the Supreme Court in 2003, the units for licensing would have to be the nine Provinces. The territories of LGAs that would be subject to regulation do not cross provincial boundaries and the LGAs come under the authority of the Provincial Commissioner of Local Government. The CBO territories are also fully within provincial boundaries. They are currently registered with the DNCWS (central government) and some with the Provincial Councils (for example, in the North Western Province).

The relationship with the DNCWS can continue, and indeed, be developed further as described in Chapter 10. Here, the DNCWS's role is not that of a regulator. It must be refocused on the provision of technical and managerial support to CBOs and the building of their internal capacity. DNCWS may play a role in the planned revolving fund to support the activities of the CBOs. In instances where the activities of CBOs are disrupted by the actions of government agencies, DNCWS should champion their cause.

The current registration system at the provincial level does not appear to be effective and should be discontinued. For example, an annual registration requirement does not give certainty to the registrant CBO, because the registration last only for a year and the criteria for renewal or denial of registration are not announced before the fact.[35] Because there are no penalties for non-registration or for violation of the terms of the registration, the registration is not equivalent to a license. Its primary purpose appears to be that of informing the responsible unit created under the Provincial Minister responsible for the subject of Local Government of the existence of, and the contact details of, CBOs.

The Unit that is responsible for CBO registration (not activated in all provinces) can be repurposed to be the regulatory unit that work with the PUCSL to regulate WSS in the province. There may be merit in locating it under the Provincial Commissioner of Local Government, and avoiding a direct reporting line to the Minister because utility regulation is best done by independent regulatory agencies.

The form of regulation should be simple, and one that can be executed by the unit that is part of the Provincial Commissioner of Local Government, with a staff that may not be spending their entire careers

[33] The method used to form the business units for electricity distribution within CEB is an example. Most, if not all, of the distribution licensees were assigned a portion of the Greater Colombo area.
[34] The 1982 divestiture of AT&T, at that time the world's largest company, into seven Regional Bell Operating Companies is one of the most significant regulatory cases. It was an example of staying with administrative boundaries, but accommodating a degree of comparability.
[35] If registration is denied, reasons have to be given: Establishing and Regularizing of Community Based Organizations (Water Supply and Environmental Sanitation), Statute No. 1 of 2013 of Provincial Council of North Western Province, *Gazette* 1806 (23 April 2013), section 7.

in WSS regulation. The PUCSL should set the regulatory standards for the Provincial Units and should provide them with technical support for effective benchmarking regulation. In recognition of the need to build up capacity in the Provincial Councils, the technical regulatory activities may have to be performed by PUCSL and gradually handed over to the Provincial Units.

3.3.1 Phased implementation

Conventional benchmarking regulation is applied to firms that are owned by private investors in whole or in part.[36] When a utility in a particular area has implemented many efficiency measures, reduced non-revenue water (NRW), etc., it will be rewarded by being allowed to retain a larger profit. Similarly, if it has failed to reduce costs and NRW, the regulator's decisions on the rate of return and allowed costs permitted to the firm, may, if properly structured, result in lower earnings and even losses for the investors in that tariff review cycle.

In the context of all the regional NWSDBs being 100 percent state owned, these rewards and punishments have no meaning. The incentives that motivate the management of SOBEs are not profits; they are motivated by larger budgets.[37] Reduced or static budgets are perceived as punishments; a larger budget that allows expansion of the numbers reporting to the bureaucrat is a reward. But this reward/punishment system cannot be applied usefully to public utilities.

Assume that three out of the nine regional NWSDBs are found to be poor performers in terms of containing costs of projects and reducing NRW. A tariff decision that will yield less funds for investments in the next tariff cycle will not be helpful in, for example, reducing NRW. NRW may have multiple causes, among them several that require greater investment not less. For example, upgrading meters or replacing leaky pipes requires investment. Holding back the funds needed for improvements will start the regional firm on a downward spiral where lack of adequate funds to improve efficiency will lead to further disincentives, and so on. In the practice of benchmarking regulation in England and Wales, the regulator ensured more funds for investment in regional operators whose infrastructure required rehabilitation.[38]

In any case, the regulator will not have the ability to single-handedly affect a regulated firm's revenues and funds available for investment positively or negatively. Various subsidy schemes (more fully discussed in Chapter 8) controlled by entities other than the regulator will have a greater impact.

Therefore, what is suggested is that benchmarking regulation and formula-based tariff determination be included in the legislation, but that the details be left to the PUCSL, giving it the flexibility to apply simple cost-based formulas in the early stages with more sophisticated elements to create incentives for efficiency introduced at a later stage. The language should be flexible enough to allow more conventional benchmarking regulation for any PPPs that may be created. Provision should also be made for regulatory forbearance and price flexibility within bands.

---

[36] Baldwin, R.; Cave, M. (1999). *Understanding regulation: Theory, strategy, and practice.* Oxford: Oxford University Press, chapter 18.

[37] Niskanen, William A. (1968). Non-market decision making: The peculiar economics of bureaucracy. *The American Economic Review,* 58(2), Papers and Proceedings of the Eightieth Annual Meeting of the American Economic Association, pp. 293-305.

[38] OFWAT (2010). *The form of the price control for monopoly water and sewerage services in England and Wales – a discussion paper*. https://www.ofwat.gov.uk/wp-content/uploads/2015/11/prs_inf_1010fplform.pdf

Box 3.1 Forbearance explained

It is generally better to take on a few tasks and do them well, than to take on too many tasks too early before organizational capacity has been developed. Innumerable examples of statutes or regulations that promise an expansive set of regulatory duties in the broad sense. In addition, it is a general principle in regulatory practice to allow/promote competition wherever possible, and regulate only when necessary. The instrument of regulatory forbearance occupies the middle ground between full-fledged regulation and the complete stepping back from regulation. Forbearance does not necessarily mean that the regulator relinquishes all responsibility for regulation; the regulator may choose to forbear on certain aspects only based on assessments of market power and potential for predatory pricing; and regulation may be re-imposed if justified.[39]

In the early phase at least, the regulator should be aware of the danger of padded costs of inputs being directly factored into the formula and being passed on to customers. Here, the only available remedy is transparency and name-and-shame. Comprehensive data collection and analysis by the PUCSL and a policy of making all the data public is the necessary condition. The existence of consumer groups and media that will use the data to exert pressure on the suppliers is the sufficient condition.

3.4 Licensing of NWSDB units

The above regulatory design poses the question of how the NWSDB should be regulated. When licenses are issued at the provincial level it would be necessary to reconstitute the existing Regional Support Centers which have been set up in each province as independent units that will be subject to provincial regulation.[40] The minimum requirement for an entity to be licensed is that it should be a self-contained, auditable unit.

The main NWSDB is the actual owner of the licensees, but the licensees should be self-contained economic units, each with its own management. Each one will face different problems and cost structures and its management must have the freedom to respond to these different conditions in the appropriate manner. This would require the reconstitution of the RSCs that are currently aligned with the provinces (except for three RSCs in the Western Province, for whom an effective licensing scheme would have to be devised).

While the numbers of suppliers who are not the NWSDB is large, the most complex regulatory work will necessarily involve the provincial NWSDB units. Because the capacity of the regulatory units under the Provincial Commissioners of Local Government will be still in the process of being built up, it may be advisable to exercise the PUCSL's regulatory authority directly in the case of the NWSDB units, with the stated intention of handing over this task to the provincial units when their capacity has been adequately developed, say in seven years.

Design, billing services, specialized consulting services, etc. may be more efficient to provide centrally. In such instances, those services may be obtained from the central organization by the regional units. Services would be provided, and payments made. The slimmed-down central organization may also function as a liaison office for international development finance organizations, etc. However, it would

[39] Samarajiva, R.; Iqbal, T. (2009). Banded forbearance: A new approach to price regulation in partially liberalized telecom markets, *International Journal of Regulation and Governance*, 9(1): 19-40.

[40] This has some similarities with the reorganization of the CEB into multiple license-holding business units, including five distribution licensees, as part of the last round of reforms.

be best if the regional NWSDBs deal directly with Treasury and External Resources regarding grants and subsidies and the commercial banks regarding loans.

3.4.1 Alternative solution

In the event the above proposal cannot be implemented, there is an alternative solution inconsistent with Supreme Court Judgement on Water Services Reform Bill, SC (SD) 24/2003 and 25/2003 and therefore requiring concurrence of all Provincial Councils. In this scenario, the licensing of CBOs and their regulation should be the responsibility of the PUCSL, which should establish offices in two or three accessible regional locations, in addition to Colombo, to make it easier for end users, CBOs and LGAs to interact with the regulator. This responds to the universal demand that the site of regulation should be close to the WSS suppliers and to their consumers (the overwhelming questionnaire response was Provincial Capital).

The most important question is how the NWSDB should be regulated in this scenario. What may be considered is a variant of the phased approach recommended by the 2017 Safege report.[41] An expert committee should be established by the Ministry to decide on the three or four comparable units that should be licensed. One option is the aggregation of the present 11 RSCs into three or four units. The notion of a "production" licensee in the Western Province is somewhat anomalous. Ideally, all major licensees will have production and distribution components.[42] The other option is to design the licensable units from scratch, for example giving parts of the revenue rich Western Province to each of the licensable units. This will unfortunately cause a lot of disruptions and will slow down the implementation of the regulatory regime.

3.5 Recommendations

Ministry denotes the Ministry in charge of the subject of water supply.

Actions	To be taken by	Supported by
Enact legislation for WSS sector that when read together with PUCSL Act, would enable licensing & regulation of WSS suppliers	Ministry	PUCSL
Include provisions modeled on other utility sector statutes re licensing, renewal, offenses, etc. that when read together with PUCSL Act would provide a complete regulatory framework; licensing would at the level of province or 3-4 regions	Ministry	PUCSL
Include provisions for phased in benchmarking and quality regulation include provision for regulatory forbearance & price flexibility within bands	Ministry	PUCSL
Reconstitute the 11 RSCs of the NWSDB as self-contained units with own management & accounts (1 per province, with the three in the Western Province merged or reorganized as appropriate) OR	Ministry	NWSDB

[41] Safege Consulting Engineers (2017). *TA – 8835 SRI LANKA: Institutional Development of National Water Supply and Drainage Board. Draft Final Report*, pp. 39-42.

[42] The different configurations of LGAs will have to be dealt with. Kandy has production, distribution, and billing. Kurunegala MC only does distribution and billing.

Alternatively, appoint a committee to propose 3-4 new licensable units that will be conducive for benchmarking regulation.	Ministry	NWSDB
Identify what services are best provided by the central organization and the modalities; identify optimal arrangement for Western Province	Ministry	NWSDB
Rescind Provincial Council Statutes on registration of CBOs, where they exist	Provincial Local Government Ministry	
Convert units dealing with CBOs under above statutes to regulatory units or create new units reporting to Provincial Commissioner of Local Government	Provincial Local Government Ministry	
Initiate recruitment and training programs for regional regulatory units before the legislation is approved; in the first phase (say seven years) regulate the provincial NWSDB units directly by the PUCSL, with provincial units observing	PUCSL	Provincial Commissioners of Local Government

4.0 Scope of regulation

The previous chapters provided the rationale for regulating WSS through a hybrid and phased-in form of regulation. This chapter identifies the entities and services that should be subject to regulation. Even if apparently no longer considered operative by state officials, the last adopted national policy can provide a good starting point.

The National Drinking Water Policy of 2010 limits its scope to "potable water supplied for human consumption including qualitative and quantitative aspects. It does not apply to bottled water."[43] That means that water suitable for drinking supplied by any means other than in bottles would be subject to the policy principles and the limited forms of regulation set out in the National Policy. The status of water in larger containers that have become more common in the context of CKDu and RO water is ambiguous.

What is subject to regulation according to the National Policy is the supply by means other than bottles of water suitable for drinking, not the entities who supply. This is understandable because the drafters appear not to have conceptualized suppliers of the WSS as economic entities, though there was one section that deals with an assorted set of issues related to economics such as tariff setting and recovery of costs under the heading Financial Sustainability.[44] A National Sanitation and Septage Management Policy does not seem to exist, though drafts are talked about.

Water supply and sewerage/septage services may be thought of as having three key components/phases: production of drinking water (or treatment of sewerage/septage); transmission/transport; distribution (getting the drinking water to end users in some form or collecting effluents in some form); and billing. The supply chain in drinking water ends with the customer, whereas it begins with the customer in the case of sewerage/septage. Unlike electricity and telecommunications, and perhaps in common with urban transport services, water supply and sewerage/septage services are intensely local.

Markets for piped water and sewerage services are natural monopolies within the area covered by the networks and the capacity. They cannot be served efficiently by multiple competing firms. Due to the large investment required to set up a distribution network and the declining cost of serving each new customer, these services are most efficiently provided by a single firm. Bowser supply and water distribution in containers, including bottles, address niche markets.

Sewerage is a service whereby homes and businesses are connected to an underground sewer network which takes the effluent to a treatment plant (if it exists) and then the treated or untreated effluent to the sea or some disposal site. The positive externalities of this high-capital-cost service are considerable. Generally, charges for sewerage services tend to be bundled into municipal rates because it makes little sense to meter it and charge by use. But charges by site are possible and are in place for industrial and commercial users. The justifications for public or private supply are based on health safeguards. Therefore, there is no rationale to charge by volume or to create any incentives to bypass the approved sewerage treatment system.

[43] Ministry of Water Supply and Drainage (2010). National Drinking Water Policy, section 5.
[44] Ministry of Water Supply and Drainage (2010). National Drinking Water Policy, section 3.

Septage services are the second-best way of removing effluents from where people live in cities to safeguard their health and to protect water sources. For example, in the areas of the City of Colombo unserved by the sewer network, the CMC provides gully bowser services to empty pits that are full. The gully bowsers will suck out the waste and transport them to a treatment plant, from which point they can be merged with the sewerage. Septage removal using gully bowsers to supplement properly designed and constructed septic tanks is the first best method of managing effluents in sparsely populated areas. It is a charged service that is provided by private gully bowser operators throughout much of the country. Unless there are constraints in disposal sites (which can be circumvented by illegal dumping) there is no inherent tendency to monopoly in its provision. Again, it is important to design pricing and related policies in ways that do not discourage the use of the septage treatment plants.

As described in previous chapters, regulation is justified for monopoly services and where there are serious information asymmetries. Where competition is feasible, regulation can be made lighter and even forborne; quality regulation that addresses information asymmetry can give greater weight to provision of information for the making of choices.

4.1 Entities subject to regulation

Utility regulation assumes that the behaviors of regulated entities may be influenced by incentives. For that, it is necessary for there to be entities capable of agency; capable of "acting otherwise." For this it is necessary to demarcate the boundaries of the entities subject to regulation; they need to be juridical persons able to take decisions; to sue and be sued; for whom actions such as naming and shaming or denial of tariff increase requests have meaning.

In the simplest form, all business lines of the entity subject to regulation will be described in the license and the tariffs (including quality elements) will be determined by the regulator. The accounts of the entity should accurately depict the business and be open to examination by the regulator. In general, any business lines not subject to regulation would have to be housed in a separate company or at least those accounts should be ring-fenced. Unregulated activities should not be cross subsidized from the regulated business lines. In such a model, subjecting an entity to regulation necessarily results in the regulation of all the services it offers; those not subject to regulation will be kept separate.

4.1.1 Piped-water operators

Accordingly, the regional units will have to be created though the articles or amendments to the NWSDB Act.[45] They could be made accountable to the ultimate owner, the Government of Sri Lanka, directly or through the main NWSDB, and will be subject to the normal obligations of statutory boards such as the timely submission of audited accounts. Business lines such as provision of water to residences, the supply of industrial water, sewerage services, etc. will be described in the principal license or in separate licenses. This would perhaps be the simplest of the cases.

LGAs offer many services, not just WSS. The LGAs are juridical persons, who can sue and be sued. Only the water and sewerage/septage services they provide are subject to the hybrid regulation through the regulatory unit housed under the Provincial Commissioner of Local Government acting for the PUCSL but exercising a degree of autonomy. The question of ring fencing the accounts of the licensed operations

[45] Attention has to be paid to ensuring a high level of autonomy for the provincial units. This is a precondition for the efficacy of benchmarking regulation.

may not be well received at the start, but would have to be done for effective regulation based on a formula with cost elements.

The CBOs pose the most difficulties. Most CBOs are registered at the Divisional Secretariats as social development organizations under the Department of Social Services and as Community Based Organizations managing water supply in the DNCWS. It appears that this is adequate for opening an account at a bank. The WaSSIP Project, under its Institutional Development and Capacity Building Consultancy (COWI IDC CEYWATER, 2019) proposed that CBOs gain legal status by registering under the Societies Ordinance, No. 18 of 1891. The difficulties experienced by the Angunakolapelessa Samagi CBO in recovering money that was allegedly misappropriated from it (Chapter 10, Box 10.1) illustrates the inadequacies of the present arrangements.[46]

Representatives of many CBOs spoke of the unrelated activities they engaged in (such as providing financial support at times of funerals), principally as a means of maintaining the cohesion of the CBO and ensuring that bills were paid on time. These activities, as long as they are properly reflected in the accounts and approved by the membership, do not appear to pose a serious risk to the CBO. However, these ancillary expenditures should not be at the cost of not building up adequate reserves to meet needs such as repairs and maintenance, and should be subject to some limits (as recommended in Chapter 10).

It was reported that the reserves were being used for micro-finance loans to members in a subset of prosperous CBOs. It is possible that these activities have arisen because of the lack of high-yielding and safe ways of maintaining CBO reserves. However, volunteer office holders of CBOs with no expertise in assessing creditworthiness engaging in money lending activities is inherently risky, in addition to possibly being in violation of Central Bank rules. A CBO becoming a micro finance institution with water as a sideline must be avoided, not least for the risk that it may pose to the core business. These activities cannot be regulated within the four corners of utility regulation. Recommendations on safeguards are given in Chapter 10.

It would be unreasonable to require volunteer organizations running on lean budgets to incorporate themselves under the Companies Act so that they can fit themselves into the mold of utility regulation. What is feasible is the intermediate solution proposed by the WaSSIP project which includes registration under the Societies Ordinance and the adoption of the model Constitution that has been prepared (Chapter 10; Recommendations 10.4). Their accounts should be properly maintained according to standards and audited, but that should be by an entity other than the regulator, possibly an entity designated by the DNCWS, and for purposes outside utility regulation.

Most regulatory systems recognize the need to reduce the burden of compliance for small licensees. Based on estimated transaction costs and also the relatively smaller society and economy wide impacts, they are provided lighter forms of oversight. For example, the regulator should forbear from regulating tariffs when the users collectively approve how much they should pay for water. If the CBO distributes bulk water obtained under a regulated tariff, there may be justification for requiring that pricing be set within a band. Given the widespread concerns about water quality, there may be merit in retaining

[46] No conclusion is proffered on the allegation.

some formal authority over violations of license conditions pertaining to quality (more details in Chapter 5).

4.1.2 Water bowser operators

Water-bowser operators provide a service that is substitutable for piped water. The end users may not even know of the involvement of a bowser operator. Concerns were expressed at public consultations about the safety of the sources they draw water from and the adherence to safety standards in the bowsers: Are they stainless steel? Are they used solely for transport of water?

Some reported difficulties with other entities seeking to regulate them (e.g., at Northern Province consultation, as reported in Chapter 1, section 1.1). Though a business that is open to competition, and which should therefore be lightly regulated if at all, market power may exist because of privileged access to permitted water sources (e.g., not all operators being permitted to purchase water from a bulk supplier; or restrictions on drawing from surface water or groundwater sources). If a supplier of bulk water is engaging in discriminatory practices, the regulator may intervene at that point in the supply chain, using its competition powers.[47]

The regulator should be given the authority to license bowser operators, with the flexibility to include as few elements of regulation as required and in cases where market power does not exist, to forbear from regulation except for the basic requirements of quality and safety. Even in the latter case, the legitimacy provided by the license from the utility regulator should protect them from interference by others. Conditions related to adherence to standards set by health authorities or by the Sri Lanka Standards Institution may be included in the license, enabling remedial action in the event of violation.

Bowser operators who supply water that is not intended for drinking may have to be issued a different license, which does not include the health and safety related conditions. It is possible that they could be excluded from licensing, following consultations. If they are obtaining water from sources such as streams or reservoirs, they will require permits from the relevant Commissioner of Land; if from bore wells, authorization from the Water Resources Board. The measures recommended in Chapter 10 will have a bearing on this decision.

4.1.3 Septage service operators

A similar logic may be applied to gully-bowser operators, who are in a business that is not monopolistic on the face. Quality is not a concern, other than matters such as keeping appointments and cleanliness of the emptying of the pits, which can be addressed by including relevant terms in the licenses.

The one constraint the gully-bowser operators may face is with disposal in the septage treatment plants. Some problems were reported from the Southern and Western Province consultations. Because the alternative of illegal dumping in streams is very harmful but difficult to prevent, it is in the public interest to make legal disposal easy to do. Keeping the charges low for licensed operators and facilitating access to proper disposal facilities and the urgent construction of more is recommended (also discussed in Chapter 1, section 1.3.5).

[47] Public Utilities Commission Act, No. 35 of 2002, Chapter V (sections 22-27).

There is no reason to regulate prices charged to consumers, unless in exceptional circumstances. Licensing with forbearance on tariff regulation (see Chapter 3; Box 3.1 for explanation) would be the right solution. Unlicensed operators can be prosecuted. Offenses should be created for illegal dumping.

4.1.4 Suppliers of drinking water in containers

Drinking water is drinking water, however delivered. Users may apply all sorts of objective or subjective attributes to water they obtain through different modes, and value one mode more than another. In the North Central Province, some people will only drink purchased RO water from large or small containers and use piped water for non-drinking purposes. Though it could not be verified, it was even reported that people wanted the RO taste so much that chemicals were being added.

However, small changes in trust can quickly make the two fully substitutable. During drought, when piped water cannot be supplied, it may be necessary to supply household tanks using bowsers. Here, the substitutability is obvious, justifying the licensing of bowser operators as discussed above in section 4.1.

The case of bottled water is more problematic. Currently, bottled water plants are subject to the authority of the Food Control Administration Unit of the Ministry of Health, as described in Chapter 5, Section 5.1. As noted above, the 2010 National Drinking Water Policy specifically excluded bottled water perhaps because of the need to avoid duplication of effort and the resulting dysfunctions.

The conditions have changed since 2009 when the National Policy would have been formulated. The fears around CKDu and well water have led to a dramatic increase in the use of bottled water and RO water in various sized containers. Bottled water manufacturers appear to have a proper scheme of registration.[48] However, health officials at the provincial consultations expressed concern about the lack of a comprehensive scheme for regulating RO water suppliers. The Medical Officer of Health of Kurunegala stated that of the more than 25 RO plants that he was aware of only two were registered. As proposed in Chapter 5, discussion should be initiated with the Food Control Administration Unit of the Ministry of Health to devise a solution that may include the licensing of entities supplying drinking water in containers including bottles and an MOU to define the respective responsibilities.

4.2 Recommendations

Actions	To be taken by	Supported by
Licenses to be issued to provincial units of NWSDB and LGAs, describing all the services they are permitted to offer	PUCSL and Provincial Regulatory Units	
LGAs to ring fence their water and sewerage/septage operations & keep accounts separate	LGAs seeking licenses	Provincial Commissioners of Local Government
CBOs to be issued licenses that reflect their mode of operation	PUCSL and Provincial Regulatory Units	DNCWS
Bowser operators supplying drinking water to be issued licenses with tariff forbearance conditions	PUCSL and Provincial Regulatory Units	Medical Officers of Health & Sri Lanka Standards Institution

[48] http://eohfs.health.gov.lk/food/index.php?option=com_content&view=article&id=12&Itemid=153&lang=en

Conduct consultations on the issuance of licenses to bowser operators supplying water for purposes other than drinking	PUCSL and Provincial Regulatory Units	Provincial Commissioners of Land & Water Resources Board
Include provisions to allow competition-law based interventions to prevent discrimination at key points in the supply chain, such as access to bulk water	PUCSL and Provincial Regulatory Units	
Issue licenses to private gully bowser operators with forbearance conditions	PUCSL and Provincial Regulatory Units	
Initiate discussions that may lead to licensing of suppliers of drinking water in containers and/or an MOU with the Food Control Administration Unit of the Ministry of Health	PUCSL and Provincial Regulatory Units	Food Control Administration Unit of Ministry of Health

5.0 Quality regulation

As many who spoke at the consultations stated, in the early days of community water supply, what people wanted was water; they did not care about quality. But for many reasons, including fears associated with CKDu, quality has come to the forefront in recent times. For those who have water it is the prime concern, not price. Because consumers have come to understand they cannot judge the quality of the water they drink simply based on appearance and taste as in the old days, there is a strong demand for quality regulation, primarily in the form of ensuring the water is not harmful to health. The concept of safely managed water that is part of the SDGs includes availability, but this chapter will focus solely on the aspect of water that is not harmful to health and safety.

5.1 Health & safety regulation

Currently, the regulators active in the drinking-water space are the Public Health Inspectors and Medical Officers of Health they report to,[49] and the Food Control Administration Unit (FCAU) of the Ministry of Health. The former officials are concerned with the spread of disease through water, among other things. In addition to periodic testing of water at various points in the supply chain, public health inspectors will spring into action when the Medical Officer of Health is notified of a suspicious pattern of symptoms by the physicians on the curative side as was reported in Wekandawala, in the Hambantota District (Chapter 1, Box 1.1). These officials have significant powers to regulate the activities of entities that may pose threats to public health, including the imposition of heavy fines and closure.

The regulatory mode of the FCAU is derived from the approach in consumer protection. It focuses on standards and the alleviation of information asymmetries. In general, the principle is to give the buyer credible information that would reduce the inherent asymmetry of the commercial relationship, thereby allowing the consumer to make an informed decision. Obviously, industries where consumers have no choice because they are served by a monopoly require stronger regulation. The rules are stricter when it comes to goods or services that may prove harmful to the consumer, such as food. In this instance, there may be prohibitions the sale of items that do not meet minimum standards.

The FCAU has set out extensive conditions for the springs, tube wells, and dug wells that are the only permitted sources, which must be satisfied for the registration of a bottled-water manufacturing facility. Specifically, it requires that the source water is compliant with the SLS 61:2013 standard.[50] The recently enacted regulations of the Central Environmental Authority (CEA)[51] set out comprehensive standards for water used for drinking purposes which are applicable to the springs that are used as sources for bottled-water factories as well as surface water sources used for other drinking water systems. The regulations empower the CEA to issue directives to any local authority to “take appropriate measures to comply with” the standards. It is possible that some of the existing water supply schemes may have difficulty in meeting this standard. Awareness of these regulations appears low among suppliers of drinking water.

---

[49] A system that has been in place since 1913: Uragoda, C.G. (1987). *A history of medicine in Sri Lanka, from earliest times to 1948*. Colombo: SLMA, p. 150.

[50] http://eohfs.health.gov.lk/food/index.php?option=com_content&view=article&id=12&Itemid=153&lang=en

[51] Regulations under the National Environmental Act, No. 47 of 1980, Gazette Extraordinary 2148/20, 5 November 2019.

5.2 Water quality surveillance

In 2012, a Cabinet Memorandum jointly submitted by the ministries in charge of health and water supply to formulate a National Water Quality Surveillance (WQS) system was approved. An MOU formalizing the detailed terms and responsibilities between the NWSDB and the Ministry of Health (MOH) was signed, and an action plan formulated with the assistance of UNICEF.[52] The action plan was anchored on the WHO recommended water safety plans approach which required surveillance through the entire supply chain.

WQS Committees were established at National and District level. In addition, circulars were issued by the Director General of Health Services and the NWSDB providing instructions to all district and divisional officers. This WQS system which was functioning from 2012 made some contributions in the first few years but has now become dormant.

When a well-conceptualized policy intervention fails, it is useful to try to understand why. The Action Plan states that "one of the basic principles of an effective control system is the differentiation of the roles and responsibilities of service providers from those of regulatory public health oversight."[53] But it immediately violates the principle on the ground that MOH lacks the skills and the personnel and assigns both roles to the NWSDB reserving a vague oversight function for MOH. This error can be avoided if utility regulation is implemented.

A second reason for the gradual atrophying of the WQS committees could have been the lack of an agency with overall responsibility. MOH was the senior agency in the WQS design, but it is possible that water quality was not among its key performance indicators. Even if the PUCSL and the Provincial regulatory units are assigned the principal responsibility, this gradual decline of performance may occur. The only safeguard against that is external pressure from those who suffer the adverse consequences of poor quality. The regulatory scheme should include specific channels through which concerned citizens can communicate their grievances and the regular publication of data on quality surveillance accessible to concerned citizens.

A third reason is likely to have been the lack of specified enforcement mechanisms. Regulation in the form of holding suppliers accountable for violations of license conditions offers a solution. However, it is important to be realistic in defining the obligations. If overly complex obligations are imposed on suppliers who lack the capacity, the mechanism is bound to fail over time. This is why it is proposed below that WSPs be introduced gradually and that they should not be included as license conditions in the first instance.

---

[52] Shanmugarajah, C.K., et al. (n.d.) Plan of Action for the Implementation of Water Quality Surveillance System in Sri Lanka. http://www.waterboard.lk/web/images/contents/miscellaneous/plan_of_actions_for_the_impl_of_wqss_in_sl.pdf

[53] Shanmugarajah, C.K., et al. (n.d.) Plan of Action for the Implementation of Water Quality Surveillance System in Sri Lanka, p. 5. http://www.waterboard.lk/web/images/contents/miscellaneous/plan_of_actions_for_the_impl_of_wqss_in_sl.pdf

5.3 Utility regulation

Conventional utility regulation has traditionally given the greatest weight to economic incentives related to pricing and coverage. However, quality, and social and environmental factors are increasingly being incorporated into regulatory practice. In some cases, the economic incentives built into tariff design may have the unintended effect of degrading quality. For example, price-cap regulation which creates strong incentives to reduce costs may result in reduced operations and maintenance expenditure and thereby, in lower quality. In such cases, the regulator will build in safeguards for quality such as citizen or consumer charters whereby specific payments have to be made to customers when quality standards are not met.

In other cases, such as after the England and Wales reforms, the regulator provided specific incentives to improve quality of service by including in the price-cap formula elements to incentivize the upgrading of the infrastructure that had a strong bearing on the quality of service.[54] Unlike with price, quality is difficult to regulate because of the absence of parsimonious and objective indicators. Consumers may complain about quality but may not be willing to pay for quality improvements.

In utility regulation it is necessary for the elements subject to regulation such as quality to be embedded in the license. The elements that may be included in the licenses and the procedures by which they are issued and modified and the consequences of the breach of their conditions must specified in the WSS Sector Act. The regulator's powers are defined by the license. Because terms of licenses are relatively long (e.g., 10 years for major suppliers), it may be difficult to completely specify the conditions regarding quality standards in the license itself. It may, therefore, be necessary to include references to standards and regulations in the license rather than fully specify them in the document. To reduce the risks of unpredictable burdens being imposed, the procedures by which the standards may be modified are normally specified.

In the Sri Lankan WSS industry, the suppliers range from the well-endowed NWSDB which currently serves close to half the households in the country to small CBOs that serve as few as 100 households. It is accepted in regulatory practice to consider differential burdens of compliance and impose fewer obligations on suppliers below a specified threshold. However, in matters that affect health and safety, certain obligations cannot be reduced. For example, the Food Act, No. 26 of 1980, prohibits the manufacturing, importation, sale or distribution of any food that is unfit for human consumption. Since bottled water is being regulated as food, the argument may be extended to piped water too.

Quality-of-service standards may be differentiated between those about health and safety (e.g., SLS 614 standard or those derived from the WHO guidelines) and those about customer service (e.g., prior notice of service interruptions, accuracy of meters and bills). Small suppliers below a defined threshold may be exempted from some, or all, of the latter or be allowed greater flexibility.

Flexibility about health and safety related standards for small CBOs serving sparsely populated rural areas poses a difficulty. Given the general applicability of the Food Act and public-health regulations, it is not possible for another regulatory body to exempt them from standards intended to ensure health and

[54] Van den Berg, C. (1997). Water privatization in England and Wales. Note 115. *Viewpoint*. https://openknowledge.worldbank.org/bitstream/handle/10986/11585/multi0page.pdf?sequence=1&isAllowed=y

safety. However, the NWSDB and the larger suppliers may be held to higher standards beyond SLS 614 or even those derived from WHO guidelines.[55]

The testing frequencies and modalities applicable to small CBOs and LGAs need not be the same as those for the provincial NWSDBs and LGAs with large customer bases and the necessary resources for compliance. It is recommended that the regulator conduct pilot trials across a range of suppliers to assess the compliance costs that may be reasonably imposed.

It is easy for regulators of all kinds (including those such as the Food Control Administration Unit) to impose conditions on suppliers. But the efficacy of regulation depends on how these conditions are enforced. It is, for example, easy to impose rigorous conditions at the moment of granting the license, including the conduct of inspections and testing with chain of custody by government officials.[56] Conducting random or scheduled tests of the water consistently during the course of the license term is the more challenging task.

All licensees should be required to conduct periodic tests of water quality and communicate the results in easy-to-understand form (graphical, with comparison ranges) to their customers along with bills or otherwise, and to report such actions to the regulator. The form of communication must be greatly improved from what is currently practiced, where the latest, difficult-to-understand report is 30 months old.[57] The frequency of these communications and their formats should vary according to the nature of the supplier. The requirement imposed on the NWSDB or the LGA to use bill inserts, for example, should not apply to a CBO that does not generate printed bills. Instead, they may be required to post a detailed report in a central location in the village and perhaps send a summary through SMS. The objectives here are the reduction of the information asymmetry and the building up of trust. Users should be able to understand the quality of the water they are receiving.

If producers of bottled water are brought within the scope of licensing, it will be necessary to enter an MOU with the Food Control Administration Unit of the Ministry of Health on the one hand and the PUCSL and the regulatory units in the Provincial Councils on the other, on establishing a rational quality regulation regime without duplication. The Central Government has the authority to set national policy.[58]

Obligatory scheduled testing by the licensee must be complemented by random, unannounced testing by the regulator. This is no simple task because it is likely that there will be around 5,000 licensees scattered across the country, many operated by unpaid officials with a few part-time employees. These tests must be conducted under strictly controlled conditions that give weight to possible use as evidence that may be used in license-condition violation proceedings and/or in court, if it is found that the licensee has willfully misrepresented relevant information that is required to be submitted by the terms of the license.

---

[55] WHO (2017). Guidelines for drinking-water quality: fourth edition incorporating the first addendum, chapter 4. Geneva: World Health Organization. Licence: CC BY-NC-SA 3.0 IGO.

[56] An example may be found in the procedures set out for the approval of bottled-water suppliers by the Food Control Administration Unit: http://eohfs.health.gov.lk/food/index.php?option=com_content&view=article&id=12&Itemid=153&lang=en

[57] http://www.waterboard.lk/web/index.php?option=com_content&view=article&id=139&Itemid=387&lang=en

[58] List II of Ninth Schedule of the Constitution.

Chapter 10 presents recommendations on how water-quality testing can be brought closer to the CBOs and end users and how the current transaction costs (three trips to a distance location for one test according to some presenters at the consultations) may be reduced.

5.4 Water Safety Plans (WSP)

WSPs represent the best practice in ensuring water safety from source to consumption. It is commendable that the NWSDB has made considerable progress in adopting this approach. DNCWS also reports that it is promoting WSPs among CBOs.

Given the many improvements that need to be made in water supply and the reported capacity constraints, especially among CBOs and LGAs, it not recommended that they be made mandatory elements that are incorporated into the licenses at the outset. The current promotion of WSPs should be continued and additional resources devoted to related capacity building, with the intention of making them mandatory elements that are enforced by the regulator in the medium term.

It is recommended that an assessment of the status of adopting and implementing WSPs be conducted and that tailored capacity-building programs be designed based on the findings. It may be possible to introduce regulations on WSPs at a later point and replace the more rudimentary quality-related terms in the licenses with conditions crafted around WSPs once the regulatory regime has stabilized and the immediate priorities of extending service to all have been achieved. Again, the heterogeneity of the licensees must be taken into account with lighter obligations being imposed on small suppliers.

5.5 Support for those who self-supply

There will always be households that self-supply from protected wells on their own land because it is convenient or out of preference, as stated at some consultations. When habitations are spaced well apart safety of the water is likely, but it is still advisable to arrange regular testing for the self-supplying households to identify the dug wells and other sources which may be safely continued. In situations where it is not possible to provide piped supply, it would be necessary to provide household treatment systems to those with unsafe systems.

5.6 Recommendations

Actions	To be taken by	Supported by
Increase awareness of 2019 regulations for quality of water from sources that are used for production of drinking water	CEA	
Negotiate remedial plans if any water sources used by CBOs fail to meet the CEA drinking water source standards	DNCWS	CEA
Include provisions on quality regulation, including offenses, in the WSS legislation that is to be prepared	Ministry	PUCSL & Provincial Councils
Incorporate quality-related conditions in licenses that allow for periodic updating of standards and procedures through regulations	PUCSL	Provincial Councils

Design lighter conditions for small operators that require less frequent mandatory testing and less burdensome quality obligations related to customer service, after pilot testing	PUCSL	Provincial Councils
Consider imposing higher standards than those under health & safety laws & regulations for large operators	PUCSL	Provincial Councils
Enter MOU with Food Control Administration Unit of Ministry of Health on a cooperative arrangement to regulate suppliers of water in containers, including bottles	PUCSL & Provincial Councils	MOH
Licensees to be required to conduct periodic tests of water quality and effectively communicate results customers along with bills or otherwise, and to report such actions to the regulator	PUCSL	Provincial Councils
Random, unannounced tests to be conducted	Regulatory units in Provincial Councils	PUCSL
Current promotion of WSPs should be continued & additional resources devoted to related capacity building	NWSDB, DNCWS &LGAs	
Commission study of adoption and implementation of WSPs	PUCSL	
Conduct tailored capacity-building programs	Ministry, DNCWS, PUCSL	
Consider introducing regulations to regulate quality based on WSPs and modify licenses accordingly after around five years	PUCSL	
Arrange for periodic testing of dug wells in households that self-supply; and in cases that are unsafe, provide treatment kits	DNCWS	

6.0 Price regulation

In most countries, formal utility regulation is introduced in the context of sector reforms that have objectives such as the promotion of investment to increase connectivity or the achievement of related ends such as reduction of non-revenue water (NRW). Putting in place safeguards against monopoly pricing is one of the most important considerations when the regulated entities are private firms that are expected to mobilize the necessary investments. Rate base rate of return (RBROR) regulation was the traditional method used in Canada and the United States for many decades wherein the regulator determined what elements could be included in the rate base and then ruled on what rate of return would be allowed. The idea was to allow the utility to recover all legitimate costs and make a reasonable return on the investment.[59] It is straightforward and apparently simple, but in actual practice turned out to be quite convoluted.

In the wave of reforms originating in the UK in the 1980s, a different mode of regulation known as price cap regulation was introduced. Here, the basic design was to anchor tariff revisions on some external index such as the Retail Price Index (RPI), which would be adjusted by efficiency and/or investment factors, the RPI-x+k formula (where RPI represents general price increases in the economy; x is the efficiency factor and k is the investment factor) associated with OFWAT, the UK water services regulator. This method was seen as simpler than the RBROR mode that had grown overly complex and one that provided stronger incentive for investment and efficiency. However, price cap regulation resulted in some negative outcomes caused by financial engineering where the assets of the regulated firm were essentially mortgaged to increase shareholder revenues. As the regulators tried to close off these abuses, the price cap method began to resemble the overly complex RBROR method, with methodology documents running into thousands of pages.[60]

Fortunately, policy makers and regulators in Sri Lanka do not have to worry about sophisticated financial engineering techniques being applied because none of the regulated entities (except in ancillary services such as bowsers) are profit oriented; the state owns 100 percent of the major supplier. Therefore, what is recommended with regard to prices is the granting of broadly worded authority to regulate rates of return on investment and prices, along with explicit power to forbear from regulation. Authority to set prices based on benchmarks and cost -based formulas should also be included in the legislation. In the same way that regulators in advanced economies present draft methodologies, obtain input from experts and stakeholders, and adopt a final document that remains stable for several years, it will be necessary for the PUCSL to define the method used in a five-year or such period in greater detail. Ideally, the first iteration will be quite simple and easy to implement.

Given the hybrid form of regulation that is being proposed, it is important that the provincial regulatory units should be able to perform their duties with the support of the PUCSL. An effective solution will be one that is based on a realistic understanding of the capacity of these units. The approach should be one of starting simply, building capacity and moving on to greater complexity as required over time.

---

[59] Baldwin, R.; Cave, M. (1999). *Understanding regulation: Theory, strategy and practice*. Oxford: Oxford University Press, ch. 17.

[60] Helm, D. (2018). RIP RPI-X Regulation - OFWAT and OFGEM nail down the coffin. http://www.dieterhelm.co.uk/regulation/regulation/rip-rpi-x-regulation-ofwat-and-ofgem-nail-down-the-coffin/

6.1 Categories of licensees

Below are brief comments on the key groups that need to be regulated (or not) in terms of price. A suggestion that a particular set of service suppliers should be exempted or forborne from price regulation does not necessarily extend to regulation in terms of quality or other aspects of overall performance.

6.1.1 Successors to the RSCs

These will be the major suppliers in most, if not all, provinces. The Provincial NWSDB will be offering multiple products and services, ranging from sewerage services, septage treatment services, bulk water, to piped water to residential, industrial, commercial and other categories of users. It will also be offering services such as testing, hydrogeological expertise, etc. Based on data collected by the PUCSL (described in chapter 7), attention will be focused on the most significant services, perhaps allowing complete freedom to price the ancillary services, or to vary prices within a band with only a requirement of reporting the new prices to the regulatory authorities, or to have price regulation forborne with conditions specified for regulation to be reimposed. In either case, reporting prices to the PUCSL will be mandatory.

6.1.2 Local Government Authorities

These suppliers are similar to the provincial NWSDBs discussed in 6.1.1 above. Because an LGA has many lines of business, it will be necessary to require them to segregate the accounts of their water/sewerage/septage operations so that proper cost data can be gathered.

6.1.3 Community Based Organizations

Generally, these suppliers provide only a limited number of services, in most cases only one. As long as they follow a constitution that requires them to democratically set tariffs and limits on non-water activities, they can be exempted from price regulation. In cases where they purchase water from any of the above major suppliers and resell them the options are of allowing that activity to be treated under the general rule or of allowing a reasonable markup only.

6.1.4 Water Bowser Operators

The water bowser operations of the provincial boards and LGA will be covered under their general licenses, unless in exceptional circumstances. The pure water-supply bowser operators will be privately owned. There is no inherent reason for monopoly to exist or emerge in the supply of water to residences or to industrial or similar customers. Even if there is only one supplier at a point of time, if there are no natural or artificial barriers affecting the sourcing of water, the contestable nature of the business will keep the operator from engaging in monopoly behavior.[61] Therefore, the presumption must be that they should be exempt from price regulation.

6.1.5 Septage Service Operators

Again, gully bowser operations of the provincial NWSDBs and LGAs will be covered by their general licenses. Licenses solely for gully bowser operations will be granted to private firms. Unless the opportunity to dump fecal sludge in septage treatment plants is constricted in some fashion, as is currently the case in Hikkaduwa, there is no reason for there to be monopolies in septage services. The principal reason to license them is to assure access to legal dumping sites and to prevent illegal

[61] https://www.economicsonline.co.uk/Business_economics/Contestable_markets.html

dumping. Underpricing by NWSDB or LGA gully bowsers supported by cross-subsidies may provide a reason for the regulator to intervene. However, if inefficiencies or procedural problems in the state institutions make their gully bowser operations unattractive to residential or industrial customers, it may be possible to desist from intervention.

6.1.6 RO Water Vendors

Especially in areas afflicted by CKDu, this is a fast-growing segment of supply. It is a marketing driven segment with active competition at play. Again, the rationale for licensing is to ensure adherence to quality standards. They may be subject to regulation under the Food Act, No. 26 of 1980, which prohibits the manufacturing, importation, sale or distribution of any food that is unfit for human consumption. The question of whether their prices need to be regulated will have to be decided in consultation with the Food Control Administration Unit (FCAU) of the Ministry of Health.

6.1.7 Bottled Water Manufacturers

This category is currently registered with the Food Control Administration Unit (FCAU) of the Ministry of Health and subject to supervision under the Food Act, No 26 of 1980. In the unlikely event this competitive segment is seen as requiring price regulation, it would have to be decided with the FCAU.

6.2 Recommendations

Actions	To be taken by	Supported by
Broadly worded authority to regulate rates of return on investment and prices, along with explicit power to forbear from regulation should be included in the legislation. Authority to set prices based on benchmarks and cost -based formulas should also be included.	Ministry	PUCSL
Define the price/rate regulation method used in a five-year or such period in greater detail	PUCSL	Provincial regulatory units
At inception, study the various market segments and decide on the form of regulation that will be applied to the different categories of suppliers	PUCSL	

7.0 Centrality of information

In Chapter 2, regulation was defined as "the sustained and focused control exercised by a public agency over activities that are valued by a community. It restricts certain behaviors and prevents the occurrence of certain undesirable activities. It also may be used to enable or facilitate desirable outcomes." When an entity is being controlled by a public body in a manner that prevents certain actions and encourages or requires certain other actions that yield outcomes desirable to the controller, it becomes a manifestation of the classic principal-agent problem. The agent has its own preferences (greater revenues, more employees,[62] the quiet life,[63] etc.) which differ from those of the principal. The agent enjoys an informational advantage over the principal.

The principal (the regulator in this instance) seeks to align the incentives of the agent (the licensed supplier of WSS that is subject to regulation) to its own and to reduce the information gap. The RBROR form of cost-based price regulation discussed in Chapter 6 does not create adequate incentives for efficiency and indeed has within it, incentives to "gold-plate" the system, or to increase the costs.[64] When the rate of return is calculated as a percentage of the permitted rate base, the greater the rate base the bigger is the return.

To prevent this undesirable outcome, the regulator (the principal) is motivated to seek detailed information about the cost items that go into the rate base. The regulated entity (the agent) is similarly motivated to dissimulate the justifications for the costs of items proposed for inclusion in the rate base. The tussle between the regulator and the regulated entity over the veracity of the information relevant to the calculation of the rate base is one of the central tensions of traditional utility regulation.

Price-cap or the RPI-x+k form of regulation that was pioneered in the UK in the 1980s was intended to reduce this tension. But over time it became evident that the regulator still needed significant amounts of information to implement price-cap regulation in a manner that served the public interest.[65] If inefficiencies or rents (including kickbacks) were included in the computation, the outcome would be higher prices paid by the consumers year upon year.

The principal-agent problem cannot be eliminated. Its form can be changed; the incentives of the agent, including those for yielding accurate information, can be better aligned with the interests of the principal. But the need to obtain accurate and complete information from the regulated entity never goes away as long as it is subject to regulation.

7.1 Uniform System of Accounts

Financial data are the most informative about the functioning of any organization. In all modern economies, uniform systems of accounts exist. Accounting and auditing standards are followed in the

[62] Niskanen, William A. (1968). Non-market decision making: The peculiar economics of bureaucracy. *The American Economic Review*, 58(2), Papers and Proceedings of the Eightieth Annual Meeting of the American Economic Association, pp. 293-305.
[63] Hicks, J.R. (1932). Annual survey of economic theory: The theory of monopoly. *Econometrica,* 3: 1-20.
[64] Averch, H; Johnson, L.L. (1962). Behavior of the Firm Under Regulatory Constraint, *The American Economic Review*, 52(5): 1052-1069.
[65] Helm, D. (2018). RIP RPI-X Regulation - OFWAT and OFGEM nail down the coffin. http://www.dieterhelm.co.uk/regulation/regulation/rip-rpi-x-regulation-ofwat-and-ofgem-nail-down-the-coffin/

reporting of accounts of all companies. Specialized systems have been developed for various industries, such as petroleum. Water regulators have developed their own systems.[66]

Given the absence of private suppliers, it is possible to work with a much simpler uniform system of accounts in the present context, especially in the early stages for which simple cost-based price regulation is proposed. There is no need to apply the same rules for all licensees, especially the small entities whose prices will not be regulated. Because of the availability of digital means, it is proposed that the accounts be designed from scratch in digital form with real-time transmission of data to the regulator. Provision should be made for the verified, approved, and audited accounts to be transmitted periodically.

Continuous training will be required for the uniform system to yield the desired results. When a system used elsewhere is adapted for use here, it will be necessary to include new elements to address the requirements of benchmark regulation. It is customary to adopt uniform systems after consultation with stakeholders.

7.2 Analysis

The most important role that will be played by the PUCSL is in providing a template formula to the regulatory units in each of the provinces, which will insert the cost elements appropriate for that Province.

Theoretically, it should not be the plugging in of reported costs. That would remove all incentives for efficiency and disincentives for the lack thereof. But with no profit-motivated entities as suppliers, setting rewards and disincentives is a major challenge as discussed in Chapter 3. Depriving underperformers of investment funds will not change their behavior, but may only set them off on a downward spiral that would harm the consumers they serve.

So, what is proposed is that the reported costs be interrogated, and explanations sought for deviances. And then the revised and accepted costs should be inserted, based on which the permitted revenue should be calculated the tariffs computed. Because the costs will be different in the different provinces, this will result in different prices. Wide divergences among provinces may have to be addressed, as discussed in Chapter 8.

The PUCSL will have to come up with innovative solutions whereby the poor performance of the laggards is clearly contrasted with the indicators of the benchmark operator. This will not be limited to financial indicators but will also include quality indicators such as samples that fall outside the accepted ranges and so on.

7.3 Data on quality

Given the weight given to quality in the public consultations, it will be important to design a transparent system whereby regulators as well as users are provided with easy-to-understand indicators of quality as described in Chapter 5.

[66] For a general introduction: NARUC (2019). *Regulatory accounting: A primer for utility regulators*. Washington DC: USAID. https://pubs.naruc.org/pub.cfm?id=EE6402E5-155D-0A36-31F8-36FEBB6D4E44. For an example of a uniform system of accounts for water and wastewater, see: https://www.flrules.org/gateway/ruleno.asp?id=25-30.115.

Good quality indicators rest on clear and agreed-upon definitions and methodologies. An expert committee should be tasked with developing consensus on practical sets of indicators and methodologies based on Sri Lankan standards and WHO guidance for classes of suppliers, as described in Chapter 5.[67] It is customary to revisit such indicators and methodologies periodically to ensure they reflect the policy requirements. Involvement of, and pressure from, consumer groups will be important to this.

7.4 Transparency

If one looks at the 20+ years of experience of the oldest utility regulator in Sri Lanka, the Telecommunications Regulatory Commission, one will not see a great deal of transparency on industry data and performance indicators.[68] In some sectors with competition, there is resistance to disclosure of information.[69] In the Sri Lankan WSS sector, with no significant private participation and little competition, such considerations do not apply. If the culture of openness is promoted from the very outset and pressure is maintained by consumer groups who are the ultimate beneficiaries of good sector performance made possible by effective regulation, transparency should be achievable.

7.5 Enforcement

Ideally, data will be reported without compulsion. However, the Public Utilities Commission Act, No. 25 of 2002, contains powers to obtain information (s. 15) and to enforce such requests through the courts (s. 21).

7.6 Recommendations

Actions	To be taken by	Supported by
Appoint expert committee to build consensus on a uniform system of accounts for WSS sector, ideally preceded by the preparation of a draft by a consultant	PUCSL	
Develop training programs for data reporting and analysis	PUCSL	
Develop formula-based methodologies that can be used by provincial regulatory units to set tariffs	PUCSL	
Devise ways to display efficiency and quality performance of regulated entities in contrast with benchmarks	PUCSL	

[67] WHO (2017*). Guidelines for drinking-water quality: fourth edition incorporating the first addendum, chapter 4*. Geneva: World Health Organization. Licence: CC BY-NC-SA 3.0 IGO.
[68] http://www.trc.gov.lk/images/pdf/SectorAnalysis_18042018.pdf
[69] Wigglesworth, W.R.B. (1997). The role of information in telecom regulation, in Melody, W.H. (ed.), *Telecom Reform: Principles, policies and regulatory practices*, chapter 21. Lyngby, Denmark: Den Private Ingeniorfond.

8.0 Subsidies to ensure clean water and sanitation for all

SDG 6, "clean water and sanitation for all," sets out universal access to water suitable for drinking and sanitation services by 2030 as a global commitment. Perhaps more than any other, the current government of Sri Lanka has raised the priority given to safe drinking water for all. It wishes to advance the achievement of SDG 6 to 2025.

Currently eight percent of households are not served at all. An estimated 38.7 percent of households self-supply from protected dug wells, rainwater harvesting systems, and nearby public point sources including hand pumps and dug wells. Ensuring the eight percent have access to safe water is essential if Sri Lanka is to meet the SDG 6 Goal. A significant proportion of the 38.7 percent currently supplying themselves, may not be using water that is safely managed, as defined under the SDGs.

Some of those who are counted as being served by the NWSDB, the LGAs, or CBOs, are not getting water in sufficient quantity at the required levels of quality and the times when they need the water. In areas affected by drought, many who are normally served by pipelines have to make do with weekly supplies by bowser. In too many areas, especially in areas with CKDu, people are losing trust in conventional water supplies and are shifting to bottled water at high cost. It is possible, in some cases, that these "workaround" costs have taken the costs for water incurred by significant proportion of those in the lower deciles close to, if not above, the accepted upper limit of five percent of income.

The NWSDB currently provides 2.6 million connections[70] among which are close to half the households in the country. State-owned public utilities, however short they fall in serving all citizens/households, routinely claim that their priority is universal access and that they provide services to more customers than a profit-oriented private entity would. They state that internal cross-subsidies are essential for this. They claim that the principal reason universal access has not been achieved is lack of funding by government.

The solution is not simply more money, but money from sources with low cost of money (as reflected by the weighted average cost of capital (WACC)) and money spent efficiently. If not, prices will be too high or the burden on the taxpayer will be excessive.

Currently, the availability of funds for capital investments appears good, with the 2021 budget allocating LKR 76 billion for 2020 and LKR 101 billion for 2021 development expenses by the Ministry of Water Supply; and LKR 2.6 billion for 2020 and LKR 4 billion for 2021 for development expenses by the State Ministry of Community Water Supply, in both cases significantly higher than the amounts allocated in 2019.[71] In line with recent past practice, the funds for projects executed by the NWSDB will also include public guaranteed debt amounting to LKR 102 billion in 2019 and LKR 138 billion in 2020.[72]

However, given the somewhat parlous condition of public finances in the context of the pandemic and the associated economic downturn, there may be value in leaving room for other sources of funding

[70] Central Bank of Sri Lanka (2021). *Annual Report 2020*, p. 91.
[71] https://www.treasury.gov.lk/documents/budget/2021/2021_aprovedBE_English_V_1.pdf
[72] Central Bank of Sri Lanka (2021). Annual Report 2020, p. 162. https://www.cbsl.gov.lk/sites/default/files/cbslweb_documents/publications/annual_report/2020/en/10_Chapter_06.pdf

such as bonds and PPPs, as discussed in the 2020 Comprehensive Strategic Investment Plan (CSIP).[73] As pointed out in the CSIP, much has to be done to prepare the NWSDB or its provincial units for this kind of financing. Their recommendations included the signing of the Statement of Corporate Intent (SCI) for 2020-22, which does not appear to have been done yet. Cleaning up the balance sheet and setting in place a stable regulatory environment that would make it possible to make accurate projections of revenues are among the actions undertaken, and hopes expressed, at various times.[74]

In addition to directly commanding state-owned utilities to provide services to the unserved, the state also provides project funding and various other incentives to ensure more households are served. But unless efficiency is also addressed in program design, the results will be suboptimal. To reduce the inefficiency and rent-seeking behaviors commonly found in monopolies including state owned enterprises, it is necessary to make transparent the cost elements. For this, it is necessary to replace opaque cross subsidies with transparent mechanisms. Experience in other utility industries where serious efforts have been made serve all citizens has shown that universal service funds that allow the targeting of subsidies to achieve desired outcomes are superior to cross subsidies and universal service obligations.[75] However, experience has shown the necessity of designing subsidy programs carefully to avoid slow or no disbursements and to tie the funds to specified outputs.[76]

The very phrase “public utility” implies that all members of the public require access. Public utility industries tend to exhibit declining unit costs within the range of the designed system, making them monopolistic. Monopolies tend to undersupply services, especially to the margins of the market where costs are high, and where revenues are seen as possibly inadequate to cover costs. These services also exhibit significant positive externalities, as evidenced by universal availability being adopted as a commonly agreed upon SDG. As in any utility industry, those who remain unserved are the ones most difficult to serve and the most expensive. They are also likely to be the households with limited ability to pay for the connection (likely to be far from roads in many cases) and for the use-based tariff.

Therefore, all regulators (formal and informal[77]) exert pressure on suppliers to extend services beyond the customers they willingly serve. Thus, it may be said that all public utility regulation includes a universal-service component. But this does not mean that the regulator should necessarily be directly involved in administering the subsidies.

8.1 Subsidies and their administration

The costs of administering a subsidy and the possible inefficiencies it may cause must be built into the design of a subsidy program. In the WSS sector, initial capital costs dwarf operation & maintenance (O&M) costs. Because of the length of the transmission mains, the need to pump water, population density, and the quality of the raw water, O&M costs may vary from location to location.

[73] Hiejen, H.; Premanath, L. (2020). *Final Report (Volume I) Comprehensive Strategic Investment Plan and Road Map for the Water Supply and Sanitation Sector in Sri Lanka,* p. 154.
[74] NWSDB and Ministry of Finance. Statement of Corporate Intent, 2017-2020, p 11.
[75] Serra, Pablo (2000). Subsidies in Chilean public utilities. https://openknowledge.worldbank.org/handle/10986/21335
[76] Samarajiva, R. & Hurulle, G. (2019). Metrics to improve universal-service fund disbursements, *Digital Policy, Regulation and Governance*, 21(2): 102-114. https://doi.org/10.1108/DPRG-07-2018-0035
[77] The Ministry of Finance functions as an informal regulator, through its ability to attach conditions to funds given to NWSDB.

8.1.1 Continue current practice

Even if not described as subsidies, the current practice is for funds needed for capital investments by the NWSDB to be allocated from the Consolidated Fund and from domestic commercial banks as loans guaranteed by the government. The NWSDB prepares project proposals which are approved by the National Planning Department with various conditions attached. Normally, the NWSDB is expected to repay the loans from its own funds.

The grant from Treasury covers of 50 percent of the capital cost of urban water supply projects and 75 percent of rural water supply project. The grant covers 100 percent of the cost of sewerage projects and water supply projects intended to reduce CKDu incidence. The NWSDB has to raise the remaining 25 or 50 percent of the cost of rural and urban water projects internally. Given the demands from the rather high proportion of personnel costs (50.4 percent),[78] it is possible that NWSDB is raising the counterpart funding from banks.

The expectation is that the revenue collected from various classes of customers will cover all operations and maintenance (O&M) costs, the costs of paying salaries and benefits to approximately 10,000 employees, repayment of loans and sums owed to Treasury, and some of the investment requirements as described above. Because tariff revisions are delayed (the last revision was nine years ago, in 2012), it was reported that the repayments of loans have had to be looked after by Treasury.[79] Currently, the NWSDB has excluded the cost of money from its financial scenarios. Its 2020-25 Corporate Plan states: "Since Treasury is considering the financing of these projects by treasury funds, **the loan repayment involved with capital investment is not taken into consideration**."[80] This assertion was directly contradicted by the Secretary of the Ministry of Water Supply, who said that the government would not be responsible for loan repayments after 2021.[81]

NWSDB accounting is said to indicate that many low-use customers are provided with services below cost, or are cross-subsidized. It is possible that costs of monthly billing and collection for the small amounts due from these customers are equal to or more than the revenues so generated.

CBOs do not receive grants or government-guaranteed loans directly intended for WSS projects. Many, if not all, CBOs receive funding for setting up and rehabilitating their systems from various projects negotiated by the government.[82] These funds were supplemented by financial and in-kind contributions by the founding members of the CBOs. They are expected to cover their O&M costs and fund any expansions or improvements from their own revenues.

Even municipalities with long-standing WSS operations such as Kandy complained of lack of resources. The Kandy Municipal Council was reported to be providing free or heavily subsidized services to schools,

[78] Hiejen, H.; Premanath, L. (2020). *Final Report (Volume I) Comprehensive Strategic Investment Plan and Road Map for the Water Supply and Sanitation Sector in Sri Lanka,* p. 150.
[79] Hiejen, H.; Premanath, L. (2020). *Final Report (Volume I) Comprehensive Strategic Investment Plan and Road Map for the Water Supply and Sanitation Sector in Sri Lanka,* p. 152. See also NWSDB Corporate Plan 2020-25, p. 51.
[80] NWSDB (2021). Corporate Plan 2020-25, p. 47.
[81] At meeting at Ministry, 8th July 2021.
[82] For details of ongoing WASH investment projects, see Hiejen, H.; Premanath, L. (2020). Final Report (Volume I) Comprehensive Strategic Investment Plan and Road Map for the Water Supply and Sanitation Sector in Sri Lanka, section 12.5.

religious establishments, fire hydrants and non-commercial welfare schemes which may be a contributory factor. But in general, most if not all the LGAs that presented their views appeared to be seriously under-resourced. The representatives of Pradeshiya Sabha were particularly vocal about the lack of resources, even to purchase gully bowsers needed to respond to requests to dispose of septage.

The Local Loan and Development Fund (LL&DF) has been established under the Local Loans and Development Ordinance No. 22 of 1916 to serve LGAs. The LL&DF provides long-term loans to Municipal Councils, Urban Councils & Pradeshiya Sabha for their capital investments at concessionary rates of interest. Funds are mainly provided by Treasury and are given to LGAs in response to proposals that are evaluated and approved by a management board.

There appears to be little utilization of the LL&DF. The existence of a state enterprise dedicated to WSS and the difficulties LGAs have in preparing viable proposals were offered as explanations by some officials. The Chairman of the Karuwalagawewa Pradeshiya Sabha recounted the barriers he had to surmount in obtaining a loan from the fund, including the difficulty in formulating a proper proposal with estimates (originally costed at LKR 85,000, but done free in the end) and the grant of a loan that was not for the full estimated cost (LKR 21,000,000, not LKR 28,500,000).[83] Had there not been a committed leader who was willing to take risks and who succeeded in mobilizing local resources, the project may have failed. Indeed, there had been a failure earlier.[84] The items remaining from the previous project may have been used in the completion phase.

The current deployment of subsidies is uneven. Households that have no supply or provide their own WSS services receive no subsidies at all. The 12 percent who receive services from LGAs and CBOs receive no subsidies for recurrent charges. Many may have benefited from subsidies at the time the WSS systems were constructed. The 43 percent of households served by the NWSDB, where the "cost of a connection is a little more than twice as expensive as a rural water supply scheme connection,"[85] receive the bulk of the government support, both in terms of capital and recurrent-cost subsidies. Technically, it is expected that the NWSDB will cover its recurrent expenditures and its loan and interest payments from the charges levied from customers, but in most years, the NWSDB cannot. Treasury is contributing LKR 15 billion and LKR 21 billion for 2020 and 2021 respectively, with similar assistance being expected until 2025.[86] This puts into question the claim that the NWSDB earned LKR 532.9 million in profit in 2020 and highlights the need for proper presentation of accounts.[87] When Treasury absorbs those losses, it is providing subsidies.

The current practice is unfair, with public resources being disproportionately granted to a state-owned utility that serves less than half the households in the country and the CBOs that serve difficult areas left to fend for themselves with little help. The capital subsidies are approved case-by-case by the National Planning Department (NPD), based on national priorities. The fact that few sewerage projects have been approved, despite the implied prioritization indicated by the 100 percent grant element suggests that complex factors are at play in the prioritization of proposals by the NWSDB and approval by the NPD.

---

[83] https://www.youtube.com/watch?v=T3nzVdtivzs

[84] https://www.facebook.com/NewsfirstSL/videos/1580282682031984

[85] Hiejen, H.; Premanath, L. (2020). *Final Report (Volume I) Comprehensive Strategic Investment Plan and Road Map for the Water Supply and Sanitation Sector in Sri Lanka,* p. 149.

[86] NWSDB Corporate Plan 2020-25, p. 49 (Table 3.5).

[87] Central Bank of Sri Lanka (2021). Annual Report 2020, p. 91.

Perhaps the revenue yielding potential of the 50 percent subsidized urban water projects overrides the incentive provided by the 100 percent grant element associated with sewerage which yields little or no revenue.

The CBOs that serve areas far from the urban centers do not get the regular infusions of funds that the NWSDB receives, despite facing greater challenges in terms of terrain, population density and even the ability to pay on the part of customers. But it must be noted that many of the CBOs received significant subsidies, amounting to as much as 80-90 percent of capital costs from various projects initiated by government.

LGAs, generally serve densely populated areas (with some exceptions such as the Karuwalagasweva Pradeshiya Sabha water supply scheme), are also excluded from the subsidies enjoyed by the NWSDB. A revolving fund for CBOs has been under discussion for years, but nothing has materialized. In theory, the LGAs have a source of credit, but this does not appear to yield the needed capital to upgrade water service or purchase gully bowsers. The Karuwalagaswewa success is unlikely to be replicated unless certain remedial actions are taken.

It is not evident that the grant and loan funds provided to the NWSDB by the government are used in the most efficient manner. Beyond the safeguards built into the standard government procurement procedures, there are no incentives for making the best use of the money or for penalizing inefficiencies.

Any alternative must address the inequity of favoring the NWSDB over the LGAs and CBOs. In addition, or alternatively, it must provide incentives for efficiency by the entity receiving the subsidy.

8.1.2 Viability Gap Financing

Viability gap financing (VGF) is increasingly being used in the infrastructure sector. This is normally used for PPPs, where the service will not be affordable if the investor seeks to recover the entirety of the investment from tariffs alone. The practice is to calculate the viability gap (difference between financial and economic viability) and to base the subsidy on it.[88] The advantages in this approach are that it is based on a well-formulated business plan (and therefore the project is more likely to succeed), assigns clear responsibilities to the parties, and bounds the financial commitment of the state. The disadvantages are that the NWSDB, which is perhaps the only entity capable of formulating a sophisticated business plan, is a 100 percent state-owned enterprise; and going to all the trouble of defining responsibilities may be futile in the highly political context it functions in.

If PPPs are envisaged for the industrial zone in Hambantota, the tourism zone in Kalpitiya, or the Port City, there is value in considering VGF as part of the PPP design.

Because no private investor is involved in most instances in the Sri Lankan WSS sector, it may be possible to use more rough-and-ready methods for intra-state transfers. If certain regions pose significant challenges for efficient supply due to reasons of geography or demography, VGF methodology may be used by the Ministry of Finance based on evidence presented.

[88] World Bank Group PPPs (n.d). *Partnerships IQ: Financial Viability Support: Global Efforts to Help Create Commercially Viable PPPs*. https://library.pppknowledgelab.org/documents/2847/download

VGF should be administered directly by the Ministry of Finance for large-scale projects where the beneficiary is the NWSDB. The regulator should be kept fully informed of the subsidy and any conditions attached thereto.

8.1.3 Low-interest loans for LGAs and CBOs

The complexities of VGF may be too much for the smaller and less-resourced suppliers of WSS. Here, what may be practical is to offer low-interest loans, with Treasury absorbing the costs of low interest rates. Government may consider amending the Local Loans and Development Fund Ordinance to streamline its procedures, strengthen its lending capacity and allow CBOs to obtain loans for services normally provided by LGAs. Alternatively, government may consider a separate law to create a revolving fund from which CBOs may obtain low-interest loans (more discussion in Chapter 10).

The funds will not suffice by themselves. It is necessary to create cells, under the Provincial Commissioners of Local Government, to provide technical assistance in the preparation of proposals and to provide technical support during construction. Without professionally prepared proposals, it is unlikely that the CBOs and LGAs (perhaps excluding the Municipal Councils) will be able to obtain the loans. Without technical backstopping (on the lines of the services provided by the consultant to government on large civil engineering projects), it is likely that some of the WSS projects will not be completed on budget and in line with technical specifications.

8.1.4 Subsidies for low-income users

The current overly complicated slab-based tariff design of the NWSDB cross subsidizes all low users, with additional discounts being applied to Samurdhi beneficiaries and Non-Samurdhi tenement households. Customers enjoy a 10 percent discount on their total bill whether they are rich or poor, as long as monthly use is below 25 units (M3)/month. Low-income users should continue to be subsidized, but the resources for the subsidy should come from the Consolidated Fund, not from other customers. In countries that successfully operate such subsidy schemes to ensure low-income households have assured access to water, the beneficiaries have to fill up forms to qualify, or the suppliers have to submit the documentation on their behalf.[89]

The current billing systems of the NWSDB recognize Samurdhi beneficiaries as well as tenement households which do not receive Samurdhi. Because the welfare systems in Sri Lanka are quite advanced, data exists at the Grama Niladhari level of households qualifying for various forms of assistance (said to be around 40 programs in all). Without too much difficulty, it should be possible to match the billing records of the NWSDB and these records to define those eligible for the subsidy. New customers can be checked for eligibility at time of connection.

The current domestic tariff design of the NWSDB approved in 2012 is quite complicated, having as elements service charges (the fixed part of the two-part tariff) that are different depending on level of consumption, small slabs (mostly in five-unit increments), cross-cutting discounts for Samurdhi and non-Samurdhi tenement dwellers, and taxes. The intention was possibly that of creating incentives for conservation of water, whilst avoiding the price shocks that some users may experience if a true low-user tariff was implemented instead of the slabs. On top of all this, in late 2014 the government had

[89] Serra, Pablo (2000). *Subsidies in Chilean public utilities*. https://openknowledge.worldbank.org/handle/10986/21335

introduced a 10 percent discount for the total bill amount of all using less than 25 units, which is said to be around 75 percent of all households.

A reasonable regulator is unlikely to approve this level of obfuscation because it does not permit a normal customer unequipped with spreadsheets to understand how the bill is computed. The tariff should be redesigned in a manner that allows a normal customer to understand it. If the tariffs are computed without having to build in cross-subsidies the overall tariff levels across relatively broad bands will decline or stay at current levels.

Those who qualify for low-income subsidies should be given the discounts in the bills, but the required funds should be transferred to the NWSDB from the Consolidated Fund. The danger is that the government may renege on the commitment to supply the funds continuously, as in the case of the recurrent grant of LKR 40-50 million to the NWSDB for supply of water to schools which was discontinued without explanation or alternative in 2014.[90] There is no real safeguard against this kind of action other than public opinion and pressure. Even if the arrangement is embedded in an MOU or a SCI, there is little that a SOBE can do against Treasury.

Once the households served by the NWSDB eligible for the subsidy are looked after, there remains the question of households with similar socio-economic profiles who live in areas served by LGAs or CBOs. There is no justification to exclude them from the subsidy other than the possibly high transaction cost of identifying the eligible, and of providing them with the discount. Until the billing systems in all the LGAs and the 4,500 or more CBOs are computerized it will be quite difficult. Therefore, there is no simple alternative that is easy to administer other than to provide these suppliers with some assistance in the form of low-interest loans as described above in section 8.1.3. If there is interest in extending further assistance to customers not served by the NWSDB, the CSIP report discusses multiple subsidization modalities.[91]

8.1.5 Equalization fund

Because it is recommended above that licensing and regulation be done on a provincial basis, the option of defining the comparison regions for purposes of benchmarking regulation in a way that allows the costs to be more or less the same is excluded. Costs will vary depending on population density, extent of coverage of human constructions, gradients requiring the use of pumping and storage, distance from water source, etc. Raw water with high levels of salinity will require entirely different methods from those used in normal water sources and the output will be significantly more costly.

Therefore, a tariff that is set based on costs will yield different results in one province as against another. The tariffs for drinking water in the Northern Province, which is sparsely populated, except in the Jaffna Peninsula, and where water sources are problematic, are likely to be higher than those in the rain-rich Western Province which has a different cost profile. Because the mean incomes of those in the Western Province (LKR 84,231 per month in 2016) are the highest in the land (as are their mean

[90] NWSDB and Ministry of Finance. Statement of Corporate Intent, 2017-2020, p 11.

[91] Hiejen, H.; Premanath, L. (2020). *Final Report (Volume I) Comprehensive Strategic Investment Plan and Road Map for the Water Supply and Sanitation Sector in Sri Lanka,* section 7.3.1.

expenditures, at LKR 74,505),[92] higher tariffs in the Northern Province where the mean monthly income was LKR 46,081 in 2016 may be perceived as unfair.

Currently, uniform tariffs are in effect across the country. This necessarily results in the pricing of water below cost in certain regions and pricing above cost in others. This is in addition to various other cross subsidies between classes of users. For effective benchmarking regulation, it is best that tariffs are deaveraged across the regions. Especially in the context of Provincial Council involvement in regulation, based on a common template set by the PUCSL, it is best that the different regions are free to set their own tariffs for different suppliers. Given some subsidies are built into the cost structure, the tariffs will not reflect unsubsidized costs. But the regulator should be able to see the effects of any subsidies, even if the general public does not.

The targeted subsidization of eligible customers as described in 8.1.4 above will result in low-income or otherwise qualified households having to make reduced payments in high-cost as well as low-cost provinces. The subsidy burden will be higher in the high-cost provinces. Ideally, the tariffs applicable to other users will vary by province. The visible differences in tariffs as well as in costs will be useful in focusing attention on inefficiencies and abnormal procurements of inputs.

It may be assumed that the VGF subsidies will have a greater presence in new investments made in high-cost provinces. In special cases such as desalination, the subsidies may not be one-off, but continuing.

8.2 Recommendations

Actions	To be taken by	Supported by
Replace current grant formula for NWSDB with simplified Viability Gap Financing modality, based on business plans; keeping regulator informed	Ministry of Finance	
If PPPs are being considered, provide VGF, keeping regulator informed	Ministry of Finance	
Amend Local Loans and Development Fund Ordinance to streamline procedures, strengthen lending capacity [and allow CBOs to obtain loans for services normally provided by LGAs]	Ministry of Finance	Ministry of Water Supply and Ministry in charge of Local Government
Alternatively, [enact legislation to create a revolving fund from which CBOs may obtain low-interest loans]	Ministry of Water Supply	
Simplify the currently overly complicated tariff structure in the context of ongoing regulatory activity	Regulatory authority after legislation has been enacted	
Identify the subset eligible for low-income subsidies	Ministry of Finance and State Ministry in charge of Samurdhi	NWSDB
Provide a substantial discount in the bill for 15 units used by all subsidy-eligible households, paid by Treasury	Ministry of Finance & State Ministry in charge of Samurdhi	

[92] Department of Census and Statistics (2016). *Household Income and Expenditure Survey 2016*, http://repo.statistics.gov.lk/bitstream/handle/1/784/HIES2016_FinalReport.pdf?sequence=1&isAllowed=y

9.0 Water sources and their conservation

Concerns regarding access to water sources and their conservation were repeatedly brought up in written and oral submissions at the public consultations held in all provinces and in meetings with officials, even though water sources do not fall within the scope of what would normally be subject to utility regulation.[93] The scope of public utility services regulation begins from the point at which the utility service is produced, such as the plant generating electricity or the refinery gate in the case of petroleum products and ends when the utility service reaches the consumer.

Availability of the basic service, namely purified drinking water, is of direct concern to the regulator. If it cannot be produced in adequate quantity and throughout the year because of problems in accessing water sources, the problem cannot be ignored. If because of the lack of access, people and businesses are denied service altogether, the issue must be addressed by someone, even if not by the utility regulator. As an intervenor asked at the Kilinochchi consultation, what is there to regulate when there is no water?

Leaving aside the theory, statutes and public policy define what lies within the scope of the regulator. In Sri Lanka, different entities including, but not limited to, the Commissioner General of Land and the Provincial Commissioners of Land, the Central and Provincial Departments of Irrigation, the Mahaveli Authority, and the Water Resources Board have been given authority over inputs needed to produce WSS. These demarcations must be taken as fixed for the present purposes. Parliament may choose to reassign statutorily defined responsibilities, as with the proposed draft legislation promoted by DNCWS, but such actions are unlikely in the short or medium term. Incremental improvements such as the transfer of the Water Resources Board and its enabling statute from the Ministry responsible for the subject of irrigation to the Ministry of Water Supply after the original assignments to Ministries by the present government are what may be expected.

In actual practice, only a few functions assigned to various agencies are performed, as are shown below. Many of the broad powers of the State Lands Ordinance (SLO), No. 8 of 1947, and the Water Resources Board Act, No. 29 of 1964 as amended, have not been exercised at all, or are exercised sporadically and partially. Especially with regard to water use by government entities, ad hoc arrangements and understandings appear to have overridden the black-letter law of the relevant statutes.

The Cabinet has appointed a Committee to prepare a Strategic Mechanism for implementing a Common Watershed Management Approach, which we assume will make substantive proposals on water sources. This chapter describes the status of water sources management and proposes improvements within, and to, the existing legal framework.

9.1 Surface water

Rivers and reservoirs are important sources for large-scale water supply schemes. The expansive definition of public lakes and streams used in the State Lands Ordinance (SLO), No. 8 of 1947, gives the power to control most of the surface water in Sri Lanka to the state.[94] The SLO is one of the statutes

[93] The PUCSL's commissioning of a separate report by Wijesekera, et al. well before the work on the present report commenced, indicates that the Commission also sees the issues as separate.

[94] The SLO is seen as the foundational legislation in Section 6.2.2 of Wijesekera, S., et al. (2020). *Study on sustainable water resource management for drinking purposes*. Colombo: Public Utility Commission of Sri Lanka.

assigned to the Minister in charge of the subject of Lands.[95] Matters are somewhat complicated by the fact that the land powers that were designated as belonging to the Provincial Councils by the 13th Amendment to the Constitution, have not actually been fully devolved. Matters related to surface water, namely public lakes and public streams (as defined in s. 70 of the SLO), are subject to the Ninth Schedule to the Constitution as described below.

The Commissioner General of Land in the central government and the Provincial Land Commissioners appear to have worked out a modus vivendi on a division of labor under the SLO. For example, the central Department appears to give priority to issuing permits for mini-hydro plants that use public streams. Provincial priorities are different. At least in some provinces, conservation of water sources is being given priority. But resources appear inadequate. For example, in the Uva Province, the Provincial Commissioner has identified 1,193 water sources, conservation has been initiated only for around 100 of the identified sources.[96] According to her, the delays are caused by the need to demarcate the areas by the Survey Department. The Provincial Secretary has to provide the resources to erect the fences. When encroachments and damages to fences are observed, action is initiated through the Police. The penalties for the offences created by the Ordinance (section 97) may have been appropriate for 1947 (maximum of LKR 100, six months imprisonment, or both) but are unrealistic for today.

The National Policy on Protection and Conservation of Water Sources, their Catchments and Reservations in Sri Lanka approved in October 2014[97] defines its scope as covering "micro catchments which include rivers and streams, their reservations and their spouts and flood plains of the rivers; natural or manmade tanks and reservoirs and shallow lakes (villu), their reservations and "immediate catchments" of those tanks and irrigation canals and their reservations; and existing underground or aquifers or surface springs or spouts or such sources which are potentially available for common use and necessary land extent to ensure their existence and protection."

The policy is at a rather high level of abstraction, with implementation assigned to an Operational Committee made up of representatives of a whole host of Ministries and agencies and no single owner. Unsurprisingly, it appears to have died a quiet death, partly for lack of a proper implementing agency and partly because the change in government and the resulting changes at the upper levels of the Ministry. It did not even make it to the reference list of the otherwise comprehensively researched Wijesekera Report. The consultations made evident that the only state agencies with any interest in water sources (excluding the rivers and reservoirs) covered by the above policy and their conservation were the under-resourced Provincial Land Commissioner's Departments.

Schedule 2 of the National Policy on Protection and Conservation of Water Sources, their Catchments and Reservations lists 15 ordinances and acts, including the SLO, that require amendment in order to enable the protection and conservation of water sources. The value of such a comprehensive legal reform is indisputable, but the likelihood of it happening is slim to none. If the government is serious about drinking water, and therefore about water sources, it will prioritize at least the enactment of the

[95] Gazette of the Democratic Socialist Republic of Sri Lanka, No. 2187/27 (2020 August 09).
[96] The 2014 National Policy on Protection and Conservation of Water Sources states that 1,544 such water sources in the Nuwara Eliya District, 204 in the Kandy District, 319 in the Kurunegala District, 210 in the Monaragala District and 288 in the Matale District. It reports a total of 3,540 springs across the island. It appears that the Uva list includes additional sources.
[97] https://luppd.gov.lk/images/content_image/downloads/water_policy_english.pdf

appropriate amendments to the SLO. Given the strong views held by various parties about the kinds of trees that are helpful and harmful to water conservation, it is advisable to appoint a committee of experts to make recommendations on science-based conservation of water sources.[98]

When the public lake or public stream is in Mahaveli Authority land, the powers that flow from the SLO are exercised by the Mahaveli Authority. The same appears to be the case for land belonging to the Land Reform Commission. The forms, permits, etc. are common.[99] The SLO is said to not apply to land controlled by the Department of Forest Conservation, though that is not evident from the statute itself.

The 13th Amendment to the Constitution assigns power over surface water to the Provincial Councils, while giving authority over "irrigation schemes relating to rivers running through more than one Province or inter provincial irrigation and land development schemes" to the Central Government.[100] The rule is that surface water is within provincial jurisdiction other than under stated exceptions. For example, most of the rivers and reservoirs in the Northern Province are under the authority of the Northern Provincial Council. If, as some surmise, the Iranamadu or another reservoir is supplemented with Mahaveli water originating from the Moragahakanda reservoir as originally intended,[101] the reservoir and the related canals will fall under the authority of the Central Government with the speculated possibility of outsiders being settled on the irrigated land. The transport of water to the North is thus seen as a potential problem, rather than as a welcome supplementation of a scarce resource.[102]

The SLO requires that permits be obtained for most uses of the water in public lakes and streams, except what can be taken with a bucket.[103] This means that every intake of the NWSDB, the LGAs and the CBOs requires a permit;[104] but this is rarely done. It also means that all the "works" built and maintained by the Departments of Irrigation and Agrarian Services must also have been authorized by a permit. This does not appear to be the case. Only a few private entities who wish to safeguard their investments such as those operating mini-hydro plants appear to have obtained permits from the Commissioner General of Land or Divisional Secretaries. The permits are for one year and specify the use, but contain few other conditions. CBOs who apply are issued permits for an annual payment of LKR 500, but there is no regulation of how much water is extracted. A robust and comprehensive licensing and regulatory system does not exist for most of the water that is taken from these public lakes and streams. It appears that there has been little or no effective regulation of surface water by the state, despite the broad scope of the language in the SLO.

---

[98] Potential members include Professor Rohan Weerasooriya of the National Institute of Fundamental Studies (NIFS) and Dr Nilantha Hulugalle of the Australian National University, based on publication record.
[99] Interview with Asantha Gunasekera, Commissioner of Lands, 22 March 2021.
[100] Ninth Schedule to the Constitution, List 1, Item 19.
[101] Wijenayake, T. (2018 May 16). Achieving reconciliation and coexistence with Moragahakanda original concept, *Daily FT*. http://www.ft.lk/columns/Achieving-reconciliation-and-coexistence-with-Moragahakanda-original-concept/4-655163
[102] Northern Province public consultations, February 11 and 12, 2021, in Jaffna and Kilinochchi. Interestingly, Professor Balasundaram Pillai's radical proposal to divert water from the Western Province to the North made at the same consultation ignored the jurisdictional issue altogether.
[103] S. 75 of the SLO.
[104] S. 77 of the SLO.

Because of the emphasis placed on irrigation and the use of water for agriculture in colonial times and after independence, it has proven difficult to obtain raw water for WSS from reservoirs under the authority of central and provincial irrigation authorities. Various pronouncements exist even in national policies on the importance of water for drinking and related uses: "water for domestic purposes will receive priority over other uses, subject to implementation of any previous agreement for other uses."[105] In fact, the rule has been "first come first served," which has generally translated into agricultural users being given priority and drinking water users being excluded, as documented in case after case.[106] These difficulties have led certain decision makers to argue that water for WSS will have to be obtained from reservoirs built solely for this purpose, even if costs escalate and delays will result.[107]

As the country reaches upper-middle-income status, demand for, and expectations of, WSS is rising. Consequently, the harms caused by improper disposal of sewerage and septage are also increasing. More efficient use of water for agricultural purposes, a necessity in the context of climate change, can free up water for other purposes but lack of trust and other dysfunctions make it difficult to arrive at effective solutions. In several instances, such as the use of water from Iranamadu for the Jaffna peninsula and Rajangana in the North Central Province, reneging on firm commitments to share water has led to considerable waste of development loans and delays.

Ideally, drinking water could be assigned the highest priority, given it is essential for life and for the achievement of SDG 6. However, it is unlikely that the so-called new uses of water for WSS will be given priority over the established prior uses in the agriculture sector. Therefore, what is feasible is a water-sharing formula arrived at through a formal process that is buttressed by formal commitment in a credible forum. A comprehensive report commissioned by the PUCSL proposes a framework for this.[108]

Such a formality is required because of the serious loss of trust in the word of officials and politicians among the various stakeholders. The sharing formula will have to include the shares in times of drought, not just when reservoirs are full. It can be given legal force through modernized and detailed SLO permits and/or by a process managed by a senior government official such as the District Secretary. Legal amendments may be needed to give teeth to the permits issued under the SLO. And, of course, the central and provincial land commissioners should be given adequate resources to enforce the terms.

But some problems are larger than what can be dealt within the framework of water management. What, for example, is the ironclad assurance that can be provided to the people of the Northern Province and their political representatives that no colonization will follow the supply of Mahaveli water to Iranamadu? Whose word can be trusted?

---

[105] Ministry of Water Supply and Drainage (n.d.) National Drinking Water Policy., S. 6(e). http://waterboard.lk/web/images/contents/organization/policies/national_drinking_water_policy.pdf

[106] Wijesekera, S., et al. (2020). *Study on sustainable water resource management for drinking purposes*. Colombo: Public Utility Commission of Sri Lanka, chapter 9.

[107] Several intervenors at the Northern Province Public Consultation held in Jaffna on 11th of February 2021.

[108] Wijesekera, S., et al. (2020). *Study on sustainable water resource management for drinking purposes*. Colombo: Public Utility Commission of Sri Lanka.

9.2 Groundwater

The Constitution is silent on groundwater. A case may be made that the logic applied in the Constitution to surface water should be extended to fill the lacuna on the more static groundwater resource,[109] namely that the provinces should have authority except where the aquifers are inter-provincial. This appears to be the assumption in the draft Water Policy for the Northern Province. However, the prevalent interpretation is that the extraction of groundwater anywhere in Sri Lanka is subject to the authority of the Water Resources Board (WRB) with powers defined in the Water Resources Board Act, No. 29 of 1964, as amended,[110] except possibly for land under the control of the Department of Forest Conservation. The dominant view of the relevant officials is that groundwater is a central subject.

The alternative view is found in the Draft Water Policy for the Northern Province, especially in the powers and functions of the proposed Provincial Water Resources Authority included in the draft or the Provincial Land and Water Authority, proposed by an informed analyst.[111] Given the consensus that ground water and public streams and lakes must be protected from pollution and other dangers, by protecting reservations of land, there is a need to think of land and water resources together. Section 12 of the Water Resources Board Act, No. 29 of 1964, appears to reflect this view, though in actual practice, the WRB appears to have a much narrower focus.

An Order issued under the Act on 15/03/2017[112] mandates that written permission of the WRB is necessary for future use of groundwater under certain conditions (e.g., for commercial agricultural activities). It also requires those engaged in the construction of tube wells to be registered with the WRB. Section 6 of the Order states that action will be taken under section 20 of the Act which carries a maximum fine of LKR 5,000.[113] Because the only offense created by the Act is related to response to notices requiring the provision of information to the Board (section 15), the enforcement provisions of the 2017 Order cannot be described as effective. The WRB is currently compiling a comprehensive inventory of wells and tube well in certain areas such as the Northern Province. Newspaper reports of statements by the Minister of Water Supply indicate that the 2017 Order is likely to be amended to permit mandatory metering of groundwater extraction for non-domestic uses and the charging of fees based on use volumes.[114]

In any case, it appears that the WRB, which has only 22 professional hydrogeologists on staff and only four offices outside Colombo (Puttalam, Jaffna, Anuradhapura and Moneragala) is currently ill-equipped to regulate groundwater in the entire country, especially in areas such as the Jaffna peninsula where groundwater extraction is widespread. When groundwater extraction occurs in almost all land parcels,

---

[109] " . . . rivers of water flowing underground . . . is pretty much a myth. Even though there are some caverns, lava and ice tubes, and horizontal springs that can carry water, the vast majority of underground water occupies the spaces between rocks and subsurface material. Generally, water underground is more like water in a sponge. It occupies the spaces between soil and rock particles." https://www.usgs.gov/special-topic/water-science-school/science/groundwater-flow-and-water-cycle?qt-science_center_objects=0#qt-science_center_objects

[110] Wijesekera, S., et al. (2020). *Study on sustainable water resource management for drinking purposes*. Colombo: Public Utility Commission of Sri Lanka.

[111] Sivakumar, S.S. (2020). *Northern river basins yield study for operational policy of irrigation schemes & water resources and agriculture development strategy for North – 2020-2035*. WaSo Project, University of Jaffna, chapter 7.

[112] Gazette of the Democratic Socialist Republic of Sri Lanka, No. 2010/23.

[113] This was revised upward from LKR 500 to LKR 5,000 by the 1999 amendment to the WRB Act.

[114] Dayananda, Muditha (2021 March 19). *Lankadeepa*, p. 10.

the enforcement of its extraction requires a significant presence of officials who are intricately connected to the day-to-day activities of the area. It must be easy to complain about groundwater abuse. Ideally, the complaint will be received by a trusted entity close to the complainant. The trust factor is important because most of the complaints are likely to be from neighbors who may place value on anonymity to safeguard relationships.

In addition to defining the appropriate offenses and penalties in an amendment to the Act, the WRB should consider redefining its role as that of a provider of expertise to entities such as Local Government Authorities or units within the Provincial Councils which are close to the ground to whom primary regulatory functions should be delegated. The WRB should focus its energies on prosecuting the most egregious offenses and in performing the extensive duties set out in section 12 of the amended legislation.

Even more than surface water, it appears that groundwater requires careful regulation. The actions of a single user intent on satisfying his/her immediate water requirements can have potentially large negative externalities that are difficult to estimate because the horizontal and vertical interactions among underground water bodies are known only to a certain degree. As with surface water, the de facto priority order is "first come, first served." A related de facto rule appears to be the prioritization of domestic consumption over industrial uses, which has almost universal support but is quite problematic for a middle-income country seeking to develop manufacturing industries at least for the domestic market.

Concern about negative externalities has led to concerned experts making what appear to be rather draconian recommendations, such as that for bans on all tube wells in sensitive areas and, more moderately, bans on submersible electric pumps.[115] Objections to commercial extraction or the use of water for industries or users outside the immediate vicinity appear reasonable but are in fact contradictory to the fundamental nature of groundwater which is a common resource to be conserved for all, for use by all, not just by those living adjacent to a borewell or for those who happened to have dug wells first. These attitudes are inimical to the development of Sri Lanka as a modern economy.

The first come first served principle has led to disputes. A strengthened permit and enforcement system under the Water Resources Board backed by a credible dispute resolution mechanism is essential for any solution.

9.3 Rainwater

As evidenced by the formal adoption in 2005 of the National Rainwater Policy and Strategies[116] and the existence of an organization devoted to the subject, the Lanka Rain Water Harvesting Forum, which appears to have some government support, there has been interest in promoting the use of rain water as part of water supplies for some time.

The policy proposes the mandatory inclusion of rainwater collection facilities in building codes in a phased manner. Of the legislative amendments that were proposed only one has been adopted: Urban

[115] Sivakumar, S.S. (2020). *Northern river basins yield study for operational policy of irrigation schemes & water resources and agriculture development strategy for North – 2020-2035*. WaSo Project, University of Jaffna, p. 112.
[116] https://www.yumpu.com/en/document/view/42209542/sri-lanka-national-rainwater-policy-rainwater-club

Development Authority (Amendment) Act, No. 36 of 2007.[117] The regulations under the Act were promulgated in 2009 but are applicable only to some LGAs.[118] Strong views were expressed on the suitability of rainwater harvesting at the Kilinochchi consultation which appeared to be connected to the rather long periods without rain in the area. Ironically, it is in Kilinochchi that research by the Rainwater Harvesting Forum has shown that by simply connecting the roof water to a well increases the groundwater level by over 1.2 m over one year period and improves the water quality.[119]

Rainwater harvesting assumes greater importance in light of the effects of climate change. The Ministry of Water Supply should consider the updating of the existing policy and putting resources behind it to ensure effective implementation. The recommended amendments to the WRB Act and the enhancement of its capabilities should include a significant focus on rainwater as an integral element of recharging groundwater resources.

9.4 Recommendations

Actions	To be taken by	Supported by
Coordinate all recommendations below with those of Committee to prepare a Strategic Mechanism for implementing a Common Watershed Management Approach	Each agency named below	
Amend the SLO	Ministry in charge of subject of land	Commissioner General of Land
Appoint expert committee to recommend science-based measures to conserve water sources	Ministry	WRB
Modernize the permits issued under SLO, including enforceable terms, and enforce them without exception	Commissioner General of Land	Provincial Commissioners of Land
Extend the applicability of the regulation of water sources under SLO permits to land controlled by Mahaveli Authority, Land Reform Commission, etc.	Commissioner General of Land	Mahaveli Authority, etc.
Provide adequate resources for enforcement of SLO permits and conservation of water sources, including springs	Central and Provincial Ministries in charge of subject of land	Commissioner General of Land & Provincial Commissioners of Land
Urgently complete the demarcation of catchment areas of water sources and conserve them	Provincial Commissioners of Land	Survey Department
Water-sharing modalities should be arrived at through a formal process that is buttressed by formal commitment in a credible forum as recommended in the Wijesekera Report	Ministry of Water Supply	Relevant Ministries, including Irrigation
In the interim, establish dispute settlement mechanisms for urgent problems such as Iranamadu and Rajangana	Relevant District Secretaries	NWSDB and Department of Irrigation

[117] http://www.lankarainwater.org/legislations/

[118] Extraordinary Gazette No. 1597/08, 17 April 2009. http://www.lankarainwater.org/legislations/

[119] Email communication from Dr Tanuja Ariyananda, CEO of the Lanka Rain Water Harvesting Forum, on 29 April 2021.

Appoint an expert committee to make recommendations on amendments to Water Resources Board Act, repositioning it in relation to ground-level government bodies, and resourcing it adequately	Ministry	WRB
Modernize the WRB permits by including enforceable terms, create dispute resolution mechanisms	WRB	
Update existing National Rain Water Policy and put adequate resources behind it to ensure effective implementation	Ministry	Lanka Rain Water Harvesting Forum
Include focus on rainwater as an integral element of recharging groundwater resources as part of WRB Act amendment	Ministry	WRB

10.0 Department of National Community Water Supply (DNCWS)

CBOs are organizations doing the work the LGAs and other government agencies should be doing, but have not: giving people safe drinking water. Beyond that, the users are more involved with key decisions from planning to operations. They contribute money and in kind. They decide on the tariff as well.

Therefore, a rationale exists for a good support organization to provide them guidance and backup support, especially in dealing with unhelpful and rigid government bodies. In some cases, they need a state entity to represent them before state organizations and defend their interests. The Department of National Community Water Supply (DNCWS) was established in 2014 through Gazette Extraordinary No. 1881/6, dated 22nd September 2014, with the mandate to support the CBOs in the country.

10.1 Draft legislation

DNCWS was established by the Cabinet of Ministers in March 2014. However, DNCWS's mandate was not formally defined through a dedicated DNCWS Act. The formulation of an Act was commenced in 2016 and reactivated in 2020, but the task is yet to be completed. The draft outline of the bill sent by DNCWS to the Legal Draftsman's Department in 2021 has been examined in preparing this chapter.

The text empowers the Department and the Director General at the expense of the members and elected office bearers of the CBOs. The DNCWS appears to have paid no attention to the operative word "community" that is found in its own name in formulating the draft. Section 16(9) gives untrammeled authority to the Director General to suspend the management of a CBO, to appoint an interim management body or, to dissolve a CBO after an inquiry. Given the tense relationships between certain LGAs and CBOs operating within their areas, it is not difficult to see how these broad powers may be abused. Section 4(5) of this irregularly numbered text requires the first annual general meeting of the Community Based Organization to be held under the authority (ප්‍රධානත්වයෙන්) of one of its officers.

The draft text includes provisions for the DNCWS to acquire water sources situated in private land and to operate water schemes (s. 16(4)). The draft, if enacted, would assign the powers of the WRB to the DNCWS (s. 16(7)). It includes no mention of the legal powers assigned to the Commissioner General of Land and the Provincial Commissioners under the State Lands Ordinance, No. 8 of 1947.

Not recognizing the challenges of approving the tariffs of around 5,000 CBOs operating in widely differing conditions, section 6(f) requires all tariffs to be approved by the membership at a meeting and by the Director General of the DNCWS. Section 6(g) requires the Director General's approval for the spending of the CBOs funds on maintenance and operations, again disregarding the actual workload involved in approving such requests from a large number of CBOs from across the country in an evidence-based manner. No justification is provided for why such approval is required for a CBO to spend funds generated by its own members on matters that are directly connected to the main business of providing drinking water. In contrast, section 6(d) requires no concurrence for engaging in micro-finance activities which are not directly connected to the main business of the CBO, and which are likely to fall within the regulatory authority of the Central Bank of Sri Lanka.

10.2 Relations with NWSDB

A Memorandum of Understanding (MOU) was signed on 11 May 2018 by the NWSDB and DNCWS, setting out the roles, responsibilities, forms of cooperation and gradual change of roles in the future to support the CBOs and for the development of the rural water sector (RWS) that was earlier the

responsibility of the NWSDB. Key elements of the MOU, among other things, include ways by which NWSDB will assist DNCWS by:

- Providing technical advice and assistance, until the Department is adequately strengthened in technical matters;
- Assisting in developing and implementing Water Quality Surveillance (WQS) Programs, and actions for Climate Resilience and Disaster Management; and
- Cooperating and coordinating with DNCWS in the formulation of sector strategies.

DNCWS is expected to focus attention on facilitation and support of the existing CBOs and implementation of upgrading, rehabilitation, and expansion of existing CBO managed schemes.

The technical capacity of DNCWS is to be reviewed every three years (i.e., in May 2021) and amended as required. However, the unilateral decision by the NWSDB Board to cease the provision of bulk water supplies to CBOs, suggests that the extensive effort that appears to have been put in, including the preparation of a strategy paper and detailed delineation of actions and indicators, may not yield the expected results.

The strategy paper and the MOU envisage the further strengthening of the Rural Water Supply (RWS) units at the Regional Support Centers (RSCs) of the NWSDB in parallel with the DNCWS. This realistic and practical approach takes into account the self-preservation and expansion motivations of bureaucratic organizations. But it has resulted, unfortunately, in continuing friction between the two significantly different organizations, one of which is a well-established SOBE with 10,000 employees who are relatively well compensated and the other a traditional government department set up in 2014, and having very few resources. The MOU was not fully and faithfully implemented.

The clean solution is for NWSDB to exit the rural water supply space, other than in purification and the provision of bulk water to entities such as LGAs and CBOs for distribution and billing. While they may not compete for customers, some RWS officials may see the CBOs and their guardian, the DNCWS, as competitors for resources from government and especially from funders such as the ADB and World Bank. The solution to the problem is the transfer of the knowledge and resources built up in RWS over the years to the DNCWS and the provision of essential technical services on a fee-for-services basis.

Some representatives of the NWSDB stated that some of those who obtained bulk water from the Board had excessive mark ups in the retail prices they charged and that therefore bulk water should not be provided. These are matters for the regulator to decide, not for the bulk supplier. If the bulk supplier is providing distribution services in the same area, the regulator should set bulk water prices based on avoided costs and allow the small distributors to include a reasonable markup, ideally, under an upper limit or within a band, rather than a specific price. If the bulk supplier is not providing distribution services in the relevant area, a cost-based tariff would be justified.

10.3 Organizational constraints of CBOs

A CBO is constituted by all consumers of water supplied by a scheme. Practically, the founding families, which contributed with labor and otherwise at the construction stage, are distinguished from those who join later. The CBO periodically elects a management committee from among the membership. The management committee, based on the adopted constitution, manages the water supply system. They also formulate a suitable tariff system which is approved at the general meeting of the CBO. Based on the approved tariffs, revenue is collected.

Despite the efforts of many, not all CBOs are operating under proper constitutions and governance arrangements. Some are unable to.

Box 10.1 No remedies against rule breaking

Samantha, the Treasurer of the Agunakolapelessa Samagi CBO, said at the Wekandawala consultation, that his organization had just emerged from a crisis. In 2017, elections were held where two non-members became Chair and Treasurer. The CBO has 350 members, but around 450 participated in election. Despite appeals to officials in Tangalle, the illegal actions could not be reversed. For three years, no audits or elections were held. In 2019 elections were held and legitimate members assumed office. No financial accounts were given to the new committee. The CBO had received compensation from the Road Development Authority in 2017 and held fixed deposits of LKR 5 million. For entire period after that surplus amounted to only LKR 300,000. In the first three months of 2019 alone, the surplus amounted to LKR 350,000. About LKR 2 million is unaccounted for. The DNCWS could not assist despite appeals. The members want to prosecute the persons responsible, but it is not clear how to do this.

Section 10(e) of the draft bill prepared by the DNCWS seeks to address such problems, by a provision that states that the Director General may, when it has been established that a fraud has been committed, cause the person responsible for the management of funds of the CBO or the Treasurer to be brought before a Magistrate to compel restitution. This is a somewhat curious provision. If it is established that a responsible officer of a legally constituted entity such as a company has defrauded it, the remedy is not limited to restitution. The matter would be referred to the Fraud Bureau and the relevant authority would not have the discretionary authority not to prosecute. It is possible that this unusual provision was included because the DNCWS does not wish to treat CBOs as legal persons.

CBOs also usually carry out many other activities apart from the supply of water for the benefit of its membership. These include assistance for funerals, microcredit systems, income generating schemes, and welfare activities. It was stated at the consultations that these activities unrelated to the provision of water are needed to maintain the loyalty of the members and to ensure regular payment of bills. The problem of safely keeping the accumulated funds in a manner that maximizes interest income appears to be affecting the decisions to engage in micro- finance. There is resistance to limiting their activities to water supply. However, it was noted that the broad scope also attracts the attention, and in some cases the active opposition, of area politicians who sense that an alternative power center may be emerging. The draft bill prepared by DNCWS simply permits lending (s. 6(d)) and does not place limits on such activity.

Most CBOs were established by donor funded projects during the past few decades (especially the ADB funded 3rd Water Supply and Sanitation Project, and World Bank funded Community Water Supply and Sanitation Project). The on-going WaSSIP is the next attempt to improve the quality of water in existing schemes by incorporating treatment systems, to raise coverage through additional new schemes and through extension of existing systems.

Most CBOs are registered at the Divisional Secretariats as social development organizations under the Department of Social Services and as Community Based Organizations managing water supply in the DNCWS. In some provinces such as the North Western Province, they are also required to obtain annual licenses from the Provincial Council, though the lack of such a license does not carry a penalty.[120]

[120] Gazette No 1808, dated 26 April 2013. Establishing and Regularizing of Community Based Organizations (Water Supply and Environmental Sanitation), Statute No. 1 of 2013 of Provincial Council of North Western Province.

However, such registrations do not make them “legal persons” in the full sense. The registration with the Divisional Secretary has permitted them to open and operate bank accounts.

The CBOs are guided and supported by DNCWS, which in turn, obtains support from NWSDB on technical matters beyond their capability. It was stated at multiple consultations that the DNCWS lacked resources (such as adequate transportation facilities) and personnel. The draft bill seeks to remedy this by including provisions for increased cadre and, unusually for a government department, its own fund described as the “Fund for Safeguarding Community Water” with language modeled on legislation applicable to statutory Commissions and Boards (s. 18). It is unlikely that a department will be allowed to maintain its own fund based on revenues derived from registration fees of CBOs, outside the Consolidated Fund.

The Monitoring & Evaluation Consultancy of WaSSIP Project has established a web-based interface to record all the relevant data of the CBOs. At present, surveys are being conducted and data being uploaded. When completed, this will constitute a comprehensive database of all CBOs registered with DNCWS that will allow the monitoring of CBO performance and planning for providing required support to them including training, capacity building and rehabilitation. The web portal is also expected to make available reference documents, guidelines, training manuals, lists of material suppliers and specifications, and lists of technical personnel available as resource persons to CBOs.

Currently, approximately 11 percent of the population of the country is served by the schemes managed by CBOs. The actual number of CBOs managing their own water supply schemes is yet to be accurately assessed. The DNCWS has identified 4,349 CBOs. Some small CBOs which do not charge for water because they rely on gravity alone and whose pipes do not have to go across roads maintained by government agencies stay under the radar without registering.

Some of the schemes managed by CBOs are functioning satisfactorily, while some do not so well. Some have been taken over by LGAs or by the NWSDB. Some of them have failed. As it was pointed out at one of the consultations, representatives of failed CBOs do not come to public consultations or respond to questionnaires.

DNCWS should identify water supply schemes that have failed after considerable work has been done and provide the resources to complete them and ensure an organization exists to operate the scheme or explore options including handing over to the LGA for the area.

The ownership of the assets of CBOs is, in many cases, unclear. For example, tanks and facilities may be on private land or within the premises of a school. As the responsible persons change, problems may arise. While some CBO representatives wanted these issues resolved, the leadership of the DNCWS believes that opening up these issues could cause more problems and would impose an unnecessary cost on government.

In instances where CBOs are taken over by the NWSDB because one of their water schemes is expanding, there is concern about what will happen to assets such as fixed deposits. In one case, the availability of NWSDB supplies while the CBO was operating resulted in it being unable to collect dues.

Several actions have been taken by the WaSSIP Project, under its Institutional Development and Capacity Building Consultancy (COWI IDC CEYWATER, 2019) to strengthen the CBOs to meet the future challenges and to develop their capacities, including:

- Options for providing proper legal status to the CBOs were studied. Registering CBOs under the Societies Ordinance No 18 of 1891 was recommended. The procedures for registration were documented.
- A training strategy for DNCWS to conduct future training and re-training was formulated.
- Training need assessments were conducted and needs of training and re-training identified
- Accordingly, many training modules and handbooks on identified subjects were prepared and distributed.
- The CBO model constitution was reviewed and revised.
- A water quality surveillance system for CBOs was developed and introduced, and CBO Cluster Laboratories were established.

The following issues were identified during provincial consultations:

Water Sources	Difficulty of water quality monitoring, due to the lack of easy access to water quality testing facilities
	Water shortages during drought
	Difficulties in gaining access to water sources located on land owned by Plantation Companies for some CBOs
	Difficulties in gaining access to water sources on land under authority of Department of Forest Conservation for some CBOs
Organizational Problems	Lack of technical capacity and knowledge
	Limited management capability of CBOs, sometime leading to internal disputes
	Lack of legal identity and recognition of CBOs
	Lack of backup support for the CBOs in technical, management, legal and financial aspects
Operational Problems	Ownership issues of water supply schemes
	Concerns of being taken over by LGAs
	Concerns posed by new NWSDB schemes, and fear of being absorbed into larger NWSDB schemes
	Halt in bulk supply by NWSDB
	High electricity costs
	Widening of roads by road authorities, resulting in destruction of pipelines
	Lack of availability of funds for major repairs, improvements, and developments

10.4 Revolving Fund

The cost of operation, maintenance and replacement is supposed to be covered by revenue collected from beneficiaries through a scheme-specific tariff decided upon by the particular CBO. The tariff should ideally be determined to cover the cost of regular operation and maintenance, and also long-term replacement and rehabilitation costs.

However, during Provincial Consultations it was observed that in most instances, CBOs are not making provision for all the expenditure that may be required (e.g., for further improvements, major repairs, extensions, in the event of disasters, etc.) from the funds collected through the tariff. This situation is one of the major threats to the sustainability of CBOs. In multiple presentations in different provinces, CBO leaders made requests for funds to replace pumps, etc.

Hence, establishing and maintaining a fund which could be utilized by CBOs in such instances is essential to ensure the sustainability and achieving the overall objectives of the investment programs in rural water supply sector.

A possible funding arrangement for CBOs would be establishment of a "Revolving Fund for CBO Development." This idea was conceived in early 2000s during the ADB assisted 3rd Water Supply Scheme and has been taken forward by the World Bank. Establishment of such a fund would allow CBOs to obtain short-term or long-term loans on concessionary terms. This fund arrangements should be in addition to the funds which would be available in large scale sector projects. The objectives and concepts of this fund are described in the Task V report of the CSIP 2020 as follows.

The objectives of the revolving fund were to create a financial instrument and buffer to ensure the sustainability of the RWS schemes and ensure a social return in terms of services. That would also require that CBOs and regional CBO Forums would remain effective and involved in managing the schemes.

Box 10.2 Uses of Revolving Fund

• Rehabilitation, augmentation or extension of a scheme essential for sustainability or which are of high cost;

• Upgrading the systems in order to increase the reliability (e.g., standby pumps, improving quality of vital parts, source protection, etc.);

• Improving the quality of water by providing treatment facilities or upgrading them;

• Provide emergency funds in case the CBO is unable to raise funds immediately (thus acting as a kind of insurance) for;

- Attending to major unforeseen breakdowns of the scheme;
- Replacement of expensive components;
- Rehabilitation after a disaster;
- Major unforeseen maintenance requirements such as flushing of a bore hole.

- Meeting other unforeseen situations to ensure safe and reliable supply of water;

- Promoting investment for new income generating ventures by CBOs and CBO Forums aiming at keeping the membership interested in CBO activities, and sustaining the organization.

Seed capital would be required to initiate the revolving fund. Some pool funding would be further requested from other donors and organizations. The capital of the fund would then be sustained by the settlement of the loans in combination with:

- A defined percentage (say 5%) of the annual water tariff collected from the water supply schemes to be deposited in the Fund by all the CBOs in an area – This would be the main long-term contribution, as an insurance fee;

- Compulsory annual budgetary allocations from the Provincial Councils (PCs) and Pradeshiya Sabhas (PSs) towards the Fund. (Suggested amounts were 0.1% of the annual budget allocation for Water and Health by each PS and 0.01% of the corresponding allocation by the PC)

- Interest on the loans granted from the Fund.

The Fund was proposed to be established at provincial level. The decision-making regarding the fund raising and utilization was proposed to be vested with a provincial level Fund Management Committee. The management of the Fund was proposed to be by a selected commercial bank.

The draft bill prepared by DNCWS proposes the creation of a revolving fund that it will manage centrally (s.19). It is envisaged that foreign and local grants and loans will form the capital of the Fund, without any provision for contributions from CBOs as proposed above. The fund may be used for project identification, planning, and implementation (s. 19(a)), for operation of schemes (s. 19(b), and so on. It may be advisable to reconsider the proposal to locate a fund of this nature under a department. The Ministry of Finance, which is currently responsible for a number of funds including the LL&DF may be more appropriate.

10.5 Recommendations

Actions	To be taken by	Supported by
Ensure community spirit of CBOs is safeguarded in draft bill & it does not infringe existing laws	Ministry	
Resolve friction between NWSDB & DNCWS by closing down RWS unit and transferring all rural responsibilities to DNCWS	Ministry	
Revisit the MOU between NWSDB and DNCWS, tightening the language and make the provision of technical services fee based.	Ministry	NWSDB & DNCWS

Review DNCWS resources and supplement as necessary at the same time as new law is enacted	Ministry	
Decide on extent of involvement in rural water distribution & billing; divest where so decided	NWSDB	
Rescind decision on discontinuing bulk water supplies to CBOs	NWSDB	
Regulate bulk water tariffs on avoided-cost basis or cost-based model as applicable	Provincial regulatory unit	PUCSL
Set price bands with ceilings for CBOs using NWSDB bulk water	Provincial regulatory unit	PUCSL
Identify water supply schemes that have failed close to completion and provide resources to complete them; ensure an organization exists to operate the scheme	DNCWS	
Resolve immediate problems regarding ownership of assets by CBOs, including establishment of a fund to pay compensation where necessary	DNCWS	Ministry
Ensure that the model Constitution developed by the WaSSIP is adopted by all registered CBOs	DNCWS	
Ensure that expenditures on non-water related CSR type activities are subject to an upper limit and that strict reporting rules are enforced on such expenditures	DNCWS	
Appoint an expert committee to make recommendations on where CBOs may deposit their reserves & develop guidelines on any micro-finance activities	DNCWS	Central Bank of Sri Lanka
Develop rules governing ownership of assets in CBOs, including at dissolution or merger	DNCWS	
Assist CBOs to conduct their activities according to Constitution & prevent recurrence of events such as that reported by Angunakolapelessa Samagi CBO	DNCWS	
Encourage all registered CBOs to register as societies under the Societies Ordinance No 18 of 1891	DNCWS	
Conduct capacity building programs for CBOs according to recommendations by WaSSIP	DNCWS	
Implement applicable recommendations on water quality in chapter 5 & in MOU with NWSDB	DNCWS	NWSDB
Enforce existing directives about fully consulting affected CBOs when extending boundaries of water supply schemes	NWSDB	DNCWS
In the event the option of allowing CBOs to borrow from LL&DF is not accepted, establish a revolving fund for CBOs based on recommendations of CSIP 2020	Ministry	Ministry of Finance

11.0 Local Government Authorities & Supporting Organizations

Water supply and sewerage/septage services may be thought of as having three key components/phases: production of drinking water (or treatment of sewerage/septage); transmission/transport; distribution (getting the drinking water to end users in some form or collecting liquid waste in some form); and billing. The supply chain in drinking water ends with the customer, whereas it begins with the customer in the case of sewerage/septage. Unlike electricity and telecommunications, and perhaps in common with transport, water supply and sewerage/septage services are intensely local.

Given the importance of providing services at reasonable prices and Sri Lanka's status as a country with very few areas with water deficit, it makes no sense to transport water or liquid waste over long distances. Ideally, both services will be distributed and billed for by LGAs or by similar organizations close to the end user.

Almost every piece of land in Sri Lanka is allocated to an LGA.[121] They constitute the layer of government closest to the people. One may think of the approximately 5,000 CBOs that have emerged to supply water to small and large communities as forms of specialized LGAs: elected representatives supplying a needed service to the community and accountable to the community they serve. The NWSDB is either supplying inputs to LGAs and CBOs (e.g., supplying bulk water to the Kurunegala Municipal Council (MC)) or is acting on their behalf (e.g., as most recently agreed with the Bandarawela MC).

Commercial enterprises such as bowser services, RO water suppliers, bottled-water suppliers, and private gully bowser services are niche suppliers who are serving needs unserved for whatever reason by LGAs and CBOs. They rely on the LGA or the NWSDB for various critical elements (e.g., septage treatment plants). The Madampitiya Treatment Plant operated by the Colombo MC that accepts septage from Council bowsers and from private gully bowsers is an example. Theoretically, all of Colombo could be served by sewers, making gully bowsers redundant. But this is not realistic for most other areas.

What all this means is that the different suppliers of WSS services are not competitors in the normal sense; they are, to varying degrees dependent on each other though there are competitive elements. To have either the NWSDB or the LGA for the particular area play the role of regulator for other actors in inimical for the optimal functioning of the system. The complaint that the Karainagar PS was blocking the operations of a private water bowser operator, on which no conclusion can be reached, is evidence of the kind of dysfunction that affects the system when regulator and supplier roles are performed by the same entity.

Public health is a core responsibility of every LGA.[122] Provision of safe drinking water and management of waste are perhaps the most important and inter-related measures that can be taken to safeguard public health. There is no inherent reason for each LGA to operate its own water production and sewerage/septage disposal facilities. These facilities may be operated by large LGAs, clusters of small LGAs, or may be outsourced to state-owned enterprises, private entities, or PPPs. Because of the nature

[121] Until 1970, the Gal Oya Development Board performed the functions of an LGA and most state functions other than the Police. This was also the case with export zones under the BOI and its predecessors. The Port City will be outside the authority of an LGA.

[122] Some of the present LGAs are successors to the Sanitary Boards established by Ordinance No. 18 of 1892; others of the Local Health and Sanitation Boards established by Ordinance No. 13 of 1898.

of the market, it would be unusual for private entities not to partner with LGAs or with SOBEs, rather than operate alone.

In this complex eco-system, there may be instances when one actor has to take over the operations of another. There are many examples of LGAs or the NWSDB taking over the functions of CBOs that, for various reasons cannot continue to operate. The LGAs, if certain conditions are satisfied, appear best positioned to anchor the eco-system and take on such responsibilities. The roles of the different actors and the terms and conditions of any takeovers of functions, temporary or permanent, must be well defined and done with the approval and oversight of the regulator. Circulars have been issued by the NWSDB on how taking over the assets and operations of CBOs should be handled, but the testimony of some CBO representatives suggested that the rules are not being applied consistently. Consistency between the rules governing takeover of CBOs by the NWSDB and those governing takeover by LGAs would be good. Of course, consistent application of both would be even better.

The necessary condition for such a role is the existence of the appropriate personnel and capabilities within the LGAs. In Chapter 10, the need for capacity in the CBOs and the role that the DNCWS should play in building and maintaining that capacity was discussed. Though strong capacity existed in at least the major LGAs, there has been a significant attrition in recent years. As services provided by LGAs such as electricity and water supply were given over to SOBEs, the capacity within the LGAs as well as their revenues declined.

The transfer of the functions of the Local Government Service Commission to the Provincial Public Service Commissions in the aftermath of the 13th Amendment and the treatment of local government personnel as any other members of the provincial public service accelerated the decline. As reported by a Commission of Inquiry, "officers of Local Authorities with a sound knowledge of Local Government matters moved to other departments . . .. It appears that officers show reluctance to be attached to Local Authorities due to heavier workload, dislike of the immediate political leadership and involvement in additional responsibilities such as audit surcharges."[123]

It appears that none of the recommendations made by the Commission more than 20 years ago were implemented, possibly due to the political turbulence of the immediately following years. The identified problems remain and, in some cases, have gotten worse. The challenges of resuscitating the LGAs are many. But the story of Karuwalagaswewa PS completing its piped water scheme (in Chapter 2, Box 2.1) shows that the potential still exists.

11.1 Addressing the capacity constraint

Building or rehabilitating a water supply scheme or a septage treatment plant is a rare event. It is unrealistic to have inhouse capacity for such rarely undertaken activities. They have to be contracted out. But the writing of the specifications, the managing of the contractors, ensuring that the requirements are complied with, etc. requires technical competence. In the case of major construction projects contracted out by state agencies such as the Road Development Authority, the practice is to obtain the services of a different firm with technical capabilities as the consultant to supervise the contract. But procuring the services of such a firm and ensuring that it performs its duties diligently requires competence on the part of the principal. Such competence must be built up in a cell that can serve all LGAs and in the process accumulate further knowledge and experience. Because major projects

[123] Report of the Commission of Inquiry on Local Government Reforms 1999," Sessional Paper 1-1999, p. 22.

are undertaken at infrequent intervals, it will be advisable to locate the cell within central government institutions, either in the Ministry responsible for local government or at the Sri Lanka Institute of Local Governance (SLILG).

The operation of a water purification plant or a septage treatment plant requires technical personnel who should be full-time employees of the operating entity, be it the LGA or any other entity. In the case of LGAs, the Provincial Commissioner of Local Government should set in place systems for effective recruitment, training and career advancement for these personnel. Ideally, the problems described in the 1999 Commission of Inquiry will be addressed by restoring the Local Government Service Commission or an equivalent, but there is an urgent need for remedies, even if not ideal. As Amila Ratnayake, an engineer attached to the Uva Provincial Council explained, the shortage of technical personnel in LGAs is very serious.

Because staff can be transferred to other parts of the Provincial Council, it is important to ensure that provisions are made to ensure continuity of operations. Training resources may be obtained from the NWSDB as well as the universities which have developed water resource management programs, such as those in the Water Science and Technology specialization of the Mineral Resources and Technology degree at the Uva Wellassa University.[124] Internship programs and research collaborations can be used to contribute to the work in the universities and to ensure that their programs are responsive to the demands of the suppliers of WSS. This will also strengthen the recruitment pipeline for LGAs. Currently, most CBOs are operating with part-time personnel. It is unlikely that they can employ trained graduates, but perhaps the DNCWS can recruit them and provide the expertise to CBOs.

Effective management of WSS requires managerial and financial capabilities as well. The Sri Lanka Institute of Local Governance (SLILG) has been set up for this purpose. With the active engagement of Provincial Commissioners of Local Government, it can serve as an effective focal point for capacity development. Ideally, all training programs designed for LGAs will be open to CBO personnel as well.

11.2 Recommendations

Actions	To be taken by	Supported by
Formulate rules for takeover of CBOs by LGAs and make them consistent with modified rules for NWSDB takeovers of CBOs	Provincial Commissioners of Local Government	PUCSL
Establish a water/septage engineering expertise cell at central Ministry with responsibility for local government or at SLILG	Ministry with responsibility for local government	SLILG
Create systems for effective recruitment, training and career advancement for technical personnel working on water/septage tasks at LGAs	Provincial Commissioners of Local Government	Chief Secretaries of Provinces
Initiate internship opportunities and relationships with relevant university and TVET programs to recruit technical personnel	Provincial Commissioners of Local Government	
Serve as focal point for capacity development for water/septage/sewerage operations of LGAs	SLILG	Provincial Commissioners of Local Government

[124] A comprehensive survey of relevant degree or Technical and Vocational Education and Training (TVET) programs was not undertaken. This example is used because it was presented at the Uva consultation.